Information Technology as Ontology:
A Phenomenological Investigation into Information Technology and Strategy In-the-World

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*This dissertation is dedicated with love and gratitude to Margarida, my wife,
and to our children Ana, André and Fernando.*

Abstract

This dissertation offers a phenomenological approach to the comprehension of Information Technology (IT) and Strategy, and of the relationships between these two phenomena. We argue that in order thoughtfully to understand the manifold connections between IT and Strategy, their contradictions, shortcomings, and possibilities, one has to rely on the *essence* of each of these phenomena.

The rationale of this approach implies the need to make explicit the ontological assumptions on which the investigation relies. An essential uncovering of that which IT and Strategy are can only take place as long as we lay bare a primary position on the nature of *that which is*. Martin Heidegger's *Being and Time* and, to a lesser extent, the theory of *autopoiesis* are the foundations of this investigation. We claim that these theories are paradigmatically consistent and show relevant complementarities, namely in what concerns the issues of action, information, and knowledge. The matching of these two theories provides the ontological and epistemological grounds of the investigation. Within this fundamental setting we argue that IT and Strategy will only essentially show up as long as they are accessed *in-the-world* in which they are what they are.

The research applies the phenomenological method of investigation in its original form as developed by Edmund Husserl. However we extend the Husserlian formulation in a last phase by using the arguments of Heidegger on the opening up of possible *concealed meanings* of phenomena. The method sets the boundaries of the research. IT and strategy are phenomenological analysed not as empirical objects, events, or state of affairs, but as *intentional objects of consciousness*. These are formally indicated from the outset of the investigation as the *ITness* of IT and the *Strategyness* of Strategy.

The central conclusions of the investigation are that (1) IT is an ontological phenomenon, substantively penetrating the *being-in-the-world* we, ourselves, are; and, (2) Strategy, essentially *choosing to choose*, has been unfolding throughout History guided by the concealed meaning of a striving for an *authentic identity*. These essential notions uncover a complex set of relationships between the two phenomena. Those relationships are thus described and characterised. We also show that although phenomenology is not empirical its results have many important implications for the empirical world.

Key words: Information technology, information systems, technology, information, action, knowledge, replacement, strategy, authenticity, identity, globalisation, ontology, phenomenology, essence, Heidegger, being-in-the-world, autopoiesis, closed systems, theoretical investigation, interpretive research, qualitative research.

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We are now five. My wife, Margarida, our daughter Ana, who is 9 years old, our son André, who is 7 years old, Fernando, our youngest son, who is six months old the day when I write this page, and myself. To them, those within whom I am who I am, go my love, warmth and gratitude for their support and understanding throughout this work, which has engaged me for a substantial part of my waking life in these last four years. Thanks for being with me.

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Preface

Almost everywhere we go today we find information technology (IT). What does this mean? What is information? What is technology? What is information technology? In essence, what are these phenomena? What accounts for the way and the manners in which we engage ourselves with information technology in-the-world? Does it matter to question this? What are the criteria for this questioning?

Our answer, i.e., our thesis, grounds itself in the Western phenomenological tradition of the social sciences, questioning and thinking the most fundamental grounds in which we are what we are. This advices us to state at the beginning the contours of the investigation, thus its aims and possibilities, its boundaries and limitations.

In the Western scientific tradition, phenomenology is just one of the many possible ways of phenomena being researched. Furthermore, while approaching IT phenomenologically we acknowledge that we only pursue one of the many possible phenomenological ways into this experience, object, event, state of affairs, or phenomenon.

On account of the ways in which IT phenomenologically shows up at the beginning of the investigation, we decided that our work also should aim at the phenomenon of strategy, and at the essential relationships between IT and strategy. So what is stated about IT, in the paragraph above, stands for strategy as well. Strategy as such, as a notion or an idea, is investigated by a rigorous phenomenological analysis of literature that traditionally is pointed out as relevant within particular fields that deal with the phenomenon of strategy. These texts are taken as appearances, in the phenomenological sense, of the event under investigation. From a phenomenological standpoint there are other ways into strategy, which we do not pursue in this investigation.

As presented below (Chapter 2) phenomenology is foremostly a method of investigation, a manner in which what is investigated is handled (Husserl 1995, 1970; Heidegger 1962; Merleau-Ponty 1962). This manner aims at reaching phenomena, as they already are in consciousness, in their grounding and essential meanings. IT and strategy, as what they are in-the-world, are taken phenomenologically as *intentional objects of consciousness*. This phenomenological notion of the object of the research, a precise technical notion thoroughly presented in Chapter 2, sets the possibilities and the limits of this investigation.

To use a non technical language we might say the following: the object of this phenomenological research are the notions or ideas of <u>information technology</u> and <u>strategy</u> *as such*, as we already have experienced them, intuitively and most often in a non thematic manner. These basic ideas or notions are the primary intuition or criteria on the basis of which we recognise IT as IT, and strategy as strategy. These boundaries and limits of the investigation, we believe, only can be pointed out in a clear way by presenting in detail the phenomenological method of investigation and its technical notions and procedures, which

we do in Chapter 2. Nonetheless we think it is in order to address this issue at the up front of the dissertation.

While trying to uncover or to point out the grounding context and the uniqueness of the phenomena of IT, our phenomenological investigation does not give an account of the many situations, in our assumed empirical world, in which in organisations or in day-to-day life we involve ourselves with computers, televisions, phones, that is, with IT as collection of devices and objects. The object of this investigation is not any particular situation but rather the idea or criteria that enable us to recognise particular IT devices as belonging to that very same notion of IT – that is, *ITness* as such is the object of this investigation. As far as strategy is concerned, *strategyness* is the object of the investigation.

This does not mean that phenomenology would be unable to account of our involvement with IT or with strategy in particular empirical situations, but rather that our investigation has a different direction: IT and strategy as such, as intentional objects of consciousness, as the grounding notions against which a PC, a printer, a TV, or a mobile is recognised as IT; and, as the grounding notions against which particular actions, intentions, behaviour, or plans are identified as strategy. Phenomenology aims at reaching the initial and decisive meanings that constitute those founding criteria on the basis of which we recognise something as that which it is.

The reader of this dissertation should keep in mind these aims and boundaries of our phenomenological approach. She or he should not expect definitive questions and definitive answers. Phenomenology is not looking for final definitions and formulas, but rather to bring readers into a path where they can experience new contours and deeper meanings of phenomena, in many cases recovering their own personal experiences, as the questioning and answering advances and insights make sense to them as they are shown fully in their pertinence and relevance.

Our phenomenology, much in the way Heidegger, Merleau-Ponty and Husserl have used it, strives to indicate formally that most initial and fundamental experience of each one of us, when as individuals, we already are engaged in-the-world, and in so doing to enhance understanding of the phenomena of IT an strategy, hoping to transform us and so to change our coping in the world.

In this investigation questioning and thinking are thriving in a rigorous and detailed fashion, but also in a free and non-predictable manner. As Heidegger noted, one can never know where a non travelled path will take us. The phenomenological method of investigation proceeds by approaching the phenomenon under inquiry from different perspectives and different grounds. It implies going around the subject in circles, and approaching the phenomena in closer and closer manners, towards a final uncovering of its essence. On this account, as the investigation advances the readers should expect some repetition and reconsideration of findings already in place, although we have tried to keep that to a minimum.

Our thesis in spite of being placed in the scientific tradition of the Western world, or so we hope, is to some extent a rather unconventional one. We follow in a rigorous and detailed manner the phenomenological method of investigation as it was first designed and applied by the German mathematician and philosopher Edmund Husserl, and later developed and applied by another German philosopher Martin Heidegger.

The works of Heidegger are considered by a vast academic community the most central pieces of thinking of the 20th century. We aim at showing that Heidegger's (1977) clue in applying phenomenology to investigate the essence of modern technology can, and indeed should be picked up by contemporary research in IS. This investigation follows that clue, much in the way Heidegger himself implicitly suggested in the *Der Spiegel* interview in 1966 (published in 1976), by applying phenomenology to the phenomena of IT and strategy.

This research, however, is not just the application of pure phenomenology. In bringing together a clearly structured and sound phenomenological method and by applying it, we thoroughly attempted at bringing together coherently and consistently Husserl and Heidegger's phenomenologies.

We will provide a full and detailed account of the phenomenological method of investigation. In doing so we have two aims in mind: first, to make the way clear for the reader in which questioning and answering proceeds in the investigation; second, to provide an articulation of the method and its application, particularly that of chapter 4 into the phenomenon of IT, which might be useful for future research.

When investigating IT and strategy, we will follow the several phases of the phenomenological method rigorously. Yet, we should stress that the method is structured by thinking itself, much in the way in which thinking organises itself for itself. This investigation aims at recovering fully to the Western phenomenological tradition the fundamental questioning about technology, leading thinking into one of the most cutting edge areas of our lives, information technology and our going on engagement with its devices.

The path of phenomenology in organisational, management, and information systems research has witnessed important but few publications in the last decades, although they have been clearly growing in the last five years. In our investigation into IT and strategy we aim to show that phenomenology can lead to many important and useful insights that cannot be provided by any other method of investigation. We claim that phenomenology has much to offer in its application to contemporary phenomena that are setting organisational, economic, cultural, social and political agendas.

Introduction

> "Celebration…is self-restraint, is attentiveness, is questioning, is meditating, is awaiting, is step over into the more wakeful glimpse of the wonder – the wonder that a world is worlding around us at all, that there are beings rather than nothing, that things are and we ourselves are in their midst, that we ourselves are and yet barely know who we are, and barely know that we do not know all this."

Martin Heidegger[1]

A world that worlds around us. A world that is instead of is not. What does this mean? What does this call us to think of? Is the world that worlds that which is most evident for us? Do we notice that we notice that? Do we care that we notice? Do we question and do we think about that? Are we the beings who care for who we ourselves are? Are we the being-in-the-world for whom its Being is the issue?

This investigation is a phenomenological one, striving for questioning and thinking the most fundamental grounds in which we are what we. And what are we today? What *already* are we nowadays? What accounts in our times for our *be-ing* in this world? How do we *world* is the *worlding* of the world? Within this fundamental perspective, let us present an introductory account of the object, the theoretical grounding, and the method of this investigation.

In the world where once we found nature we find nowadays technology. Wherever we go we are using and surrounded by IT devices. Whether at the workplace, or at home relaxing with the family, or travelling, or engaged in entertainment, a growing majority of people find themselves increasingly involved with IT.

IT is characterising our engagement in the world (Castells 2000, Giddens 1999, Borgmann 1999, McLuhan 1994), through interaction with the personal computer (PC), surfing on the Internet, watching television (TV), talking on the mobile phone, or using any other of the multitude of IT devices. Information and communications technologies are the medium of our daily life (Feenberg 1999, Idhe 1990, Borgmann 1984).

TVs and PCs are two of the most distinctive IT devices whose pervasiveness has spread dramatically in recent decades. It is a long way from the BBC's showing in November 1937 of the first outside TV broadcast—the coronation of King George VI—with several thousand viewers, to the satellite pictures of the landing on the moon in 1969 carried to an estimated audience of more than 100 million viewers (EB), and to the funeral of Princess

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[1] *Hölderlin's Hymns "Andenken"*, in *Gesamtausgabe 52*, p.64 (Frankfurt and Main: Vittorio Klaustermann, 1976), in Polt 1999.

Diana in August 1997, with a TV audience estimated at 2.5 billion people (ABC), representing more than 40 per cent of the world's population.

The PC has spread even more quickly. By 1985, there were 90.1 and 36.4 computers per 1000 people in the USA and in the UK, respectively. Today those figures are around 580 and 441. Between 1985 and 2000, figures in these categories for all of Europe went from 14.3 to 248.9, and for the world as a whole from 7.8 to 90.3 (CI 1999). This pattern of invasion, and implicitly of *colonisation* (Habermas 1987) of the everyday world by TV and the PC is also significant in cultures and other regions of the world other than the industrialised West where the phenomenon is most obvious (Castells 2000).

However, the ways in which individuals, families, organisations, societies and humanity as whole is to respond or, more rigorously, to *correspond* (Heidegger 1977) to the growing pervasiveness of this new technology seems to be still far from clear. This investigation contends that the path of IT for the last half-century justifies the continuing need for a fundamental addressing of the cardinal question about the essential nature of IT. We submit that phenomenology offers a novel and relevant way of doing it, because it is a method of investigation designed to give access to the essence of phenomena (Husserl 1964, 1962, 1970; Heidegger 1962, 1978, 1977).

This dissertation aims to provide a better understanding of us through an inquiry into the significance of our increasing engagement with IT. Within this broad theme, and taking into account the contours that characterise the path of IT, in which it appears deeply entangled with the phenomenon of strategy, the specific research question of this investigation emerges: *How does IT affect strategy?* Acknowledging that the emerging of this specific research question is already part of the elucidation of the fundamental nature of IT, we will enter a full phenomenological analysis of the phenomena of IT, strategy and of the relationships between them.

Our investigation thus locates itself within the phenomenological tradition of the social sciences, aiming at an improved understanding of the human experience, and whose foundational references are Edmund Husserl (1859-1931), Martin Heidegger (1889-1976), and Maurice Merleau-Ponty (1907-1961).

Phenomenology, as a method of investigation, is currently used in a wide range of fields, such as anthropology, sociology, history, management, design, media, psychiatry, biology, mathematics, philosophy, and so forth. It has also been used in IS research (e.g., Boland 1978, 1983, 1985, 1991, 1993; Boland and Day 1989; Ciborra 1997; Dreyfus 1982, 1992, 1996; Winograd and Flores 1986; Zuboff 1988; Introna 1997, 1993; Haynes 1997; Kjaer and Madsen 1995; Porra 1999; Introna and Ilharco 2000). However, all these IS studies but the last one, use the phenomenological method in combination with other approaches, to some extent. This dissertation, in contrast, applies the phenomenological method in its

traditional manner—exclusively [2]. In doing this, it seeks to follow a Boland's recommendation in that "[p]henomenology is a preferred method for the study of information system not because it is exciting (which it is) nor because it is easy (which it isn't), but because it offers the best prospect for helping us understand their actual operation and significance" (Boland 1985:200; parentheses from the original).

For the last two decades IS researchers have argued for the need for using qualitative approaches, such as action research, ethnomethodology, and phenomenology, to complement quantitative approaches. In the 1980s most of the IS articles published in the leading journals of the field reported the results of quantitative studies (Lacity and Janson 1994). In the 1990s the qualitative researches gained some ground. Although other reasons apply, such as the tradition of the supremacy of exact sciences' methods, this disparity may be attributed to some unfamiliarity of the IS community, and indeed of a substantial part of the academic community, with qualitative approaches, particularly interpretive ones. For the case of phenomenology this motive might indeed be a strong one.

Phenomenology is still too much attached to its philosophical origins, namely the works of Husserl, Heidegger, and Merleau-Ponty. Yet this philosophical birth is characteristic not only of phenomenology but of all new scientific endeavours (Searle 1999). For the case of phenomenology, as Sanders (1982) commented when using phenomenology in organisational research, the relative newness of the technique, its dense and complex technical terminology, and the apparent absence of precise methodological procedures, contributed to impair a widespread usage of the method in many fields of the social sciences.

Phenomenology's cardinal works, namely Husserl' *Cartesian Meditations* (1995), and *The Crisis of European Sciences and Transcendental Phenomenology* (1970), Heidegger's *Being and Time* (1962), and Merleau-Ponty's *Phenomenology of Perception* (1962), do not give explicit and systematic accounts of the phenomenological methods applied. To a great extent the phenomenological technical terminology and central notions are presented only in their application within specific research issues. This critique is valid for the works of the phenomenological movement as a whole, which makes it difficult, if not impossible, for a contemporary researcher to have a sound and precise phenomenological method of investigation to base his investigations without thoroughly have gone through at least a few phenomenological chief works.

Yet, the phenomenological method of investigation almost for all the 20th century seems to have been a clarified and unproblematic issue among phenomenologists. Its phases and technical notions were part of the shared background of the phenomenological movement, on the basis of which researchers address different problems and issues. It was Herbert

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[2] As far as we know, this investigation would be the first Ph.D. effort in the IS field of research which applies the phenomenological method in its traditional manner, and without any other complementary methodological approach.

Spiegelberg (1904-), in the 1990s, with the work *The Phenomenological Movement: A Historical Introduction* (Spiegelberg 1994), who firstly attempted a clear and systematic presentation of the several phases, and their respective steps, of the phenomenological method of investigation.[3] Unquestionable valuable (Biemel 1980, Mays *in* Hamrick 1985), this work of Spiegelberg presents a formal account of the phenomenological method as it was firstly developed by Husserl and later on changed slightly by Heidegger.

As many other methodological procedures the phenomenological method has a core of central traits, which have been used in all phenomenological investigations. On accounts of the specific issue under inquiry, other features might be used as they show up useful to the investigation. We follow the traditional phenomenological method, making the options we consider more appropriate and beneficial for a phenomenological investigation to be pursued in the IS field of research. So, within this broad context, we hope our exclusively phenomenological approach will provide a significant methodological contribution to the IS field.

To answer our research questions phenomenologically implies not only the application of its method of investigation to IT and strategy, but also a need of making explicit the background assumptions on which our inquiry relies. While hiding in themselves core ontological and epistemological claims, the background assumptions must provide sound and consistent foundations for the path to be travelled.

This investigation is based ontologically on Heidegger's phenomenological investigations into humanness, the remarkable *Being and Time* (Heidegger 1962), and on subsequent theoretical developments his work has had in social sciences. The theoretical foundations of the investigation are complemented by the biological theory of *autopoiesis*, which has been developed since the 1980s by Humberto Maturana and Francisco Varela (Maturana and Varela 1980, 1992). Autopoiesis is taken as a paradigmatic development in social sciences, fundamentally consistent with Heidegger's findings. We claim that these foundations open the possibility for accessing the phenomena of IT and strategy in new meaningful ways.

The dissertation moves in a context of fundamentally thinking about IT, admitting both the *value-owning* of technology and the relevance of *human agency*. This perspective belongs to a Western tradition of thinking about technology whose main references are the Frankfurt School in the 1920s, Oswald Spengler (1880-1936), Ernst Jünger (1895-1998), Heidegger, Marshall McLuhan (1911-1980), Jacques Ellul (1911-1980), and more recently

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[3] Herbert Spiegelberg is a reference of contemporary phenomenology. He was born in Strasbourg in 1904 and studied in Freiburg for one semester with Husserl. He wrote a doctoral dissertation that appeared in the last volume of the *Jahrbuch für Philosophie und phänomenologische Forschung* (1913-1930)—*Yearbook of Philosophy and Phenomenological Research*, under the direction of Husserl. Walter Biemel in *Encyclopaedia Britannica* (1980:630) classifies Spiegelberg's *Phenomenological Movement* (1994) as the "movement's first encompassing historical presentation". Wolfe Mays (Hamrick 1985:viii) considers Spiegelberg's reference work as an accomplishment that continues to "serve well into the 21st century".

Jürgen Habermas, Albert Borgmann, Hubert Dreyfus, Michael Zimmerman, Don Ihde, Langdon Winner, Lucas Introna, and others.

From a wider perspective this investigation belongs to the context of social sciences, in which there has been growing a century-old tide towards overcoming the Cartesian split that has dominated philosophical and scientific inquiries since the 16th century. Our matching of Heidegger and autopoiesis, which intends to progress on that growing course, is thus rooted in an intellectual tradition of Western thought whose central references in the 20th century are, besides Husserl, Heidegger, and Merleau-Ponty, referred to above as founders of the phenomenological tradition of the social sciences, Jean-Paul Sartre (1905-1980), Ludwig Wittgenstein (1889-1951), William James (1842-1910), John Dewey (1859-1952), Emmanuel Levinas (1906-1995), and others.

The dissertation is divided in **Part I – Grounding**, which has two chapters, and **Part II – Development**, which has four chapters, and the Appendices to Part I.

In Part I, Chapter 1 reviews relevant literature on the path of IT for the last fifty years, and claims the pertinence of an ontological grounding for the investigation into IT and strategy to proceed. Chapter 2, in Part I, introduces phenomenology, characterises its key concepts, and presents the method of investigation to be applied. The Appendices to Part I introduce Heidegger's (1962) findings on humanness, and Maturana and Varela's (1980, 1992) theoretical biology; they also show that these two bodies of theory are ontologically and epistemologically consistent.

In Part II, Chapter 3 matches and develops those two bodies of theory in what concerns issues particularly relevant for our quest, such as action, meaning, information, and knowledge. Chapters 4 and 5, taking into account the ontology and the theoretical development on which the investigation relies, present our phenomenological account of IT and strategy, respectively. Finally, Chapter 6 concludes by bringing together our answers to the research questions presented throughout the dissertation, centred around the key enquiry *How does IT affect strategy?,* and expands into the theme of the empirical implications and consequences of our findings.

Our analysis aims at giving an essential account of the phenomena of IT and strategy, as they are, in their very *ITness* and *strategyness*. We follow Heidegger's argument in that these phenomena will only show themselves as IT and as strategy in their very working in the world, where they are what they are. This dissertation shows that this kind of phenomenological analysis provides many insights about the ITness of IT and the strategyness of strategy that cannot be gained through any other method of investigation. It also shows that, although phenomenology is not itself empirical, its results have many important implications for the empirical world.

Part I
GROUNDING

Chapter 1
An Ontological Grounding

The sun is the prince of shadow.[4]

André, 3 (1998)

To set forth something presupposes much more. "Every inquiry is a seeking. Every seeking gets guided beforehand by what is sought" (Heidegger 1962:24). The way in which we previously grasped and experienced what is sought is grounded on implicit ontological and epistemological assumptions. These fundamental beliefs on the nature of world, man, and knowledge prepare from the start the kind of findings any seeking can achieve (Heidegger 1962, 1978, 1982, 1984, Merleau-Ponty 1992, Husserl 1970, 1970b, 1982). This means that a full uncovering of what is sought must make explicit the ontological and epistemological basis on which it relies.

This investigation is guided beforehand by an already experienced need of clarifying the relationships between the phenomena of IT and strategy. This chapter is designed to clarify the way in which this problem showed up to us, and the grounds on which it will be dealt with in this investigation.

In section *1.1. An Ontic Account of IT* we establish the contours and the relevance of the problem addressed, by reviewing important literature on the trajectory of IT in organisations over the past half century. This review encompasses key concepts, techniques and methodologies in their accepted usage within IS and management research. It addresses multiple aspects of the phenomena of IT and strategy strictly from an *ontic* perspective—that is, taking at face value the notions of strategy referred, and accounting for the functioning of IT within the empirical handling of the *this-ness* or *that-ness* of a PC, TV, or any other IT device. No fundamental inquiry into the nature of IT or strategy is performed at this stage.

Section *1.2. An Ontological Recovering* claims the primacy of ontology over epistemology. Trying to show the relevance of this movement for the investigation, we introduce key ontological claims of our thesis. By making explicit what is presupposed on the nature of

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[4] On a late afternoon in 1998 as the sun set in the city of Lisbon, my wife was driving home in her car. Our 3-year old son, André, sat on the back seat, looking out of the window. As my wife drove through a tiny entanglement of streets and small hills, the rays of the sun and the shadows alternated as the car moved. This led André to exclaim, in his Portuguese mother tongue, the expression used as the introductory quotation of this Chapter: "*O sol é o principe da sombra*". This is one of four references in our dissertation to conversations and sayings of our children, Ana and André. They are included not because of who they are, which for me would be quite enough, but because the words and behaviour of children can highlight with striking simplicity the essential contours of the kind of being we ourselves are—and the search for those contours lies at the heart of the theoretical foundations on which this investigation relies. Our younger son, Fernando, is by now 2 months old, and besides the world my wife, Ana, André, and I share with him in his ohê-ohê and always surprising behaviour of absorbing practices and comportment, I want to refer those involving first smiles he presented us while in his second week of life. By the end of this chapter we return within a deeper context to Andre's opening quotation.

world and man, we move away from the taken-for-granted assumptions that characterise the "natural attitude" (Husserl 1970), which pre-empt us from accessing the phenomena addressed in their essential nature. This outset opens up a way for a fundamental account of IT and strategy.

Our ontological recovering and the way in which the contours of the problem addressed emerge in section 1.1. consistently support the pertinence of this investigation being a phenomenological one. Section *1.3. A Grounding Questioning* analyses the meaning and the ontological implications of our questioning, opening the way for a substantive introduction of the theoretical basis of this investigation—Heidegger's findings on humanness and the biological theory of autopoiesis.

1.1. An Ontic Account of IT

The way IT transforms organisations, markets and everyday lives has been a constant preoccupation since the 1970s in management research in general, and in the IS field in particular. Over US$4 trillion was invested in IT between 1960 and 1995 (Landauer 1995). Capital improvements and maintenance now consume over US$1 trillion a year (Gibbs 1997). The total figure for IT spending over the past forty years must now be around US$8 trillion. During this period, human activity in the world, in organisations in general and in businesses in particular, have been adapting to this gigantic challenge.

However, a review of the literature about the introduction and appropriation of IT in organisations over the past fifty years reveals no clear picture of the effects of IT on strategy, on organisational structures, processes, or capabilities (Sauer and Yetton 1997, Robey 1981, 1997, Markus and Robey 1988, Swanson 1987, Attewell and Rule 1984, Huber 1984, Kling 1980). This literature implicitly begins and ends with the same basic question, to which no consistent answer has been provided: *What is IT?*

The ways in which individuals, families, organisations, societies and humanity as a whole are to respond or, more rigorously, to *correspond* (Heidegger 1977) to the growing pervasiveness of this new technology seems to be still far from clear. This investigation contends that the path of IT in organisations, reviewed below, justifies the continuing need for a fundamental addressing of the cardinal question about the essential nature of IT. Phenomenology will be shown to offer a novel and relevant way of doing it.

The use of computers in business started in the 1950s, but only became of widespread relevance by the mid 1960s, with the introduction of multi-purpose mainframe computers in a substantial number of firms. Advances in processing speed, cheaper memory, more reliable magnetic disc and tape storage, and better programming languages made mainframes a viable option for many applications, in many organisations (Ward, Griffiths and Whitmore 1990).

The tide turned in favour of minicomputers in the early 1970s (Drury 1983). Ever-increasing technological power and sophistication became available for a new generation of applications. These targeted only clerical operations, so they weren't initially of much interest to management (Gibson and Nolan 1974, Nolan 1979). Computers typically entered companies in an *ad hoc* manner (Galliers 1991, Somogyi and Galliers 1987, Hirschheim, Earl, Feeney, and Lockett 1988, King and Kraemer 1984). The implicit, and sometimes explicit, message was that technology itself would create the change. Strassman (1985) showed this was indeed the case, but with outcomes that came about through many unintended changes that did not deliver real business benefits to the companies involved.

As the PC became increasingly cheaper and more popular, with more and more applications reaching the marketplace, IT penetrated organisations more deeply. According to Anthony's (1965) structure for information systems, these initial applications were strictly operational: order processing, tracking shipping documents, vehicle scheduling and loading, invoicing, sales and purchase ledgers, cost accounting, stock control, shop floor scheduling, bill of materials, purchase orders, employee records, payroll, word processing, and so on. In this stage, which Nolan called *contagion* (Gibson and Nolan 1974, Nolan 1979), IT was led mainly by the high expectations of its users, without much management control. This is the *Ad hoc* phase of the penetration of IT in organisations (refer to Table 1.1).

Table 1.1. **The Five Phases of the Path of IT in Organisations**

Phase	Years	Rationale
Ad Hoc	1960s/1970s	*IT enters the organisation and is used in ad hoc ways*
Vertical	mid 1960s/1970s	*IT accelerates and automates existent functions and tasks*
Strategic	late 1970s/to date	*IT is a facilitator of the implementation of strategy*
Horizontal	late 1980s/to date	*IT is an enabler for the redesign of the horizontal processes*
Exploitative	mid 1990s/to date	No clear direction

Management took new and direct control over the introduction of the technology when IT-related expenditure increased significantly (Earl 1989). For a decade from the late 1960s, IT became more of a cost concern, so was kept under increasingly close monitoring as companies targeted the use of their new systems at bringing greater efficiency to current operations, within existing vertical hierarchical structures. Business processes and the functions and tasks of managers and other professionals remained as they were, except that the computer accelerated and automated many of them. For example, computers could calculate and print an invoice in seconds. This approach is indentified as the *Vertical* alignment phase.

In the late 1970s/early 1980s, management were particularly concerned both about the control of costs and the need to ensure that IT projects would show a measurable return. Managers noticed that vast amounts of information about customers, suppliers, transactions, people, money, materials, and other factors were stored in computers all over the organisation. This seemed to open substantial opportunities for using new computer applications to improve the business. The prospects seemed very high, both at the level of *control*—sales analysis, budgetary control, management accounting, inventory management, quality analysis, expense reporting, supplier analysis, etc.—and at the level of *planning*, such as in sales forecasting, operating plans, capacity planning, profit/earnings' forecasts, business-mix analysis, manpower planning, and financial modelling.

As computing costs continued to rise, there soon emerged a *transition point*: the integration of systems and databases for the benefit of the business. This point, where control and integration were directed to meet the interests of management better, marks the passage from the stage of *control* to the stage of *integration* in Nolan's 1979 model. It has also been identified as the transition from a *data processing* to a *management information systems* (MIS) era (Galliers 1991). "In essence it is a fundamental change in how IS/IT resources are to be managed, and how the role of IS/IT in the organisation is to be evaluated" (Ward et. al. 1990:5).

The promise of MIS was enthusiastically received (Ackoff 1967), but it has not lived up to expectations (Introna 1997). As systems and data bases were increasingly integrated, the volumes of data reaching management desks soared; Ackoff (1967:B148) observed: "I have seen a daily stock status report that consists of approximately six hundred pages of computer printout. The report is circulated daily across managers' desks". Despite huge investments in IT, managers were amassing irrelevant data, while struggling to find relevant information (Wiseman 1985).

The MIS vision did not reflect reality because the structures, norms, routines, behaviour, and attitudes of the traditional organisation did not match the unknown logic of how the new technology operated. Previously computerless organisations were simply not coping with the informatisation of their processes, functions, and tasks (Davenport 1993, Hammer 1990, Hammer and Champy 1993). In addition, the complexity of the real world was not captured accurately in the models that had made a considerable impact on the design of the IS/IT function, of which Nolan's was the most influential (Drury 1983). Wiseman (1985) suggested that the widespread use of Nolan's model inhibited a wider strategic use of IT until the late 1980s.

In what has traditionally been called the MIS period, the application of IT in business continued to be introduced mainly under the rationale of vertical alignment. Yet a new approach to the phenomenon of IT in organisations was gaining ground. Business competitiveness was taken as the key driver of the acquisition and absorption of IT (McFarlan 1984). Management tried to ensure this happened by attributing to IT the role of

facilitating the implementation of business and corporate strategies. Many techniques were proposed in order to achieve the desired result, including: competitive forces analysis (Porter 1980, Porter 1985, Porter and Millar 1985, Cash and Konsynski 1985), critical success factors (Rockart 1979), value chain analysis (Porter 1985, Porter and Millar 1985), strategic grid of applications (McFarlan 1984), the Nolan/Seven Ss model (Sutherland and Galliers 1989, Galliers and Sutherland 1991), industry and product life cycle (Synnot 1987, Higgins 1985), business portfolio analysis (Ansoff 1968), generic business strategies (Porter 1980, Wyman 1985, Large 1986, Porter and Millar 1985, Parsons 1983), accessing IS opportunities (Rackoff, Wiseman and Ullrich 1985), the resources/potential model (McLaughlin, Howe, and Cash 1983), and resource life cycle analysis (Ives and Learmonth 1984).

Among these techniques, the competitive forces' analysis gained widespread management attention. The introduction of this analysis to the IS field applies the work of Porter (1980, 1985) to the deployment of IT to business competition. It focuses the attention of managers on the use of IT to improve the firm's positioning in relation to the five competitive forces identified by Porter, through a trying of answering questions as such: How would IS/IT raise the barriers to entry, or reduce them for the case of a new entrant? How can IS/IT help to tie-in customers? How can IS/IT change the basis of competition? How can IS/IT alter the balance of power between the firm and its suppliers? How can IS/IT generate new products?

Many experiences with IT implementations that were examined from this perspective provided classic, extensively-documented case studies of successful strategic alignment of IS/IT (Large 1986, Wyman 1985, Wiseman 1985, Ward et al. 1990). These include: the SABRE reservation system of American Airlines (AA); the direct terminal based ordering system of American Hospital Supplies (AHS); Thomson Holidays' high street booking system; Merryl Lynch's cash management account system; the stock management hand-held terminal system provided by McKesson to pharmacists and druggists; and the telemarketing support centre of General Tire.

The analyses and logic underlying models offering a linear and clear alignment of IT with strategy were captured in Earl's (1989) proposal that business strategy determines information needs, and these needs in turn determine hardware and software options. Earl's 1989 model starts by expecting business strategy to determine the kind of information the company needed, in order to establish directions for the handling of IT. Then, the model identifies as *IS strategy* the function that determines the response to the business strategy in terms of the main general IS/IT requirements, such as the kinds of applications to be implemented, their features and priorities, and the overall IT acquisitions policy. Lederer and Sethi (1988:445) describe this as "the process of deciding the objectives of organizational computing and identifying potential computer applications which the organization should implement". IS strategy, in its turn, determined the needs and priorities

for the effective technological delivery at a second level in the IS/IT spectrum: the *IT strategy*. The question of how IT can help to implement strategy was concretely answered in hardware and software terms at a third level. In summary, this model claims that business strategy sets the directions; IS strategy establishes the demand of information; and, IT strategy delivers the technologies of support. The model is the paradigm of the *Strategic* alignment phase.

That IT should be aligned with the business makes such an obvious sense that strategic alignments models have rarely been questioned up to the early 1990s (Sauer and Yetton 1997). Was anything wrong with that solution? At a general level, any competitive advantage gained when it worked well was quickly eroded because the approach was soon copied. IS/IT then became a common baseline for competition in an industry. What had seemed to be a competitive advantage turned out to be a new basic condition for competing in a particular business sector. However, something was also going wrong at a deeper level.

The strategic alignment ideal did not take into account the direct and significant impact IT was having on business and corporate strategies, for example by changing industries' boundaries, market segmentation, geographic areas of competition, and cost/differentiation trade-offs. Vital business options were being affected by IT directly, without managers' explicit attention. It had became difficult to separate IS/IT strategies from business strategy *per se* (Ward and Griffiths 1996). The IS strategy function was not really being aligned by business strategy; IS was actually becoming *an aspect* of the business strategy (Galliers 1993). In many cases, it would be more correct to say that it was the IS strategy that was aligning both business and IT strategies. IT not only had a strategic impact, but could be said to have become the strategy itself.

This unresolved attempt to align IT/IS and business strategies is still being addressed, and might never have an answer if its key assumption that IT is essentially a tool remains unquestioned. When IT is seen as a tool, and nothing but a tool, it is supposed to be aligned with corporate and business strategies. This pre-empts IT from being *already-in* the organisation, because alignment means bringing into submission what is strange and foreign to the organisation, whose identity must be established before the alignment can take place. But, paraphrasing Heidegger (1977), suppose IT is not merely a tool?

In some cases the strategic alignment model seemed to have worked the way it was supposed to; but its success proved difficult to be copied fully. This puzzle was clarified to some extent by the time the notion of *IS strategic alignment* was formally introduced in the literature, through the study carried out by the MIT project *Management in the Nineties* (Scott-Morton 1991). This argued that the overall effectiveness of the new technology "will be seriously slowed down if we do not invest in learning about change and its management in the context of IT" (Benjamin and Scott-Morton 1992:138). These themes of organisational implementation and the management of change in the context of IT gained widespread prominence in the 1990 (Galliers 1993). Earl (1996) revised his model of

strategic alignment to bring organisational and personal contexts to the intricate set of linkages that accounts for the effective absorption of IT by the organisation. The major novelty of Earl's new proposal was that the model was not prescriptive, but *observational*. The model identifies key factors that must be taken into account when trying to integrate IS/IT and the organisation.

The effective use of IT in business has for long been related to the subject of the management of change (Pettigrew and Whipp 1993, Applegate, Cash, and Mills 1988). IT-induced change in organisations can take place at distinct levels—operational, tactical, and strategic—which tend to accumulate and radicalise as organisations realise and absorb more and more of the potentialities and capabilities of IT, as well as IT hardware and software (Venkatraman 1991, Davenport 1993). Despite the formulation of many blueprints on change management, little attention was given to the issue of the fundamental nature of the phenomenon that was, and is, inducing the change.

When it was becoming clear that strategy was incapable of satisfactorily aligning IT, a new proposal appeared. Pioneered by the work of Hammer (1990), Hammer and Champy (1993) and Davenport (1993), an extensive body of literature began to develop in the *reengineering*, or the *process redesign*, approach to the introduction of IT in companies. This view advocated that the traditional functionalist organisation, much in the manner of Tayloristic management (Taylor 1914), was unfit to absorb IT. The proposal was to focus on the needs of markets, that is, on the output of the company, and then taking into account the possibilities and potentialities of IT to redesign the few cross-organisation horizontal and central processes that constitute a company's activity, such as order fulfilment, new product development, or customer care. The organisation of work had to be thought anew, using guidelines that often broke radically from traditional management and IS concepts.[5] This is what we call the *Horizontal* phase.

Process redesign eventually had a relevant impact on organisations, which is still being felt now. Nevertheless, the kind of change it promised was never fully realised in practice. Process innovation involves thinking about "organisation boundaries in new ways that involve major, large-scale organisational change" (Davenport 1993:167). Both individuals and organisations show organic resistance to change, on account of the structural need to maintain themselves as they are, for themselves (Maturana and Varela 1980, 1992). Thus, resistance to change slowed the impact of this proposal. Horizontal alignments cannot escape the identity, culture, and specific situation of the organisation in which they are supposed to take place. The resource-based approach explains this important limitation by claiming that IT will provide sustainable competitive advantage only when the organisation

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[5] For example: information can appear simultaneously in as many places as it is needed; a generalist can do the work of an expert; businesses can simultaneously reap the benefits of centralisation and decentralisation; decision-making is part of everyone's job; field personnel can send and receive information wherever they are; things tell you where they are, and so forth (Hammer and Champy 1993:83-101).

as a whole achieves a distinctive ability to use it (Mata, Fuerst, and Barney 1995). Magalhães (1999), who on IS grounds works out Ghoshal and Bartlett (1998) proposal on the three vital processes that characterise the management of an organisation— the renewal, the integration, and the entrepreneurial processes (ibid.)—stands for the same conclusion: sustainable competitive advantage is founded on organisation wide IS implementation.

Here we should say that the five phases in which we organise the path of IT, obviously do not apply within the same time frame to each and every organisation. Table 1.1 shows an overview of the phenomenon at stake, and should be understood as indicative for the path of IT in general. For the particular organisation each one of the phases referred might begin and end somehow before or after the years stated. Furthermore, the intensity in which each organisation is involved in a particular phase varies in accordance to the specificity of the case.

From *ad hoc* entrance and vertical alignment, to strategic and horizontal alignments, IT's central message seems to be a call for organisations to transform themselves more or less radically. Henderson and Venkatraman (1993) urged companies to transform themselves in facing the new world that IT is bringing to business. Yet, as referred above, how an organisation sees itself, and functions as a discrete entity, sets obvious limits to transformations. Even if that were not the case, the key question would be: A transformation towards what? On the grounds of what?

The conception of infrastructure might provide some help. While appealing to Heidegger's (1997) notion of *Ge-stell,*[6] as the essence of technology, Ciborra (1998, 1997) suggests the concept of *infrastructure* better captures the relevance of IT in a contemporary business environment. "Infrastructures as formative contexts show a pasted-up nature, and a makeshift one, where old and new systems, artefacts and practices (automated and manual) are tested, discarded, retrieved, collated and combined over time. Typically infrastructures are subject to 'shift and drift' phenomena" (Ciborra 1998: 316; parentheses from the original). The completion of IT projects tends to be delayed, which leads to their costs not only tending to grow significantly, but also ending up with a quite different distribution from the way in which costs were originally planned (Peppard 1993, Farbey, Land, and Targett 1993). IT implementations completed according to plan seem to be exceptions to the general rule. Yet, this conclusion tends to overlook that engineering-based projects in general do not go according to plan. After all that is the most apparent reason for the rising of modern management in a technological world.

This *Exploitative* phase of the impact of IT in business witnessed important transformations in the late 1990s. The rankings on competitiveness suggested a widening gulf between new "information and communication activities" (Chakravarthy 1997) and the more traditional

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[6] The Heideggerian concept of *Ge-stell,* to be introduced in the Chapter 4, clarifies fundamental characteristics of the IT infrastructure, which need to be taken into account in order to avoid an *a priori* excluding of the possibility that IT aligns management.

ones (Kahn 2000). Referring to the ranking 'Fortune Global 500' at the end of the 1990s, Kahn (ibid.) commented that "companies in cutting-edge industries such as telecommunications, computer technology, and pharmaceuticals again trumped those in mature sectors such as steel, chemicals, and autos". He added that "the two software companies on the list [Global 500], Microsoft (n. 216) and Electonic Data Systems (n. 235), made a combined [US]$8.2 billion [profit] in 1999. During the same period, the ten metal firms in the Global 500 lost a total of [US]$245 million, one of the worst performances of any industry." Yet, in the mid-2000 the NADAQ index started a fall that wiped out 70 per cent of its value in less than a year. This huge correction is followed by many dotcom companies going out of business, mainly on account of not having clear business models. Still, many leading Internet-based or related companies survived, and kept their positions in the overall competitiveness rankings, such as Microsoft, Oracle, AOL, Amazon, SAP, Yahoo, Cisco, Ebay, Sun, HP, and many others, namely telecommunications providers, and mobile phones' networks. This tells us that major changes took place outside existing companies. In a Darwinian sense, the new companies being born were better adapted to a new environment, much in the way Henderson (1989) suggests Darwinism is relevant to business strategy.

By the time the dotcom bubble burst the tide of change had already reached the so-called brick-and-mortar businesses, which were increasingly harnessing IT to achieve greater productivity. Companies such as Merril Lynch, Toys r Us, Wal-Mart, Barnes and Noble, and many others attempted to transform their operations to support digital business models (Kalakota and Robinson 2001). At the same time Internet-based companies started to look to the strenghts of brick-and-mortar companies, namely the localised inventory, the in-store shopping experience, the immediacy of buying, the service, so they might improve their business models, which enhance infomediation, speed, personalised content, and automation (ibid.). This state of affairs is currently captured in the so called click-and-brick trend, a "hybrid online/offline business model incorporating both physical and online business practices" (ibid.:82). Physical stores and ecommerce, face-to-face relationships and Internet convenience, are now key factors for companies to try to involve and keep their customers.

The Internet infrastructure and the ways in which it is being used as a distribution and a relationship channel is questioning the traditional boundaries of many industries. Chakravarthy (1997) contended that IT made many traditional industry boundaries disappear in relation to information and communications activities, which are quickly becoming the economical base of Western societies (ICT 2001, DE 2000). Chakravarthy added (ibid:69): "coping with the resulting turbulence calls for a new approach to competitive strategy", whose primary driver should be context awareness and a "guiding philosophy—a broad vision of the opportunities that the firm seeks to participate" (ibid.:82). Success "in the end is determined by industry forces outside the firm's control. 'Go with

the flow' is not an inspiring strategy but perhaps the best a firm can do when confronted with turbulence" (ibid.:81). No big, overarching plan is guiding the deployment of IT (Ciborra 1998). "Actually the no plan/no strategy attitude seems to be most favourable to let the directions and issues of Web use emerge: the process is not mature enough to be managed; it is still a 'discovering' stage" (ibid.:324).

Nonetheless there are some key specific directions that seem to constitute the framework of this discovering stage. Perhaps the most surprising of all is that apparently software is turning into something close to a commodity. On account of IT's growing complexity, the scarcity of IT professionals, the need for companies to focus on their core business processes, and the fast pace of technological change, companies have *de facto* opted for not making but buying software (Kalakota and Robinson 2001). Complete package solutions for the ITation/Internetisation of companies, such as those from SAP, Microsoft, Oracle, Siebel, and PeopleSoft, have been experiencing double-digit rates of penetration in both new and traditional businesses (ibid.). These solutions offer a technological infrastructure but they do not offer *per se* the business value that companies are pursuing. Management still has the crucial function of getting things done, that is, to integrate effectively those solutions in the organisational structures and practices, and maximise the company's profits. This case is supporting the emergence of a new generation of software applications, mostly focused on customer relationship management (CRM), and on extracting intelligence from the huge amount of operational data generated by the IT infrastructure. This kind of application envisages not only operations but strategic options of the firm, such as the segmentation and fragmentation of markets, the customisation of products and services, the differentiation of the services provided, a permanent and intense relationship with the customer, the spotting of opportunities, and so forth.

As an indication of possible ways in which the absorption of IT could be enmeshed with the revision of strategic doctrine, as pointed out in this section, it is relevant, very briefly, to refer to recent developments in the military field. A quick review suggests that IT is deeply implicated in some principles that may be forming a new body of theory around four overarching themes: *identity*, *immediacy, prevention*, and *initiative.* These join at the decisive level of IT and strategy, where the front-line is replaced by an identity that relies on information and communication systems (Air-Land Battle USAF Manual, quoted in Toffler 1993). Immediacy relates to the "come as you are" principle, which states that there is no time to recognise threats gradually; recognition is response (Steele 1997). Prevention is significant because the preliminary stages are taken as crucial; it is where the game is to compete to define the rules of the game (Crawford 1997). The initiative dimension is decisive; while attacking or defending who takes the initiative gains advantage (Nye and Owens 1996, Arquilla and Ronfeldt 1997).

This analysis of relevant literature on the absorption of IT not only questions the assumed fundamental nature of IT as tool, but points to some kind of a contextual role the new

technology might have. The current discourse about IT developments, in which IT seems to be creating a new reality, points to a possible background-ness that the phenomenon of IT might embody.

After US$ 8 trillion on capital investments and maintenance, "the benefits of IT continue to be more potential than real for most organizations" (Sauer and Yetton 1997:27). One might reasonably expect that the examples of major strategic gains from IT innovative applications would be rather common. On the contrary, large-scale failures, such as the London Stock Exchange's 'Taurus' or AA's 'Confirm', are much more common (Sauer and Yetton 1997:28). Some of the widely known cases of success are strictly *ex post* analysis.

Ciborra and Jelassi (1994) reconsidered some of the successful cases of IT strategic alignment referred to above. They concluded that such cases emphasise the discrepancy between ideal plans and the realities of implementation. For example, the AA's SABRE system was originally not conceived as a distribution channel to create entry barriers for competitors while tying in travel agents, which is what it turned out to be. Instead, it was planned to be a simple inventory management system addressing the relative inability of AA, compared to other airlines, to monitor the inventory of seats available.

The SABRE case is illustrative of another important insufficiency of the strategic alignment model: no one reallly knows why some initiatives apparently did succeed; not even the organisation where it all took place. How else can we explain American Airlines's resounding failure with its Confirm project after the celebrated success of SABRE? Confirm was an attempt to build a tourism reservations system to incorporate air travel, hotels, and car rentals, which was abandoned after a three-and-a-half years at a cost of [US]$125 million" (Sauer and Yetton 1997:xv).

The AHS initiative started as a local response to a single customer. An *ad hoc* solution, firstly based on pre-punched cards, gradually emerged as the notion of linking all the customer hospitals through touch-tone telephone lines. At McKesson's, the former IS manager admits that "behind the legend" there was a simply local initiative. The system was not developed as a facilitator or an executor of business strategy; rather it was the outcome of an evolutionary process which included the use of systems already in place. The "conventional perspective on hierarchical MIS was not only responsible for initial neglect of the new strategic applications within McKesson, but also, subsequently, slowed down the company-wide learning process which could have led to the global redesign of McKesson's information system" (Ciborra and Jelassi 1994:11). Sauer and Burn (1997:93-111) claim that instituuing "large numbers of small IT projects will maintain adaptiveness better than implementing large, one-time strategic projects".

In line with this critique the relevance of local practices in absorbing and exploring the potentialities of IT has been pointed out as being central to an understanding of the strategic

value of IT. Argyris (1987:103) argues that, at the point of action, information systems "tend to reward concrete thinking, intuition, private verifiable rationality, closeness of the individual case, and inferring personal responsibility from concrete specific process". This logic, which is comparable to that of Introna's (1997) 'involved manager', needs to be taken into account because the phenomenon of alignment is emerging from the field, and not from the models (Ciborra 1998). Furthermore, Ciborra (ibid.) contends that local practices and some characteristics of the IT infrastructure do not rule out the possibility that technology is aligning management.

Coombs (1997:231-255) comes in support of this possibility. He claims that "IT can not be *known* as such, as if it were a given and readily understandable object" (ibid.:252). Rather it is made known through the deployment of initiatives, reports, consultants, vendors, 'how to' guides, system development methodologies, academic texts, new hardware and software, and so forth. That is, what IT is is grasped as it is absorbed by the professionals of the organisation, and by its suppliers, partners and clients, in their practices, routines, and particular involvement. All these aspects, within the continuous balance of power, shape IT and are shaped by it. The phenomenon of IT does not have to do primarily with hardware and software, "but with the way the organization is portrayed to the users through the terms and concepts that the system employs as everyday language. These terms and portrayals of reality actually create the reality" (ibid.:254). Coombs suggests that the most critical feature for the absorption of IT by organisations is the picture of the organization that it requires the user to accept. This picture affects compliance, resistance, and creativity (ibid.:255).

This contention is in line with the findings of our phenomenological investigation in what concerns the fundamental nature of IT, whose essence will be shown to be deeply enmeshed with our assumptions on reality as such. Ciborra (1997b) adds that as IT becomes more and more integrated with the organisation its role seems to be that of "collective cognitive scheme." It is the sharing at a background level of this cognitive scheme, by the people of the organisation and of its suppliers, partners, and clients, "that allows managers to improvise effectively" (ibid.:274). As more and more organisations become ITised, that is, as they increasingly share the IT cognitive scheme, it becomes apparent that this new world of IT can generate competitive disadvantages for those who are unable to absorb this particular and new cognitive scheme. The implications and the nature of this challenge by now are anything but unclear. We hope the findings of this investigation may provide some insight into this issue.

The evolution of IT in organisational contexts has been erratic (Ward and Griffiths 1996), as indicated by this review of relevant literature. The field of IS might indeed be experiencing a crisis, and stressing its receptivity for novel proposals toward a new intellectual paradigm or tradition (Sauer and Yetton 1997).

Many shortcomings in the introduction of IT in organisations were largely predicted as early as the late 1950s. For instance, Leavitt and Wisler (1958) warned of the coming needs

of organisational transformation. Still in the early years of business computing, Ackoff (1967) concluded that most information systems which had been put into operation had not matched expectations, and some had been outright failures. He summarised what he found to be the reasons for this: "I believe that near- and far- misses could have been avoided if certain false (and usually implicit) assumptions on which many such systems have been erected had not been made" (ibid:B147; parentheses from the original).

Ackoff (1967) identified five common and erroneous assumptions underlying the design of most management information systems: give them more (information); the manager needs the information that he wants; give a manager the information he needs and his decision making will improve; more communication means better performance; and, a manager does not have to understand how an information system works, only how to use it. These assumptions, in their turn, hid a deeper presupposition about the nature of knowledge, action, and the world, based on the techno-functionalist paradigm (Burrell and Morgan 1979, Introna 1997), which epitomises the obsessive belief in the mechanistic rationality of organisations (Sauer and Yetton 1997). In this, information is conceived *a priori* as an object, and the manager is taken as a detached reflecting subject who is out of the every day world of involvement, ambiguity, and power (Introna 1997).

The basic question of *What is IT?* therefore remains unanswered, forty years after it was first raised. Most organisations that have introduced IT have so far assumed that the technology is merely a tool. Yet, developments over the two last decades—referred to above—have shown IT to be deeply entangled with the phenomenon of strategy, which is apparently about being both affected by, and affecting, IT. This indicates that a sensible approach to the issue of IT should take into account the phenomenon of strategy as well. This need has been reflected in the call for, and delivery of, new and fundamental proposals on the phenomenon of strategy (e.g., Von Krogh et al. 1994, Von Krogh and Roos 1995, Schendel 1994, Prahalad and Hamel 1994, Hamel 1998).[7] These new perspectives on strategy frequently refer explicitly to the new environment that IT is creating (e.g., Angell and Smithson 1991, D'Aveni 1994, Schendel 1994, Prahalad and Hamel 1994, Hamel 1996).

This dissertation attempts to demonstrate the pertinence of continuing to address the fundamental nature of IT as such, centred around the basic research question: *How does IT affect strategy?* Such a focus is relevant both in terms of the review of the literature presented above, and in relation to the historical fact that electronic and digital technology is a relatively new phenomenon, about 50/60 years old, compared to the much older phenomenon of strategy, which goes back over 2,500 years to ancient Greece (Mintzberg,

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[7] The 1994 Summer special issue of *SMJ* sought contributions under the theme "Strategy: search for new paradigms". The editors appealed in particular for submissions that addressed non-traditional or new subjects, using non-traditional methodologies, based on non-traditional intellectual grounds (*SMJ* 1994, vol.15, p.12).

Quinn and Ghoshal 1998, Vasconcellos e Sá 1999)—and even further back into early Chinese history (Jullien 1999, Sawyer 1994).

Hence, asking how IT affects strategy is a way of fundamentally addressing how IT is emerging in the world. A suitable approach to this investigation is to rely, partly, on examining *that which IT is qua IT*, and on *that which strategy is qua strategy*. This dissertation tries to demonstrate the power of the phenomenological method of investigation as an appropriate way to proceed with such an inquiry, because the method was designed to give access to the essence of phenomena.

1.2. An Ontological Recovering

The above section started us on our quest to find out how IT affects strategy. In order to do that we intend to uncover what IT is in the world in which we are what we are, as well as uncovering strategy as such. Chapter 2 describes in detail how we apply the phenomenological method in this dissertation, having that end in view. This is intended to offer a fresh approach to the phenomena of IT and strategy by trying to recover the most basic and initial experiencing that enables these phenomena to be recognised as *that which they are*.

Descriptions of IT and strategy, and further elaboration on the essence and appearances of these phenomena, necessarily proceed against a background of intelligibility. It is this background that enables us to bring to our explicit attention the phenomena of IT and strategy. As such, the kind of background on which we rely, that is, the ontological and epistemological assumptions on which the investigation is based, decisively shapes the inquiry.

In each and every beginning, what is implied, mainly, is ontology—not only epistemology. Therefore, to start something presupposes some kind of a previous idea of what we are *starting* and where are we *going*, otherwise how would we know we have started something? It also assumes something more fundamental: that we already have an *understanding* that *we are* and that *we know*—in the Heideggerian (1962) sense of having *competence over Being*.[8] Only the primacy of this *understanding*, acting as a background, makes it possible for us to start something.

What do we mean by the *we* who start? By *starting* itself? By *something* that is started? These questions have been answered, mostly in implicit ways, by the Western intellectual

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[8] We follow the wording introduced in 1962 by Macquarrie and Robinson's translation of Heidegger's *Sein und Zeit* (1927). Being (with a capital B) is not an entity in the sense of what a being (small b) is. Heidegger distinguishes between that which a being is (*das Seiende*; *l'étant* in French; *o ente* in Portuguese), and the Being of beings (*das Sein des Seienden*; *l´être*; *o ser*—the *to be*). Being is not a being, but "what marks beings out as beings rather than non-beings - what makes the difference, so to speak, between something and nothing" (Polt 1999:3). Being is "that which determines entities as entities, that on the basis of which entities are already understood, however we may discuss them in detail" (Heidegger 1962:26). Being is *the* ontological difference (Heidegger 1982:17).

tradition for more than 2,000 years. Since the ancient Greeks, an implicitly assumed nature of *that which is* has obscured the fundamental question of the meaning of Being (Heidegger 1962:19-35). This covering up happens not because the question was not, or is not, addressed or answered; on the contrary, it happens because the question is taken as being solved from the very start:

> "'Being' has been presupposed in all ontology up till now, but not as a *concept* at one's disposal—not as the sort of thing we are seeking. This 'presupposing' of Being has rather the character of taking a look at it beforehand, so that in the light of it the entities presented to us get provisionally Articulated in their Being. This guiding activity of taking a look at Being arises from the average understanding of Being in which we always operate and *which in the end belongs to the essential constitution of Dasein[9] itself*" (Heidegger 1962:27-8).

The kind of questioning indicated above is usually taken by the Western intellectual tradition— from Plato (428-347 BC) and Aristotle (384-322 BC), to Descartes (1596-1650), Kant (1724-1804), and Hegel (1770-1831)—as a necessary ingredient in making explicit basic epistemological assumptions. This emphasis on epistemological issues obscured the more fundamental ontological questioning: the quest for the nature of *that which is.* Such questioning is vital, because before the nature of knowledge is interrogated, an explicit or implicit fundamental position on the nature of the world and on what it means to be human must already be in place. Before any inquiry starts, therefore, one should bring forth the ontological foundations on which the epistemological claims of what knowledge is and how it can be acquired base themselves.

Widely-used definitions of ontology describe it as "a branch of metaphysics concerned with the nature and relations of being; a particular theory about the nature of being or the kinds of existents" (MW [10]) and "the theory or study of being as such, i.e., of the basic characteristics of all reality" (EB [11]). These definitions now constitute a consensual understanding of the ontological theme as being rooted in the *historicity* of mankind and in its tradition.

However, this tradition misallocates the place of ontology by making it a forgotten question from the start (Heidegger 1962). This in part is the motive for the word ontology to be a relatively recent one. It was coined as an English word only in the 17th century (EB). A century later, the German *rationalist* philosopher Christian Wolf (1679-1754) started to promote the current meaning of ontology (EB). Yet is was in the 20th century, mainly with the work of Heidegger, that ontology gained new relevance.

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[9] *Dasein* (in German the word means literally *being there*) is Heidegger's technical concept for 'human being'— *human way of being*—"a term which is purely an expression of its Being" (Heidegger 1962:33). *Dasein,* a core term of *Being and Time*, is nowadays an untranslated and used concept in academic and scientific domains. The notion of *Dasein* is presented in detail in Appendix A.

[10] MW *Merriam-Webster Dictionary*, http://www.m-c.com, December 1999 June 2001.

[11] EB *Encyclopaedia Britannica,* http://www.britannica.com, December 1999 - June 2001.

In his approach, Heidegger promised no less than "a destruction of the history of ontology" (Heidegger 1962:41-48). This *destruction* was meant as a renewing, a re-awakening, of that which was not being thought anymore—the meaning of Being. It was not a negative destruction, but a neutral, "ultimately constructive" attempt to open up the grounding of the most fundamental question of all: the meaning of Being (Stambaugh *in* Heidegger 1978:63 fn). By doing this, Heidegger undercut the philosophical tradition of the Western world because he showed that the epistemology on which it was based—the metaphysics of *actualitas* (Heidegger 1984: 56)[12] and of *Presence* (Polt 1999:5,38,70)—can, and should, be re-thought.

At the heart of this new approach was the questioning of assumptions already in place when addressing knowledge. The decisive character of ontological positions, either explicitly or implicitly assumed, can be verified by a phenomenological account of the etymology of the Greek roots of the word ontology. Its two components *onto-* and *-logy* evolved from the ancient Greek words *onta* and *logos*, respectively. The modern Greek word for ontology is *ontologia* (GEG), which is also the New Latin word from which the actual English word ontology is supposed to have evolved "circa 1721"[13] (MW).

For the ancient Greeks, *onta* meant the decisive character—the *decisiveness*—of the *that-which-is-ness* of the matter in question. The expression *onta* was used as a qualifier in truth of something else. It referred to something more than itself, which within the domain of *onta* was revealed as *decisive* because it was the real, the *truth*.

Logos[14] signified the *reason*, the ratio, that which the talk is about, the underlying subject-matter to which, according to Heidegger (1962:58), "one addresses oneself and which one discusses (…). It is thus the 'ground' or 'reason' for telling it" (ibid.:58 fn1). In *logos*, that which is exhibited is nothing else than the 'subject-matter' which, as present-at-hand, already lies at the *bottom* (…) of any procedure of addressing oneself to it or discussing it, [so] 'logos' as 'that which is laid out' means the ground, the *ratio*". Thus, *logos* stands for a relationship, just as *onta* does. In the word ontology, *logos* is a grounding directed in this relationship towards *that which is* as decisive.

The fact that *logos* is an element of the word ontology—or of what could have been the ancient Greek word *ontalogos*[15]—is a confirmation of the *decisiveness* of *that which is*,

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[12] "The Greek is shut away, and to the present day the world appears only in Roman type. *Actualitas* becomes *Wircklichkeit* (reality)" (Heidegger 1984:56).

[13] Classic Latin does not have the word *ontologia* (Torrinha 1942). New Latin adopted it from the ancient Greek language.

[14] The ancient Greek word *logos* is at the etymological roots of the English words ontology, phenomenology, and technology—three of the most relevant notions of this investigation.

[15] Herodutus and Pausanias used the expression *onta logos* to mean 'true story'. Herodutus (1.95) wrote "ton eonta legein", which is translated as "the truth of the matter". Pausanias (1.41.5) uses the expression to mean that the true story was hidden: "alla gar ton onta logon hoi Megareis eidotes epikruptousin" / "The fact is that the Megarians know the true story but conceal it" (Crane 2000; ours underlining).

revealed as a grounding. This *grounding* that uncovers the nature of that which is, is thus decisive because it shows the real in its very *decisiveness.* So, ontology is the enunciation, the articulation, the disclosure of what is that which is: *decisiveness*.

Heidegger (1962) brought back the ontological decisiveness to the centre of Western thought. This fundamentally challenged traditional epistemological groundings by showing something more basic, i.e. the ontological quest. Levinas sharply reconsiders the epistemological quest at the light of the ontological decisiveness:

> "That knowledge should need a criterion at all presupposes that truth is not identical to all that is known and that the course of things can fail to correspond with the course of thought. "How does knowledge correspond to being?" is a more profound formulation of the problem of knowledge" (Levinas 1996:11-12).

That knowledge can be certain means that it can be uncertain. This asserts the logical need to address that which *is,* as itself is, i.e., in truth. Thus, ontology as the study of that which *is* gains a decisive primacy over epistemology. Ontology necessarily precedes epistemology because that which *knowledge is* presupposes an already implicit concept of that which the *knower is*, and of that which the *known is* (Heidegger 1962:254; Polt 1999:80; Dreyfus 1991:3,45-6; Levinas 1996:11-15). Ontology is the base, the foundation that shapes the stances taken on epistemology, just as the latter is the basic foundation of investigations of particular domains of human activity in the world.

Ontology is the thinking, the reflection, the opening up; the taking of a stand on the most primary and fundamental nature of that which *is.* While this is not a proper place to try to present Heidegger's full argumentation on this matter, his key claims need to be presented because they serve as foundational assumptions for this investigation. [16]

"Why are there beings at all, and not rather nothing?" The question ends the text "What is Metaphysics?" (Heidegger 1978:89-110) and opens *An Introduction to Metaphysics* (Heidegger 1959). At stake here is not the search for any possible answer—whose plausible impossibility is bounded by that which we most essentially are—but the understanding of Being already implied in the interrogation. The question is the clue: *"understanding of Being is itself a definitive characteristic of Dasein's Being"* (Heidegger 1962:32).

That *Dasein*, the human way of being, is understood as a 'Being ontological' should not be assumed as an already in place ontology. Heidegger wants to clarify this always and already understanding of Being as something *pre-ontological,* neither something only considered on ontic realms, nor something fully taken as ontological. Pre-ontological means precisely "being in such a way that one has an understanding of Being" (Heidegger 1962:32). This pre-understanding is not ontology itself, but rather a disposition, or a will, towards an ontology of entities.

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[16] In Appendix A we offer a review of Heidegger's phenomenological findings on humanness, along a path that addresses our research question.

Heidegger's *Being and Time* was meant to address the question of the meaning of Being, but it was never completed[17]. In *Being and Time*, Heidegger takes the human being—i.e., the human way of being—as the being that must be questioned[18]. Heidegger acknowledges that the question of the meaning of Being is obscure and without direction. It is a question that has been skipped since the dawn of ancient Greek philosophy.

Heidegger (1962, 1984, 1978) traces back the contemporary understanding of Being to the ancient Greek thinkers Parmenides (c.515 BC - ?), Plato, and Aristotle. He explains that our understanding of Being, implicit in the way we are in the world, is restricted to a particular significance which has been established historically. We inherited the ancient Greek notion that we can obtain theoretical knowledge of every domain of human activity, as well as the underlying assumption that the theoretical perspective is superior to the involved one (Dreyfus 1991:6). This is the Western manner of relating Being to nothingness. It goes back over 2,500 years, to the texts of Parmenides and to some extent to those of Heraclitus (c.540 BC - c.480 BC).

Heidegger shows that the ancient interpretation of the Being of beings, on which Parmenides relied, was oriented towards the 'world' and 'nature', gaining its proper sense from 'time'. This horizon of time enables Being to be understood as 'presence', that is, "with regard to a definite mode of time, the *present*" (Heidegger 1978:70). This notion of 'pure being at hand' (*Vorhandenheit*)—being as *thatness*, as something isolated, decontextualised, under observation—was the one assumed by Parmenides. Our current understanding of Being has its roots precisely in this Greek heritage.

The is-ness of that which is was addressed by ancient Greek philosophy mainly in the problem of change. Parmenides took one side, Heraclitus the other[19]. Heraclitus was born circa 540 BC, in Epheseus, North of Miletus, and died circa 480 BC. He argued that fire forms the basic material principle of an orderly universe characterised by change. It is change that is real; permanence is only apparent. His ideas survive in the brief fragments quoted and attributed to him by later Greek authors.

Heraclitus might have introduced the word *logos* in ancient Greek philosophy: *listen not to me but to the logos* (Heraclitus *in* Heidegger 1984:59-78). Heraclitus claimed that most men failed to understand the *logos*—the universal principle through which all things are interrelated and all natural events occur—and thus lived like dreamers with a false view of

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[17] The Third Division of Part One and Part Two of *Being and Time* (Heidegger 1962:64) never appeared. Some of Heidegger's later writings—Heidegger 1969, 1972—are clues into the kind of analysis he intended to do in the remaining parts of the treatise.

[18] The human being is not taken as simply a clue or a possibility with regard to the questioning of Being, but as *the right way* into it, because being able to ask for the meaning of Being is to have already a sense of what it is to be (Heidegger 1962).

[19] The theme of *change versus permanence* was discussed possibly before Parmenides, and before the reflections of Heraclitus (Cohen 2000), by so called pre-Socratic, pre-Platonist, pre-Aristotelian, and other early Greek thinkers. Milesians thought that change was real, but could only be understood in terms of a permanent underlying reality. Heraclitus moved a step further by claiming that change itself was the only permanent thing.

the world. The underlying connection of opposites, Heraclitus claimed, is a crucial presentation of the *logos*—good and bad, health and disease, hot and cold, big and small, each of them defining its opposite.

To Heraclitus, change is the basis of the idea of permanence. Because everything is ever changing, united in their opposition-ness, the resulting dynamic equilibrium maintains an orderly balance in reality. This "persistence of unity despite change" (Cohen 2000) is illustrated by Heraclitus' famous analogy of life as a river: you could not step into the same river twice (Plato 1998, n.402A). Plato later took this doctrine to claim that all things are in constant flux, regardless of how they appear to the senses. But Heraclitus theories did not thrive for long.

Parmenides was born *circa* 515 BC in Elea, Southern Italy. He was the founder of Eleaticism, one of the leading pre-Socratic schools of Greek thought. His theory has been reconstructed from surviving fragments of a poem titled "On Nature" (Galop 1994), his principal work of which 154 lines have survived. The two parts of the poem correspond to what Parmenides called "the two ways". When Heidegger (1962) elaborated on the essential unfolding of the human way of being, he referred to Parmenides' two ways as following:

> "The goddess of Truth who guides Parmenides, puts two pathways before him, one of uncovering, one of hiding; but this signifies nothing else than that Dasein is already both in the truth and in untruth. The way of uncovering is achieved only in (…) distinguishing between these understandingly, and making one's decision for the one rather than the other" (Heidegger 1962:265).

Heidegger is digging into the ideas underpinning ancient Greek ontological claims. Parmenides himself did not stand for what Heidegger shows he must be admitting: that man is *already* both ways. Parmenides did not articulate *the two ways* as the content of an existing path, but he interpreted the choosing of one of the ways as an uncovering of the reality of the notion of *permanence*. He held that the changing forms and motion of existing things are but an appearance of a single eternal reality—all is one, there is no change. Parmenides contended that change is impossible and the notion of change is incoherent: everything that exists is permanent, ungenerated, indestructible, and unchanging. His claims were presented not as observations—things do appear to change—but as deductive arguments.[20]

Parmenides' ontological arguments were thoroughly worked out in epistemological realms by Plato and other Greek thinkers. The key consequence of the Parmedian position was that knowledge must not itself change, or be changeable, in any respect. Yet, as Parmenides conceded and other Greek thinkers agreed, things do appear to change—that is, sensation and perception show variation, objects change, nature evolves. This contradiction was first

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[20] Parmenides' specific arguments are of no relevance here. What is of interest to us is that the claims of Parmenides had profound consequences on epistemological grounds, from Plato to the present day, which disguised the primordial ontological relevance of *that which is.*

'solved' by Plato's apparent reconciliation between the positions of Heraclitus and Parmenides. Nevertheless, the fundamental ontological stance, i.e. the implied understanding of Being, remained that of Parmenides.

Plato endorsed the Parmenidean claims that both knowledge and its objects must be unchanging, and that sensation and perception have no straightforward correspondence with knowledge. Knowledge cannot have physical reality as its object (Plato 1987). So, sense experiences cannot be a source of knowledge.

At this point, Plato is forced to disclose his underlying assumptions about the foundations of his claims. He gave a clear answer: they are based on the grounds of reason (Plato 1976, 1987), mainly by applying the dialectical method of inquiry inherited from Socrates. This method is clearly illustrated in Book VII of *The Republic* (Plato 1976) through the narrative of the well-known allegory which depicts ordinary people living in a cave that represents the world of sense-experience. People in the cave see unreal objects, or shadows. Reality, objects, and nature exist as they are outside the cave. People come out of the cave to look into the sunlight, the source of knowledge, only by understanding, through questioning and reasoning, the limits to the world of sense-experience. Plato admitted the way out of the cave was not an easy, obvious and certain one. Nevertheless, he showed his own way out.

Plato introduced the concept of essence—'idea' or 'form' (Plato 1976)—in a similar sense to that used by Husserl in the early 20th century. When searching for the objects of knowledge, Plato noted that every basic human ability grasps a unique kind of object: hearing apprehends sounds, the sense of smell detects odours, seeing captures visual images, taste experiences flavours, and touch identifies physical objects. This means *knowing* has its own objects to apprehend. Plato argued that these have to be unchanging objects, just like all other objects of basic human abilities, capacities, or experiences. His core ontological claim, with decisive epistemological consequences, is the discovery of unchanging knowledge objects as identifiable entities, which are the concepts and substantive ideas designated in language.

Whenever we address something as "blue" or as "solid", we must already have an essential idea of the thing being addressed; this is known as the phenomenological concept of *essence*[21]. Plato distinguished between specific things as they are perceived through the senses, and the common property they share that enables them to be what they *are*. Specific factors are located in the world of appearances, somewhere in the space-time continuum. The common property of those particulars—the *essence* in Husserl's terms (1982, 1970b)— is what Plato calls an "idea" or "form". These "ideas" do not exist in the world of

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[21] Plato conceived *essence* as something static, eternal in some sense, which is not the concept Heidegger used in his phenomenological investigations. Heidegger's concept is a temporalised one. Heidegger uses the German word for essence, *Wesen*, as a verb. He did not treat *Wesen* as meaning the substantive "essence", but as *to essence*, if such an English verb existed. *Wesen* has been translated to the English language as "unfolding" or "essential unfolding" (Heidegger 1962, Dreyfus 1991, Polt 1999). This temporalised Heideggerian notion of essence is the one we rely on in this dissertation.

appearances, nor do they change. In this sense, they are eternal and are that which must be apprehended to acquire knowledge (Plato 1976).

This ontological position, built on the *no change* claim of Parmenides, had a strong influence on epistemologies that subsequently characterise the unfolding of Western thought, sowing the seeds of concepts or notions such as the detached observer, Cartesian dualism, and the superiority of theoretical reflection. In this way, Plato's fascination with theory triggered our traditional understanding of what it is to be human (Heidegger 1984, 1978): the notion that one could understand in a detached way the nature of life, human beings, and the world by contemplating, theorising, and establishing principles. Aristotle's *animal rationalis* opened the way for the triumph of the Cartesian observer, who solves problems and acts on the basis of beliefs and desires (Dreyfus 1991:1). Heidegger questioned all these by thinking anew what it *is* to be human.

Westerns thinkers—from Socrates, Plato, and Aristotle, to Kant, Descartes, and Husserl—assumed to some extent that we act by applying principles which we can, and should, clarify. Underlying these assumptions were the more fundamental convictions that human beings in the world could be explained in terms of theory, and that the human subject, as a detached conscious observer, is at the centre of all there is to be explained. Heidegger contests all this by querying the possibility, and desirability, of making explicit our everyday understanding of *being*.

Heidegger showed that the traditional subject/object epistemology could not be the starting point. When Descartes concluded that 'I am', he implicitly admitted to already having a notion of what it is to be/to exist (Polt 1999:47). But where did this notion come from? Heidegger claims that all intelligibility takes place against an existing background of mindless coping skills (Heidegger 1962; Dreyfus 1991; Polt 1999); of everyday practices in which we dwell without ever being able to represent that behaviour explicitly.

That background practices are always in place is something thinkers in different scientific areas easily concede (e.g., Nietzsche 1968, 1986; Heidegger 1962; Gadamer 1975; Wittgenstein 1967; Merleau-Ponty 1962; Maturana and Varela 1992; Giddens 1984; Dreyfus 1991; Polanyi 1973; Varela, Thompson and Rosch 1991; Introna 1997). Whenever we write with a pen or drive a car, we do not focus on those activities as such, but on the intention of the activities: the text we are writing, the place where we are going. Writing and driving are shared everyday skills into which we are socialised.

Yet, what Heidegger stresses is something more vital than this. He argues that the practices in the background of understanding can function only if they *remain* in the background. The background itself opens up the very possibility of a foreground, for it is only against a something that another something can be focused, or call for attention. Thus, that which is most vital in functioning must be that which is closest to us; so close, as not to be seen because it belongs to the background, not the foreground.

Critical reflection is a mode of our own being, of central relevance in our lives. Yet, such critical reflection is neither the primary, nor the most relevant, mode for our being-in-the-world. Conscious subjects relating to objects by way of representations is a derivative condition because it must presuppose a more fundamental way of being that cannot be understood in subject/object terms. "Rather than first perceiving perspectives, then synthesising the perspectives into objects, and finally assigning these objects a function on the basis of their physical properties, we ordinarily manipulate tools that already have a meaning in a world that is organised in terms of purposes" (Dreyfus 1991:46-7).

This position fully reverses the traditional interpretation that theory precedes practice, thereby enabling Heidegger to reverse the traditional primacy of epistemological questions: he pointed beyond previous epistemologies to an ontology whose power had grown on the basis of its own concealment. Heidegger brought the ontological question to the core of an understanding of human action in the world.

Figure 1.1. **An Ontological Recovering**

Descartes (XVII ct.)
Dualist Epistemologies
- subject/object
- thinking/action
- information/knowledge

Hard Science Paradigm
Objective analysis
Objects, Models,
Recipes

Aristotle (4th c. BC)
Man as
animal rationalis

Parmenides (7th c. BC)
Being as *Present;*
reality as actuality

The path of Heidegger's phenomenological investigations into humanness

That which is
Onta logos

Ontological Outset of this investigation

Being
as that which makes
a difference;
temporality as
Being's context

The path to which this investigation belongs

Man
as *Being-in-the-World;*
Care as Man's essence

Heideggerian Foundations
- understanding
- attunement
- falling

Fundamental Implications
for this dissertation:
action/information/knowledge entanglement
IT-in-the-world
Strategy-in-the-world

Heidegger's ontology and its epistemological consequences will be matched with autopoiesis theoretical biology from a phenomenological standpoint.

Heidegger wanted to address the world rather than "passing it over as the tradition has done" (Dreyfus 1991:108). This shift of perspective questions core ontological assumptions of many epistemological theories, namely the dualistic presuppositions between theory and

practice, subject and object, thinking and action, information and data. Heidegger's investigations undercut all these by addressing *that which is*, primarily as it is revealed for us. The detached observer—introduced by Plato, strengthened by Descartes, and still presupposed to some extent by Husserl—is replaced by an embodied subject *always and already in the world*.

Heidegger (1962) was not the first to introduce this viewpoint. His phenomenology was a thorough working out of suggestions and insights, already hinted at in the works of Western thinkers such as Nietzsche, Peirce, James, Dewey, Dilthey, and Husserl in his later phase. Others have also made similar findings to those of Heidegger. For example, the understanding that theoretical knowledge presupposes practical involvement and implicit 'know-how' that cannot be taken into account in theoretical terms is a claim of Nietzsche (1968b), Pascal (1995), Kierkegaard (1992), Unamuno (1990), later Husserl (1970),[22] Polanyi (1973), Maturana and Varela (1992). However, the originality, the power, and the depth of Heidegger's investigations were a milestone in Western thought, as it highlighted a new understanding of how being human lies in the background practices that enable us to act in making sense of others, of things and of the world.

It is no argument against the route opened up by Heidegger to observe that this path of questioning does not promise to deliver a full articulation of that which is, as might be claimed by supporters of Cartesian epistemologies. Cartwright (1983:53) noted that "[t]here is no reason to think that the principles that best organise will be true, nor that the principles that are true will organise much"; and Nietzsche (1968:273) commented: "The most strongly believed a priori "truths" are for me—*provisional assumptions*; e.g., the law of causality, a very well acquired habit of belief, so much a part of us that not to believe in it would destroy the race. But are they for that reason truth? What a conclusion!"

Background practices are essential to our understanding of Being. However, they cannot be fully explicated, or represented, as we dwell in them—we are our own background practices; we are our prejudices (Gadamer 1975). We may fail to see that which is closest to us, that which we are familiar with—what is familiar is not known simply because it is familiar (Hegel 1977). The familiar is "what we are used to; and what we are used to is most difficult to 'know'—that is, to see as a problem that is strange, distant, 'outside us'" (Nietzsche 1974:301).

If background practices are brought to the foreground, they cease to be what they are. It is precisely because they are so close that they are difficult to notice, to address, to identify. If this is so, then what is left to be theoretically addressed? Heidegger solves this apparent paradox by showing that what is crucial is the *addressing* itself, not maintaining any *a priori* theoretical claims, methods, or constraints. Instead of looking for theories to explain

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[22] Husserl's concept of *life-world* (Husserl 1970) is somehow equivalent to Heidegger's *being-in-the-world* (Heidegger 1962).

life, we should be looking to life to understand life; the roots of theory are in human life, in all its concrete individuality and historicity. For instance, "before a scientific statement about evolution can make any sense to me, I need to have experienced both human beings and apes.[23] This basic experience is not a *theoretical* experience: it is not just looking and taking notes. It has to be an experience that is relevant to me *as an individual*, that forms a meaningful part of *my own life*" (Polt 1999:17).

Homo sapiens is a theoretical concept built upon an always and already experiencing of being human; an experiencing that is primary, supporting an understanding already in place when epistemological positions are considered. Theoretical investigation, and therefore theoretical truth, originates in the full historical *facticity* of individual (Heidegger 1962), as it is for itself.

A key issue then becomes: How can we address this background of understanding, these taken-for-granted everyday practices, behaviour, attitudes, and social contexts? Is not this full, concrete life precisely that which resists being expressed and understood as such? Heidegger answered this decisively, arguing that one needs to develop a new way of using concepts. He called the new approach "formal indication" (Heidegger 1962, Polt 1999): we use concepts to indicate formally something with which we already are familiar from our own experience. This formal indication assumes that any concept, on its own, will never be rich enough to capture all that which is presupposed, assumed, experienced, or suggested in our own experiencing of the phenomenon thus addressed. Still, formal indicative concepts "*allude* to a phenomenon in our lives and encourages us to live in such a way that we pay closer attention to it" (Polt 1999:18; italics from the original).

It is worth noting that Heidegger used very unusual language to indicate formally what already lies at the background, although that relates to the essential domain of common sense. The reason why Heidegger needed such a technical, elaborated language to talk about what every one has already experienced is an illuminating one as commented by Dreyfus (1991:7): it is because this background is *in the background* that we do not talk about it, so it "is not what we usually deal with and have words for, so to talk of it requires a special vocabulary". This problem was also addressed by Searle (1983:156-7) and Maturana and Varela (1992:17-32), both using the metaphor that *an eye cannot see itself*.

Describing coping with the available, Heidegger's phenomenology shows the secondary relevance of Cartesian epistemologies in which a meditative subject (*res cogitans*) addresses observed objects (*res extensa*). We are not primarily observers in everyday existence, but engaged actors capable of intuitively dealing with other beings around us. Heidegger takes us further than just this question of what precedes what—theory or practice—into observing a world that *is*, instead of *is not*. It is a matter of conceding on evidence that we are in a world that is, and as such it is *already* unfolding.

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[23] Polt (1999:17) refers to the statement "human beings have descended from apes".

Heidegger's key ontological claim states that anything intelligible shows up only because the world is already revealed for us as *world*. This showing happens in the domain of a world available to us, while we, as the being we ourselves are, are doing such and such and about to do that and that. We, the being we are, are always and already in the world, which is an individual and embodied experiencing of a coming from the past, acting in the present, directed towards the future (Heidegger 1962). As Polt (1999:12) remarked: "Before theory ever comes along, the world is opened up for 'us' by life, which is situated and historical".

A human *being* always finds itself acting in the world in a historical way. "Dasein is its past" (Heidegger 1962:41). Without our inherited world, we would not *be there* as we are— "we would be an animal without culture, language or norms" (Polt 1999:37). We are socialised into an encompassing world revealed as such. We *are* our past: the past is active in the present, disclosing future possibilities for being. Thus, instead of taking the tradition for granted, ontology must be an addressing of that which makes this tradition possible. Heidegger's provisional hypothesis identifies *temporality* as the context of Being. The Being of entities is the difference they make to us (Polt 1999), and it is revealed in temporality, as the being we ourselves are unfolds historically. To exist is thus to be temporalised (Levinas 1996:12).

Epistemological primacy bypasses that we already are a being-in-the-world. Descriptive knowledge is only a mode of Dasein's being, which is founded upon the most basic being-in-the-world. In other words, knowing presupposes dwelling; ontology precedes epistemology. This shows that ontological assumptions are the most decisive of any epoch, of any activity, of any investigation. Ontological assumptions are that which is in its *decisiveness*.

That which is, in its most basic nature, is the world as it is primary accessed and experienced by us— "the world is what we directly understand and in terms of which one can see how nature, equipment, persons, etc., fit together and make sense" (Dreyfus 1991:122). This world is the world always and already presupposed that precedes all theorising:

> "[The] world that precedes knowledge, of which knowledge always *speaks,* and in relation to which every scientific schematisation is an abstract and derivative sign-language, as is geography in relation to the country-side in which we have learnt beforehand what a forest, a prairie or a river is" (Merleau-Ponty 1962:ix).

Heidegger's approach is an attempt to find the *ontological foundations of knowledge,* not the *logical foundations of being* (Levinas 1996:14). The issue at stake here is to grasp what we *are*, what *is* the world, the others, and things. If we assume this when addressing IT and strategy, our investigation can be seen not as a matter of explaining how something

functions (the ontic issue), but rather as a quest to understand the significance of IT and strategy, and to make sense of these phenomena (the ontological issue).[24]

1.3. A Grounding Questioning

What is foresighted in the formulation of our central research question—How does IT affect strategy?—is what unifies the foundations of this investigation *as such*; which is, IT and strategy against a fundamental grounding.

Nonetheless, in this questioning what is quintessential is the questioning itself as it is; independently of its content, that is, of what the questioning is about. By noticing the question itself, not what is questioned, we experience the question itself as a content. We question, reflect and wonder—and we notice we are doing that. However, we may fail to see this questioning as a revealing of that which the questioning primarily is. The turning of this questioning onto itself reveals it not as a question, but as the realm in which we ourselves in advance assume we can find an answer. Questioning is a way of proceeding because it shows us already towards an answer. This is what Heidegger (1977:3) means by "questioning builds a way".

This first addressing, the question as itself, is forgotten by many theories. It is an issue to be addressed only on the basis of findings previously based on epistemological grounds. This means that it is not described or explained as it is, but rather as it should be according to subsequent backward projections of findings. It is a primary questioning transfigured by a secondary discovering. This realisation shows us the need for a primary ontological account, which, as such, has the potential to change subsequent epistemological articulations.

Since we begin our analysis within that which we already are in the world, our choice of subjects cannot be taken at face value. Our questioning is already guided by a pre-ontological understanding of being that is difficult, if not impossible, to be grasped in all its depth and meaning, precisely because it is what is most familiar. As this primary understanding "deals with what is difficult to notice [it] may well have passed over what is crucial" (Dreyfus 1991:36). If that is so, how can we avoid ignoring that which is crucial, the most initial? The questioning itself seems to give the first clue towards avoiding the passing over of this primary issue: by emphasising the questioning itself as a content.

The questioning of the questioning makes us take notice of that which surrounds us, that which is already setting the context and horizon of the questioning itself. This questioning turned onto itself shows us the self-evidence of its primary importance, because it is the opening up of the ontological and epistemological domains. Thus, this initial questioning is a noticing that we are looking for an answer, that we are already on a journey towards it;

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[24] In order to rely on explicit ontological grounds, accounting for what is most decisive at the background of this investigation, we advise the readers who are not well familiarised with Heidegger (1962) to turn to Appendice A at the end of Part I.

and, because of its initial character, it is as well the opening up of the meaningfulness in which the being we ourselves are are.

While addressing the *meaning* of that which *is* (the ontological quest), and inquiring into the *experiencing/knowing* of that which *is* (the epistemological quest), our questioning of the *questioning* itself discloses fundamental assumptions already in place. The questioning is crucial because it acknowledges that we are noticing. This is the horizon within which our research question about IT and strategy arises. However, it does not actually belong to any horizon as such, but to the questioning itself: " (…) for I alone bring into being for myself (…) the horizon whose distance from me would be abolished—since that distance is not one of its properties—if I were not there to scan it with my gaze" (Merleau-Ponty 1962:ix).

This questioning that sets its own horizon is the ontical *meaningfulness* of the beings we are. So it is its own first answer**.** What is crucial, because it is that which is always and already presupposed, is not the kind of being we are, but rather that we are, noticing: we are instead of are not, in a world that is instead of is not (Heidegger 1962). Ontically, we are ontological beings—"Dasein is ontically distinctive in that it is ontological" (Heidegger 1962:32).

This questioning in itself includes the way we are, as we are—a way for which it matters that we are, for which it matters that there is something instead of nothing. We notice this, as such it makes a difference for us. This difference, between something and nothing, between something and other something, is what Being is for us. Given this understanding, we recover in a deeper meaningfulness the opening quotation of my son André: "the sun is the prince of shadow". Being is found in the difference, in the contrast, and in the relationships beings themselves hold to each other. The meaning something has, that is, what it *is* as such, is founded upon a relationship of distinguishing something *as* something (Heidegger 1962). Sun is distinguished *as* the prince of shadow. For André the beingness of prince brings together the contrasting events of sun and shadow in their belonging together. These beings relate to each other in their beingnesses, and the difference they make against nothing, is uncovered in the *as something* of Andre's saying.

Where does this argumentation lead us? And how does this path meet our original aim of providing a clear start? What kind of ontological grounding? What kind of ouset? An outset that would show the foundations on the basis of which we would face an answer to the questioning we are already immersed into. That which is presupposed and hidden in the arising of a particular question is that which is also the most decisive for its answering. It is most decisive precisely because the ontological elucidation will, by its very nature, guide the answering.

Having started on a path, our quest for foundations is already guided by the need to clarify all that is implied in the research question which, like any question, can only be answered if

we know precisely what are we questioning. IT and strategy are in the foreground of the questioning. But primarily and fundamentally what is implied, in the background of the question, is the nature of human being, world, and knowledge—as *cogitata* and *cogitationes*.

The foundation of our investigation builds on the foundations we bring forth from Heidegger's findings about what it is to be a human being, together with the theory of autopoiesis. Instead of attempting to encompass 'whole buildings' along its investigative path, we would rather take some *bricks* as we give shape to that which we have thought as being worthwhile to pursue. "Posterity"—i.e. us, when considering the thinkers from whose building we are going to take the bricks—"discovers [the value of a building] in the bricks with which he [the investigator] built, and which are then often used again for (…) building" (Nietzsche 1986:261). These bricks must match each other, and must be *the* bricks of this building, of the whole of the development under way. It is precisely this whole that brings forth the thing as itself is, in its *poiesis* (Heidegger 1977; Maturana and Varela 1980), that unifies the four Aristotelian causes—*causa formalis* (the question), *causa materialis* (the content), *causa efficiens* (the questioning)*, and causa finalis* (the answer) (Aristotle 1998)—that tradition has delivered us as the reason, the *logos*, of an arising.

That which is foresighted in the arising of our research question, what enables us to understand our starting, is that which unifies the foundations brought together as foundations of this investigation— that is IT and strategy against a fundamental grounding. Hence, these three themes—IT, strategy, and the grounding—must be taken into account for answering the research question.

The consistency and the power of the foundations to be brought forth—Heidegger's findings on humanness and the theory of autopoiesis—are to be found in the rigour of the phenomenological method of investigation applied, and in the coherence and strength that, we hope, the findings of our quest will show.

1.4. Heidegger, Autopoiesis, and Information Systems

The ontological grounds of this investigation, as referred to above, are based on Heidegger's (1962) findings on humanness, complemented by Maturana and Varela's (1980, 1992) theory of autopoiesis. These theories have been applied in the IS field of research to some extent. On this account, and attempting to keep the text of the dissertation within a sensible length, we present a review both of Heidegger's (1962) findings and of autopoiesis in the Appendices to Part I of this dissertation. In Appendix A we introduce Heidegger's findings on humanness. In Appendix B we present the theory of autopoiesis. In Appendix C we present our argument in favour of a fundamental matching of these two bodies of theory. In Appendices A and C in particular we address also the basic coherence

of Heidegger's (ibid.) findings, autopoiesis and phenomenology, the method of investigation applied in this research and introduced and detailed in Chapter 2.

Aiming at an answer to the research question *how does IT affect strategy?*, we take Heidegger's findings and autopoiesis as "*bricks* for building" (Nietzsche 1986:261), as they reveal themselves compatible and consistent with the phenomenological path we have initiated. It is our argument that these bodies of theory are fully compatible with each other*,* especially when considering their ontological and epistemological consequences. In the appendices below we present an exposition of the fundamental legitimacy of matching these theories.

We claim, and aim to show, that these foundations have the potential for opening up the phenomena of IT and strategy in ways that we cannot access on the basis of the more frequently used Cartesian foundations.

The work of Heidegger (1977) on technology is a widely recognised turning point in Western thought on this theme, so it was likely to be only a matter of time before Heidegger's influence on IS was felt.[25] Nonetheless, with the exception of Ciborra (1997, 1998), who directly relies on Heidegger's (1977) notion of *Ge-stell*, as the essence of modern technology, to develop on the theme of IS as infrastructure, it is Heidegger's (1962) exceptional work *Being and Time* that has had a growing influence on the IS community for the last twenty years; although this influence has not had a mainstream focus in this field.

Relying on Heidegger's (ibid.) ontology, Introna (1997) addresses anew the issue of decision making, taking into account the trust which management now places on IT; Coyne (1995) attempts to bring together the notions of action, embodiment, and computer systems design; Introna and Ilharco (2000) phenomenologically investigate our growing engagement with the screens of the IT devices; Spinosa, Flores and Dreyfus (1997) address action and entrepreneurship. Introna and Whitley (1998) were Guest Editors of a special issue of the journal *Information Technology & People* (Vol.11, n.4) dedicated to the theme of 'Heidegger and Information Technology', which published contributions from Dreyfus, Flores and Spinosa, Coyne, Ciborra and Hanseth, and Cass.

This Heideggerian tradition in IS research had its foundations in the early 1980s, triggered in 1982 by Hubert Dreyfus' introduction of phenomenology into a thorough critique of artificial intelligence (AI). In *What Computers Can't Do*, Dreyfus (1982) forecasts with impressive precision the shortcomings that AI would show in the decades ahead[26]. Meanwhile, in 1986 two other ground-breaking books applied Heidegger's (1962) findings

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[25] Heidegger himself addressed marginally the nature of information systems (see Chapter 4).

[26] In analysing the issue of skills acquisition, Dreyfus draws heavily on the ideas of Heidegger, the later Wittgenstein (1967), and Polanyi (1973). Ten years later, Dreyfus confirmed and developed his original analyses*,* in a new book titled *What Computers Still Can't Do* (Dreyfus 1992).

to IT issues. One of them, *Mind Over Machine* (Dreyfus and Dreyfus 1986) showed how our action in the world does not follow rules that can ever be described. The more experienced the subject, the less able is he to apply rules and reasons to depict why he did what he did. Involved in coping, one responds to situations on the basis of a capacity to make sense of the world. One acts on the basis of an extensive previous experience of what has happened in similar situations to the current activity in which one is involved. In most cases, everything works in the way it should—actions just flow, and there are no decisions to be made, no rules to be obeyed (Dreyfus 1986).

The second book from 1986 of interest to the issues we are addressing is *Understanding Computers and Cognition,* by Terry Winograd and Fernando Flores (1986). They reconsider the role that computers have in professional environments. This has perhaps been the most influential work in opening up a sound path of research for the IS academic field. Later, Ehn (1989) stressed the aspect of the *tool-ness* of IT in relation to the development of user interfaces. In spite of all its originality and influence, the work of Winograd and Flores took a limited account of the power of Heidegger's findings, because they implicitly assumed that IT was chiefly a tool.

In accordance with Heidegger (1962) the transparent use we make of IT devices—which to be rigorous cannot be made equal to IT itself[27]— reveals them as tools. Yet, Heidegger addresses the tool-ness of entities while describing how we *always already* are in the world, which means that the tool-ness of IT shows up in an account of the world, not in an account of technology as such. Thus, although the tool character of technological objects is obviously correct, by no means does it signify that technology is itself *essentially* a tool (Heidegger 1977:6). This tool-ness is something pertinent, but it belongs to the realm of appearances, that is, of particular and actual technological devices. Phenomenologically investigating one needs to uncover the crucial common-ness of the phenomenon, which belongs not to actuality but to consciousnes; not to existences but to essences.Thus, as long as we remain in the realm of appearances we can never be certain we have achieved a fundamental grasp of the matter in question. This means that IT is indeed a tool, but it can also *essentially* be something else.

For Heidegger, the essence of modern technology is anything but a tool (ibid.). Thus, we follow Ciborra (1998:318) in that the works of Winograd and Flores and Ehn have to be overcome. In our thesis we submit that Heidegger's account of modern technology has much to contribute to the understanding of the essential nature of IT, a phenomenon whose *readiness-to-hand* (Heidegger 1962) will be shown to belong to the very essence of IT although in a quite different manner to its apparently definitive *tool-ness*. We claim that our phenomenological uncovering of the essence of IT is a consistent and proper bringing

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[27] We detail this aspect in Chapter 4.

together of early (1962) and later (1977) Heidegger, which is something not done up to now, because in many cases it was considered unrealisable either explicitly or implicitly.

The application of the theory of autopoiesis to IS and management research has also been growing—in some cases Heidegger and autopoiesis have been applied complementarily, such as in Introna (1997) and Winograd and Flores (1986) who use autopoiesis theory, although relying more heavily on Heidegger's *Being and Time*. Early in the 1990s, Harnden (1990) and Harnden and Mullery (1991) used autopoiesis to try to reconcile two phenomena which, they say, have been widely separated in many traditional analyses: the way people think and the way computers work. Whitaker (1992) applies phenomenological and linguistic aspects of autopoiesis to outline a new approach to group decision support systems, emphasising mutual orientation and contextualisation. He (Whitaker 1993) discusses the applicability of Maturana and Varela's work to issues of human/computer interaction, particularly where groups are involved, and analyses the issue of 'context', within a knowledge management perspective, from an autopoietic standpoint (Whitaker 1996).

Vicari (1991), Von Krogh and Vicari (1993), Von Krogh, Roos and Slocum (1994), and Magalhães (1999) used concepts of autopoiesis to address the evolution of organisational knowledge. Von Krogh and Roos (1995) and Vicari (1991) apply autopoiesis to understand the firm as a living system. Morgan (1986), Smith (1982), and Wealthy (1992) rely in some autopoietical insights to develop new understanding in the realms of organisational change. Broekstra (1998) uses autopoiesis to classify language and conversations as the core of organisational and strategic issues. More recently, Introna and Andersen (1999) use the autopoietic concept of *internal coherence* to explore a new way into strategic management. Mingers (1995) presents a sound introduction and exposition of autopoietic theory, highlighting applications of autopoiesis in management, IS, organisations, law, and other areas. In addition, the general academic literature on autopoiesis has grown enormously over the last thirty years.

1.5. Recapitulation

This phenomenological investigation has an empirical beginning and an empirical ending (as will be shown at the proper place). It is a quest guided beforehand by the empirically experienced need of clarifying the relationships between the phenomena of IT and strategy. This chapter addresses the way in which this problem has shown up to us, and, by reviewing important literature on the trajectory of IT in organisations over the past half century, it establishes its contours and relevance.

The total figure for IT spending over the past forty years must now be around US$8 trillion. During this period, human activity in the world, in organisations in general and in businesses in particular, has been adapting to this gigantic challenge. However, the

evolution of IT in organisational contexts has been erratic. Since the mid 1990s the manner in which companies have been absorbing IT – after the *Ad hoc*, Vertical, Strategic, and Horizontal manners – has been an Exploitative one (Table 1.1).

Developments over the two last decades have shown that IT is deeply entangled with the phenomenon of strategy, which is apparently about being both affected by, and affecting, IT. Most organisations that have introduced IT have so far assumed that the technology is merely a tool. Yet, as more and more organisations increasingly share the IT cognitive scheme, IT seems to be much more an infrastructure or a context than just a tool. Given this critique, our dissertation addresses the nature of IT, centred on the basic research question *How does IT affect strategy?*

The methodological approach of this investigation, presented in detail in Chapter 2 relies, mainly, on examining that which IT and strategy *essentially* are. Acknowledging that our descriptions of and elaborations on these phenomena necessarily proceed against a background of intelligibility, we have established the need for making explicit the ontological and epistemological assumptions of this investigation. Ontology, the most primary stand on the nature of that which is, shows up as decisive in shaping the inquiry.

Given this understanding, we entered Heidegger's (1962) ontology, which fully reverses the traditional interpretation that theory precedes practice, and brings the ontological question to the core of human action in the world. Describing coping with the available, and recovering the relevance of the difference for the meaning of Being, we showed that we are not primarily observers in everyday existence, but engaged actors capable of intuitively dealing with other beings around us, in a world that matters to us because ontically we are ontological beings: "Dasein is ontically distinctive in that it is ontological" (ibid.:32).

This outset opens up a way for a fundamental account of IT and strategy, against an ontological background based on Heidegger's (1962) findings on humanness and on the biological theory of autopoiesis (Maturana and Varela 1980, 1992), which are thoroughly reviewed in the Appendixes. In this chapter we give an account of the use that both Heidegger's investigations (1962, 1997) and autopoiesis have had in the IS field of research.

Our investigation can be seen not as a matter of explaining how IT and strategy function (the ontic issue), but rather as a quest to understand their significance, and to make sense of them (the ontological issue).

Chapter 2
A Phenomenological Investigation

… not so much of encountering a new philosophy as of recognizing what they [the readers of Husserl and Heidegger] had been waiting for.

Merleau-Ponty
Phenomenology of Perception (1962:viii)

In this chapter we introduce phenomenology, characterise its key concepts, and present the method of investigation to be applied.

Our investigation attempts to demonstrate the possibilities of phenomenology in the IS research field, in its original form as proposed by Husserl and developed by Heidegger. As suggested by Spiegelberg (1975, 1994) we extend Husserl's initial formulation of phenomenology by articulating a last phase of the method, in order to open up possible concealed meanings of phenomena.

2.1. The Idea of Phenomenology

Phenomenology, and the intellectual activity it addresses, has existed since the 18th century. However, it began to take shape as a new and distinct movement only with the impact over a hundred years later with the first works of Husserl: *The Concept of Number, Logical Investigations* vol.1, and *The Idea of Phenomenology*, written in 1887, 1901, and 1906 respectively. Phenomenology has, therefore, "long been on the way, and its adherents have discovered it in every quarter, certainly in Hegel and Kierkegaard, but equally in Marx, Nietzsche and Freud" (Merleau-Ponty 1962:viii). [28] With those publications, Husserl initiated the intellectual movement that would bring a new and widely accepted meaning to the word phenomenology [29] —as a way of doing philosophy and science. Thus, phenomenology became the use of the phenomenological method of investigation.

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[28] Johann H. Lambert (1728 - 1777) wrote in *Neues Organon* about the distinctions between truth, illusion and error, under a discipline he called *phenomenology* (Spiegelberg 1980). Immanuel Kant (1724 - 1804) used the word phenomenology with a different meaning from the current one. He distinguished objects 'as they appear to us' (*phenomena*) from objects as 'they are in themselves' (*nouema*). Sir William Hamilton (1788-1856) in the work *Lectures on Metaphysics* identified phenomenology as a purely descriptive study of the mind. Edward von Hartmann (1842-11906) used it when performing a complete description of moral consciousness (*Phenomenology of Moral Consciousness,* 1878) (Schmitt 1996:135).

[29] Although phenomenology has grown beyond the point where its ownership can be assigned to any particular philosopher, its central figure is undoubtedly Edmund Husserl, the Austrian-born German scientist and philosopher. Husserl received his Ph.D. in the University of Vienna in 1883, with a thesis on the calculus of variations within astronomy and physics. He started his academic career at the University of Halle before moving to Gottingen for fifteen years (1901-1916). He ended his career in Freiburg im Breisgau, holding a full professorship until his retirement in 1928. He died in Freiburg in 1938 at the age of 79.

Germany became the centre of the phenomenological movement in the early 20th century, in particular at the universities at Göttingen[30] and Munich. As the movement grew, Husserl (1964) in *The Idea of Phenomenology* presented a clear picture of phenomenology, stating that its object is 'absolute data' grasped in pure, immanent intuition; and its goal is to discover the essential structures of the acts (*noesis*) and the objective entities that correspond to them (*noema*).

Since then, phenomenologists have explicitly shared the principle that intuitive experiences—which are all the subject's experiences—constitute the ultimate foundation of all our concepts and beliefs; direct evidence, or self-evidence of intuitive data, is phenomenology's final test of truth (Spiegelberg 1975). In the preface to the first volume of the *Jahrbuchfür Philosophie und phänomenologische Forschung* (1913:1), Husserl wrote:

> "What unites them [phenomenologists] is (…) the common conviction that only by a return to the primal sources of intuitive experience and to the insights into essential structures which can be derived from it shall we be able to utilise the great traditions of philosophy with their concepts and problems, and that only in this way will it be possible to clarify the concepts intuitively, to reformulate the problems on an intuitive basis and thus, ultimately, to solve them, at least in principle" (quoted in Spiegelberg 1975:80).

Phenomenology strives to be a method aimed at the foundations of all knowledge, craving to be built on anything but pure consciousness—a method to be based on nothing but pure evidence and necessary *primary-ness*. This ambition of relying only on that which shows itself as absolutely necessary has important implications.

On the one hand, data appearing in consciousness cannot be previously classified or scrutinised on the grounds of its validity or relevance. To phenomenologists, any data is of interest, provided it appears intuitively in consciousness, that is, originating in our imagination or based on our sensory perceptions: a number, a house, a tree, a theory, a mermaid, a PC, IT, or strategy.

Husserl's teacher at Vienna, Franz Brentano (1838-1917), said that "phenomenology shares an unconditional respect for the positive data of experience" (Biemel 1980:625). However, it does not restrict data of interest to that kind of data. Phenomenology also admits on equal grounds 'categorial', non-sensory data such as values and relationships—as long as it presents itself intuitively and evidently in consciousness. On the other hand, as a non-empirical method of investigation that wishes to reach pure phenomenon as they appear in consciousness, phenomenology implies that its object must be stripped of historical contexts, scientific explanations, philosophical interpretations, or any kind of constraint other than the very basic structures of human consciousness.

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[30] Between 1913 and 1930 Husserl and his colleagues in Göttingen University started to publish the *Jahrbuchfür Philosophie und phänomenologische Forschung* (1913-1930)—*Yearbook of Philosophy and Phenomenological Research*. This was is one of the most significant milestones in the history of phenomenology. Husserl was its editor-in-chief. Heidegger's first publication of *Sein und Zeit* in 1927 appeared in the *Jahrbuch,* vol.8.

For Husserl the scientific rigour of phenomenology came primarily from the deductive sciences, "familiar to the mathematician rather than that of the inductive natural sciences" (Spiegelberg 1994:72). Let us quote Husserl (1917) at his inaugural lecture at Freiburg:

> "We often speak in a general, and intelligible, way of pure mathematics, pure arithmetic, pure geometry, pure kinematics, etc. These we contrast, as a priori sciences, to sciences, such as the natural sciences, based on experience and induction. Sciences that are pure in this sense, a priori sciences, are pure of any assertion about empirical actuality. Intrinsically, they purport to be concerned with the ideally possible and the pure laws thereof rather than with actualities. In contrast to them, empirical sciences are sciences of the *de facto* actual, which is given as such through experience. Now, just as pure analysis does not treat of actual things and their de facto magnitudes but investigates instead the essential laws pertaining to the essence of any possible quantity, or just as pure geometry is bound to shapes observed in actual experience but instead inquires into possible shapes and their possible transformations, constructing ad libitum in pure geometric fantasy, and establishes their essential laws, in precisely the same way pure phenomenology proposes to investigate the realm of pure consciousness and its phenomena not as *de facto* exists but as pure possibilities with their pure laws" (Husserl *in* McCormick and Elliston 1981:16).

Husserl saw phenomenology as an attempt to achieve for words the kind of *rigourness* that is associated with numbers. This sought to experience the humanness of the world *rigorously*, not to know or experience the world in its *numberness*, as is the case for the exact sciences. This requires uncovering the world as it is directly experienced and primarily accessed, as a world always already in place before reflection begins. This world, primarily lived by men, is the "world which precedes knowledge, of which knowledge always speaks" (Merleau-Ponty 1962: ix).

In trying to regain this kind of direct access to the world as it is primarily experienced, phenomenology asserts that any kind of analysis is always an *a posteriori* exercise. What phenomenology wants to address, and tries to thematise, is not an analysis or an explanation but a description of experiencing the world. It "is a matter of describing, not of explaining or analysing" (ibid.:viii), much in the way Nietzsche (1974:172-3, n.112) touched upon this theme: "We call it 'explanation', but it is 'description' which distinguishes us from earlier stages of knowledge and science. We describe better — we explain just as little as any who came before us. (…) Quality, in any chemical change for example, appears as it has always done as a 'miracle'; likewise all locomotion; no one has 'explained' thrust." Acknowledging this critique, phenomenology is devised not to explain but to describe our initial experiencing of phenomema as they are in themselves.

Where should this primary experiencing be found? Phenomenology's answer was unequivocal: *in the things themselves,* in the phenomena "in which all our concepts are ultimately grounded" (Spiegelberg 1994:77). *To the things themselves!* became phenomenology's watch-word, stressed by all major phenomenologists, namely Husserl, Heidegger, Merleau-Ponty, and Sartre.

To the things themselves means a turning towards phenomena that had been locked from sight by the taken-for-granted assumptions by the prevalent common sense of our daily

coping, which Husserl named our 'natural attitude' or 'naïve attitude' (Husserl 1982). The motto emphasises the need to overcome the theoretical patterns of phenomena that scientists and philosophers had, explicitly or implicitly, treated as being beyond questioning. As Merleau-Ponty pointed out, 'to return to things themselves' is:

> "(…) to return to that world which precedes knowledge, of which knowledge always speaks, and in relation to which every scientific schematization is an abstract and derivative sign-language, as is geography in relation to the country-side in which we have learnt beforehand what a forest, a prairie or a river is" (Merleau-Ponty 1962:ix).

Phenomenology aims at a fresh approach to concretely experienced phenomena arising from sensory experience or mental processes. It attempts to describe phenomena faithfully and presuppositionless, without expecting to arrive at an understanding from any starting point other than the facticity of an always and already experienced world (Heidegger 1962, Husserl 1970, Merleau-Ponty 1962).

This phenomenological turn towards focusing on the object was soon supplemented by a turn towards the subject (Spiegelberg 1994:77). Husserl came to the conclusion that the primary experiencing of that which is lies deeper, namely in the consciousness of the knowing subject to whom phenomena appeared. Every experience, collection or recollection of facts, deduction or induction has an irreducible, *subjective* nature. Husserl found this experience, knowledge, or understanding of a subject both primary and self-evident, that is, *apodictic*. The subject is the absolute source, which is there before reflection and before any kind of awareness has begun. Merleau-Ponty illuminated this issue, noting that that which is the world is not what we put into words:

> "I am not a 'living creature' nor even a 'man', nor again even 'a consciousness' endowed with all the characteristics which zoology, social anatomy or inductive psychology recognize in these various products of the natural or historical process—I am the absolute source, my existence does not stem from my antecedents, from my physical and social environment; instead it moves out towards them and sustains them, for I alone bring into being for myself (and therefore into being in the only sense that the word can have for me) the tradition which I elect to carry on, or the horizon whose distance from me would be abolished—since that distance is not one of its properties—if I were not there to scan it with my gaze" (Merleau-Ponty 1962:viii-ix).

This means the essence of that which turns towards the things themselves—the *absolute source*—must be what would reveal things as themselves, in the only sense they could have for that source, for whose gaze things were scanned. In his later work, Husserl adopted the view that "all logical entities, along with all other objectivity, had their origin in subjectivity", and he tried to show how universals are constituted by the subjective consciousness that builds upon the perceptual experience of particulars (Spiegelberg 1994:96-97). Thus, the things at stake in the motto *To the things themselves!* "are the acts of consciousness and the objective entities that get constituted in them" (Biemel 1980:626). These things are Husserlian *phenomena*.

This double turn, towards the things *and* the subject, was unified under the expression 'Husserl's radicalism', which aimed at a philosophy free from presuppositions; a freedom

that stands for the elimination of assumptions that have not been thoroughly phenomenologically verified [31]. In the Introduction to the first volume of *Logical Investigations*, Husserl (2001) wrote:

> "In our opinion the principle [freedom from presuppositions] cannot mean more than the rigorous exclusion of all statements that cannot be fully and completely verified phenomenologically… [Phenomenology] contains in its scientific statements not the least assertion about real existence; hence no metaphysical, no natural science-like and specifically no psychological assertion must figure among its premises".

The ground on which phenomenology can free statements from presuppositions is achieved through a full and completely phenomenological verification. Phenomenology cannot promise more—"cannot mean more"—because the ultimate ground where knowledge is to be found must rely on the structures of the knower. According to Husserl (1982, 1964, 1995), a thing is always a thing for someone.

This argument is supported by the two theories on which this investigation has its ontological and epistemological basis: Heidegger's being-in-the-world and Maturana and Varela's autopoiesis. To Heidegger (1962) phenomena can be accessed only as they are in the world when taking into account the being we ourselves are. He developed the last phase of the methodology which we apply—*Interpreting Possible Concealed Meanings of Phenomena* (ibid., Division II)—to account for the subjected-ness of phenomena. To Maturana and Varela (1985, 1992) the world is a bringing forth based on the beingness of beings and its singular presence in time and space.[32]

2.2. The Place of Phenomenology

Phenomenology strives for an essential description of phenomena, as they are in consciousness, in their own terms. This description is distinct from an idealistic return to consciousness as an already in place intellectual construction projected onto the world, or onto whatever issue is being accessed. Idealism does not depend on descriptions, but on analysis and explanation that takes an *a priori* position. Phenomenology is also distinct from empirical analyses whose results depend on a previous delimitation of the kind of data to be considered valid when addressing a phenomenon. The world addressed by phenomenology is the *world always already there* (Heidegger 1962, Merleau-Ponty 1962), as an inalienable presence, before any reflection begins—"The world is precisely that thing of which we form a representation" (Merleau-Ponty 1962:xii).

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[31] The motive for emphasising this kind of approach is that, by the beginning of the 20th century, phenomenologists feared that this primarily experienced world had already been lost, locked from sight by the theoretical patterns that surrounded them. It was claimed that previous philosophical commitments had distorted descriptions of phenomena because they had focused "on what the subject *should* be experiencing, not what the subject was actually experiencing" (Hammond et al. 1991:3).

[32] That these claims do not lead to solipsism is something clarified by the theoretical foundations of this investigation (refer to the Appendices).

Empiricism aims at providing causal explanations for phenomena. Idealism aims to offer analytical reconstruction of the real, by identifying the rules that make the phenomena in question possible. Phenomenology is neither of these, but is "a matter of describing, not of explaining or analysing" (ibid.:viii); "the real has to be described, not constructed or formed" (ibid.:x).

Merleau-Ponty (ibid.) claims that both empiricism and idealism have the same basic *view of what the world is like.* "Both take the objective world as the object of their analysis" (ibid.:26), which means decisively that both empiricism and idealism 'objectify' the world. Such objectification, cardinal to all that would follow, is not explicitly assumed; in many cases, it is not even made consciously. This 'objective thought' consists of assumed objects, clearly identifiable in terms of their properties, places in space, and locations in time. These objects form the world, as the totality of all kind of objects, whose properties in principle are open to a complete description and causal explanation (Hammond et. al. 1991:130). All these aspects are assumed as capable of being independently and fully specified; this specification is supposed to explain whatever is to be explained.

Once this view is in place, argues Merleau-Ponty (1962), the world is still open to explanation—empirical treatment or idealist construction—despite the 'objectivist' view has been set for good. Merleau-Ponty (ibid.) contends that this undermines any proposal whatsoever based on 'objective thought', because before we can explain, or even access what is there to be accessed, one has already set the terms in which this accessibility is to happen.

Empiricism does not consider what we have already assumed, what we 'know' and what we are, when we look for something. Intellectualism does not acknowledge that we can question something only because we do not consciously have understanding of it. They both bypass our initial and constant mode of being in the world: acting, already. "Empiricism cannot see that we need to know what we are looking for, otherwise we would not be looking for it, and intellectualism fails to see that we need to be ignorant of what we are looking for, or equally again we should not be searching" (ibid.:28).

Empiricism cannot justify why it is that, in perceiving a particular object—for example a tree— we see its various features as 'belonging together', as constituting the unity we distinguish from other objects and from the background. Empiricists would argue that such a 'constitution' is based on one's past experience and the projection of memories. But how is the subject to 'know', to choose, which are the relevant past experiences and memories to rely upon? In selecting the relevant memories the subject has already recognised the object, so he would not need the memories after all. If he has not recognised the object, the subject could not 'know' which memories he has to rely upon (ibid.:15-16).

In arguing against intellectualism, Merleau-Ponty (ibid.) made the point that perception is not judgement. We do not experience the world as we judge it, but as we perceive it. Our

primary mode of experiencing the world is a practical one; it is not a thinking about the world, but rather a 'be-ing', acting, behaving, and performing in the world. Judgement is the "taking of a stand, as an effort to know something which shall be valid for every moment of my life" (Hammond et. al. 1991:145). Sense experience, in contrast, "is taking appearance at its face value, without trying to possess it and learn its truth". This distinction—"to see something in front of one (…) is quite different from making the judgement that it is there" (ibid.:145)—vanishes in intellectualism "because judgement is everywhere where pure sensation is not" (Merleau-Ponty 1962:34). Intellectualism recognises no role at all for perception as initial perception of, and in, the world. Only when we reflect on this perception do we judge the world, or whatever we begin to search for in the world, because we do not consciously 'know' it.

Empiricism and intellectualism misdescribe the lived world because their theories and explanations are systematically distorted by the 'prejudice of 'objective thought'. Yet, phenomenology does not reject either of them altogether, but acknowledges that each has something useful to offer in helping to understand human experience. However, because the world human beings live through, and perceive, *is not* that objective world, phenomenology cannot accept either the objectivist approach of empiricism—"a world that exists in its own right, independently of one's knowledge of it, and including within it those beings who are able to acquire such knowledge" (Hammond et al. 1991:150)—or the subjectivist approach of idealism, of a world "somehow constituted as such by a transcendental subject" (ibid.:150). Instead, this world is one in which we always and already find ourselves acting and living (Heidegger 1962, Merleau-Ponty 1962, Husserl 1970).

The world "is not an object such that I have in my possession the law of its making; it is the natural setting of, and the field for, all my thoughts and all my explicit perceptions" (Merleau-Ponty 1962.:xi). We, the beings we ourselves are, are in the world—and only in the world do we know ourselves. This world is that which is primary, that of which we intend knowledge being always speaking. This phenomenological quest is not an obvious or an easy one. "Nothing is more difficult to know than precisely *what we see*" (ibid.:58) because, in seeing something, we are no longer concerned with ourselves—that is, we are already far away from the world as we experience it in all its *ante-predicative-ness.*

In its endeavour to find a presupositionless method of investigation, phenomenology does not take any position on the traditional subject-object dichotomy, which it overcomes by stressing the need to describe and not to explain. When fully applied, the phenomenological method of investigation is devised to enhance our understanding of the phenomenon at stake. By describing it, recounting its etymology, reducing it to consciousness, penetrating its essence, watching its appearances, and uncovering concealed meanings, it is correct to say that, to some extent, a full phenomenological analysis not only describes, but *explains* as well. Yet this explanation has different meanings and implications from the traditional

empiricist or intellectualist explanations. The phenomenological explanation as far as its empirical relevance is concerned addresses the degree in which it makes sense and appears to us in all its evidence and intuitiveness. This is addressed in Chapters 3 and 6 will detail this aspect.[33]

The phenomenological method has been applied to a wide range of phenomena for the past century. We should consider these applications, *per se,* differently from their findings. The method is a way into phenomena, a *manner* of investigation. The organisation, structure, and interpretation of findings are scientific or philosophical theories, not phenomenology itself—which is a method of investigation.

For example, Husserl used phenomenology as a method to find an indubitable, primary, and self-evident base for knowledge. He applied phenomenology to investigate the foundation of knowledge, suspending belief in the existence of the world (Husserl 1995) in a similar manner to Descartes' doubt of everything (Descartes 1993). Husserl turned to Descartes' method as the model to achieve that which is given beyond the shadow of doubt. In *Cartesian Meditations* (first meditation), Husserl (1995:1-3) introduced the concept of *epoché*. By analogy with Descartes method of doubt, *epoché* suspends belief in the existence of the world. Although they originated in a similar need for evidence, the *epoché* and Cartesian doubt are different things.

The *epoché* is not concerned with the existence or non-existence of the phenomenon, nor does it doubt it in order to methodically confirm or totally deny it. *Suspending belief in existence* brackets the question of existence of the phenomenon under investigation because phenomenology just wants to achieve a foundational description of the phenomenon, before undertaking any investigation concerning its existence or non-existence. When we are questioning the existence or non-existence of a particular phenomenon, we must have already identified that same phenomenon in such terms as to conclude that it exists or does not exists—only after we recognise a phenomenon can we question its existence. Phenomenology does not address the question of existence, but does investigate the earliest question of essence.

By *reducing* the experiencing of the subject to a phenomenon in consciousness, Husserl's investigations culminated in the *pure Ego*. This Husserlian *Ego* survived the suspension of belief in the existence of the world. It must therefore relate to a domain different from the suspended world: the *transcendental* domain, in Husserl's technical term. So, Husserl broke with Descartes' *Cogito, ergo sum* by pointing out that the surviving *Ego* cannot be relocated in the world whose existence was suspended.

Husserl argues that Descartes committed an error when he deduced 'I exist' from the indubitable 'I think', because Descartes wrongly ascribed to the 'pure Ego' the status of an

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[33] For now, its is sufficient to note that the power of a phenomenological account is deeply intricate with our intuitive and instinctive going on action in the world.

object in the world. To understand Husserl's argument, one must recall the concept of *epoché*, and its full consequences. The Ego that remains after the *epoché* has been performed survived the suspending of belief in the existence of the world; thus, Husserl concluded it is not a part of the world:

> "This Ego, with his Ego-life, who necessarily remains for me, by virtue of such epoché, is not a piece of the world; and if he says, 'I exist, *ego cogito*', that no longer signifies, 'I, this man, exists'. (…) nor am I the separately considered psyche itself" (Husserl 1995:25).

Here we are at the core of Husserl's disagreement with Descartes. For Husserl, the *epoché* reveals an indubitable thinking Ego, separated from the existence of the world, and from the 'I', as a man in the world which was suspended at the beginning of the investigation. To Descartes, the indubitability of the 'I' that thinks reveals himself as a subject in the world. Husserl did not accept this because whatever survives the *epoché* when the world has been *bracketed* cannot return as a something of that same world:

> "Descartes does not make clear himself that the ego, his ego deprived of its worldly character through the epoché, in whose functioning *cogitationes* the world has all the ontic meaning [sense of 'existence'] it can ever have for him, *cannot possibly* turn-up as a subject-matter *in* the world, since everything that is of the *world* derives its meaning precisely *from these functions* - including, then, one's own psychic being, the go in the usual sense" (Husserl 1970:81-2; italics and square parenthesis from the original).

This says that Descartes transforms the Ego that emerges as an Ego not in the world into a part of that same world. Husserl, therefore, concluded that the 'purity' of the Ego emerging from the *epoché* is primary to the world, independent of the world's existence, which in turn is dependent on this Ego and on its *cogitationes*. This *transcendental Ego* is therefore the sense-giving Ego. It has a presuppositional role because only through it do objects in the world gain their status as existent objects. Husserl ended this phenomenological quest on clearly ontological grounds.

While agreeing with Husserl's critique of Descartes' conclusion, Heidegger disagreed with Husserl's own claims. Heidegger (1962) used phenomenology to describe our being in the world and to access the essence of modern technology (1977), among other investigations. When analysing what it is to be human, Heidegger agreed with Husserl's critique of Descartes *Cogito.* Yet, Heidegger disagrees with Husserl's conclusion. Heidegger points out that the world, in its *worldhood* (Heidegger 1962), is precisely that whose existence cannot be suspended. We simply are unable to do that. Heidegger's central notion of *being-in-the-world* appeared against this phenomenological background of the reduction.

Merleau-Ponty (1962) used the phenomenological method to describe perception. Other phenomenologists used the method to investigate many diverse phenomena. For example: Spiegelberg (1975) analyses the phenomena of 'experience', 'approval', and 'we'; and Hamrick (1985) gives phenomenological accounts of 'kindness', 'political left and right',

'coercion', 'appeal', 'good', 'beautiful', 'symbol'. The method is independent of its applications. It can be applied to whatever phenomenon we think we are facing.

2.3. Key Concepts of Phenomenology

Phenomenology is rich in technical concepts. But when one considers that phenomenology aims at recovering that which is primary in our experiencing, this seems to create a contradiction. However, this apparent paradox is resolved because the kind of phenomena addressed, initial and foundational, are not that about which we usually speak and concern ourselves with; thus, common words and ordinary language are insufficient for phenomenological investigations.

In the following sub-sections, we introduce the phenomenological technical concepts of *intentionality, description, reduction,* and *essence,* which fundamentally characterise a phenomenological analysis in its full scope (Spiegelberg 1994, 1975; Biemel 1980; Schmitt 1996). These concepts were conceived and put to use by Husserl early in the 20th century, and have continued to be used in the phenomenological investigations since then.

2.3.1. Intentionality

Husserl noted that a thing is always a thing for someone, and an experience is always an experience of something. Consciousness is the realm where things and experiences appear as what they are: as *datum*. This is consistent with the phenomenological unwillingness to accept the dualistic assumption of the separation between consciousness and matter, mind and body, subject and object.

To be conscious means to be conscious *of* something, that is, to be directed towards something. Experiences "always refer to something beyond itself, and therefore cannot be characterised independently of this (…) no straightforward sense can be given to an outer, external, world of objects which are not the objects of such experiences" (Hammond et. al. 1991:2-3).

In perceiving, judging, willing or hoping something, we are in a *being-directed-toward* (Husserl 1982, 1964, 1995) in a kind of experience that is itself intentional. [34] This intentionality, either sensory based or purely mental, allows us to assign a variety of successive data to the same referents or poles of meanings. "Intention supplies the synthetic function by which the various aspects, perspectives, and stages of an object are all focused upon, and integrated into, identical cores" (Spiegelberg 1994:98).

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[34] There are many possible experiences with different intentional objects and different kind of perceiving, such as remembering memories, imagining things, elaborating ideas, evaluating concepts, judging states of affairs, and so on.

Intentionality means this property of consciousness of being always already conscious *of* something. 'Consciousness of something' is for Husserl the fundamental property of consciousness. Consciousness is intentional—it is structurally directed at something. Things, notions, phenomena in consciousness always appear to be *outside*, whether one assumes there is anything outside or not (Hammond et al. 1991:48). In this manner, without exception, every conscious process is, in itself, consciousness *of* such and such, regardless

 of what the rightful actuality-status of the objective such and such may be (Husserl 1995). Intentionality of consciousness addresses appearances and phenomena in consciousness. What is at stake is the need to describe that which is the phenomenon in consciousness, regardless of whether or not it exists. Only on the basis of this primary identification would one be able to conclude anything about its empirical existence.

This fundamental *outward* direction of consciousness means that consciousness—the experiencing or acts of consciousness—and objects have an *inseparability*. Objects of consciousness and acts of consciousness are interdependent. One cannot address each of these elements separately, "rather one can identify each item in the relation only by reference to the other item to which it is related" (Hammond et al 1991.:48). They point beyond themselves: acts of consciousness point to objects meant; objects point to acts of consciousness that meant them.[35] Thus, they cannot be investigated independently, which implies that an account of a phenomenon must include both aspects: the object, the *cogitatum*, the *noematic*; and the act itself, the *cogitatione*, the *noetic*.

Husserl concluded that the intentionality of experience announces its essential structures, namely: (i) the <u>subject</u>: the consciousness that is experiencing something; (ii) the <u>action</u>: the kind of experiencing consciousness is performing; (iii) the <u>intentional object</u>: that towards which consciousness is directed; and (iv) <u>what is asserted</u> about the intentional object. For example, when seated *we can feel the chair comfortable*—we (*subject*) can feel (*action*) the chair (*intentional object*) comfortable (*what is asserted*).

These elements are not brought together in a simple relationship. Husserl saw in the intentional reference of consciousness the objectivising function of the arrangement of meaning, in which intentional objects and intentional acts are structured in different modes. Whatever concerns the object—that towards which consciousness is directed—is structured by the *synthesis of identification*, which arranges all the object's appearances as appearances of itself, of the same object, regardless of the locality or the time of these appearances.

Experiences are not structured in the way the appearances of objects are structured. If we have two similar experiences at different times, we still have those two experiences, not

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[35] Both of them can also point to elements to the same kind: acts of consciousness to other acts of consciousness (for example, remembering an experience) and objects to other objects (such as a plate to a table).

'appearances' of the same experience. Nevertheless, we recognise we have similar experiences, or experiences of the same type. This shows that we have performed a synthesis. Husserl (1995) calls this the *synthesis of types of modes of consciousness*, which appeals to all the experiences we had in the past that may fall within the same type. It imposes a new light on past experiences, changing their meaning and clarifying the intentional object in consciousness. The new synthesis that unifies past experiences within the same type makes possible the appearance of future experiences of the type of those already experienced.

This structure of intentional acts seems to be a simple one because it can arise only if a background of intelligibility and coherence is already in place. We simply cannot combine any type of elements of the essential structure of consciousness to experience a meaningful assertion. We apply "certain rules to determine which subject can be combined with what actions, which intentional objects, and which means of assertion to form coherent intentional acts" (Schmitt 1996:146). Each one of the four elements that constitute an intentional act must be appropriate for the other three elements. If any element is inappropriate, the intentional act makes no sense. For example, the action can be inappropriate to the object—"to predict the past"; or the means can be inappropriate to the action—"killing a person with kindness"; or what is asserted can be inappropriate to the intentional object—"this formula smells of strawberry"; and so forth.

Although these expressions literally make no sense, sometimes they can be used meaningfully within an adequate context. The sequence of intentional acts in which an apparently senseless act appears is what carries the possibilities of meaning for this latter act. Although we know the expression "killing a person with kindness" literally makes no sense,[36] it is often used to mean that an excessive kindness over someone may indeed be prejudicial to that person. For instance, it might create a situation in which the person does not cultivate, educate, or prepare himself or herself, that is, the person may be compromising his or her future by relying on that 'kindness'.

A single intentional act has, in its constitution, a coherence between all its elements. Only within this coherence is the act intelligible. The same argument applies to a series of intentional acts. Each act establishes its sense within a sequence of intentional acts. It is on the grounds of what the action itself is about, plus in what consist the relationships between its elements, and what is the location of the act within the sequence of acts to which it belongs, that the act gains its intelligibility. "We know what a man is up to if we understand the sequence of his actions and have correct expectations about what he is going to do next" (ibid.:147). If our expectations are not met, we think that either the man changed his mind, or that we did not understand him from the beginning.

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[36] Against the sequence of intentional acts in which it appears, the expression makes no sense. In this text its central meanings are emphasised in that the expression referred to is to be taken literally.

The coherence of the intentional act, both in terms of what concerns its four elements and the series of intentional acts to which it belongs, comes before any consideration about the good or poor performance of the acts. The relations of coherence and incoherence of intentional acts form a *horizon*—the *horizon* of intentional acts (Husserl 1995). For Husserl, the horizon of an intentional act is all other experiences or perceivings one might have of that same act. "[T]he perception has horizons made up of other possibilities of perception, as perceptions that we *could* have, if we *actively directed* the course of perception otherwise; if, for example, we turned our eyes that way instead of this, or if we were to step forward to one side, and so forth" (ibid.:44). These possibilities of perception can become actual only to some extent, because we can never have all the possible perceptions of an experiencing. Thus, any experience always has horizons.

Each of the appearances of a particular experiencing is, "for consciousness a manner of exhibition *of* it. This implies that, while the surface is immediately given, I mean more than it offers. Indeed, I have ontic certainty of this (…) [experience] to which all the sides at once belong (…)" (Husserl 1970:157-8). This signifies that an actual experience makes its perception in consciousness something more than our actual experience, that is, the intentional object is more than the appearances. That which lies hidden behind its appearances is the phenomenon itself (Heidegger 1962:59). This phenomenon does not rely on any particular appearance of the object, but rather on them all. [37] This means that the phenomenon, such as Husserl's (1995) example of die, "is already 'constructed' in advance" (ibid.:45) because it is that on which all appearances are dependent. To distinguish 'an appearance of the die', we must already have an idea of what the die *is*, of the *what-ness* of the phenomenon die. This *what-ness* is the key phenomenological concept of essence.

Horizons establish themselves on essences and provide the intelligibility of intentional acts in their actual or potential appearances. To Husserl, it is this horizon, this context of coherent intentional acts, which is the founding constitution of meaning. Within this horizon, acts become meaningful. Meaning is thus the way in which the relationships among the intentional acts of a series, and among the four elements of each act, stand out. Meaning is a relationship, a something *as* something (Heidegger 1962). Thus, to be conscious is to give meaning to the world in consciousness "in so far as I am a consciousness, that is, in so far as something has meaning for me" (Merleau-Ponty 1962:xi).

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[37] As Merleau-Ponty (1962: 67) explains: "I see the next-door house from a certain angle, but it would be seen differently from the right bank of the Seine, or from the inside, or again from an aeroplane: the house *itself* is none of these appearances: it is, as Leibniz said, the geometrized projection of these perspectives and of all possible perspectives, that is, the perspectiveless position from which all can be derived, the house seen from nowhere". The house, as phenomenon, is the disclosure of that which, lying hidden, is always implicit as *horizons*, that is, as the totality of perspectives. "[T]he house itself is not the house seen from nowhere, but the house seen from everywhere. The completed object is translucent, being shot through from all sides by an infinite number of present scrutinies which intersect in its depths leaving nothing hidden" (ibid.:69).

Merleau-Ponty suggests that the phenomenological concept of intentionality is new, in that it shows the unity of the world—that towards which consciousness is directed—to be the primary *lived*, as an already there (ibid.:xvii). This primary world, shaped within the immediate experience of men—in which all intentional acts and their meaning are constituted—is addressed in Husserl's (1970) *life-world*, Heidegger's (1962) *being-in-the-world*, and, to some extent, Wittgenstein's (1967) *form of life*. The foundational realm to which these notions point are always already presupposed in exact science researches; they are the basis on which the concepts and the terms used have their founding constitution.

All our intentional acts take place in the world already experienced as an implicit totality. It is toward this world as a whole that consciousness, as itself is, is always and already directed. This *directedness* is not only a directedness of our acts towards intended objects in consciousness, but a directedness towards a world itself, which we are always and already in (Husserl 1970, Heidegger 1962, Merleau-Ponty 1962).

2.3.2. Description

The description aims at a returning to the world as primarily and directly experienced. The description is an attempt to outline phenomena as purely as possible, without taking into account psychological origins or causal explanations "which the scientist, the historian or the sociologist may be able to provide" (Merleau-Ponty 1962:vii). As such, the investigator should proceed by trying to describe the phenomenon intuitively as it first appears in consciousness. Here, the investigator is not looking to explain the phenomenon, how it functions, or what it means— but just to describe it as it appears to us, intuitively and instinctively.

The description can have different contours, depending on whether or not it is taken as the first phase of a phenomenological investigation. Husserl's proposal was one of starting by performing the *epoché*, suspending belief in the existence of the world, and describing the phenomenon afterwards. Other phenomenologists defended the performance of the reduction after a first description of the phenomenon has been concluded (Spiegelberg 1994:107). The next section deals with this aspect in some detail.

The description addresses the modes in which the phenomenon under investigation appears, that is, it accounts for one's experiencing of the phenomenon. When distinguishing *appearances*, phenomenology does not intend to contrast them with reality, which is the common attitude in ordinary life and many philosophical uses. Instead, phenomenology seeks to differentiate these appearances from the phenomenon itself, that is, from the *all perspectives* against which the thing is experienced in its essence. For example, writing on a PC or watching TV are appearances of IT, but IT, itself, is something different. IT is the phenomenon that appears as a PC, a TV, or any other device—all of them recognised as IT.

The description of the phenomenon under investigation proceeds intuitively towards the intentional object and the intentional act—for example, the PC or the TV, and the writing and the watching. Each of these aspects defines a type of description: the *noematic* description that accounts for the appearances of the intentional object, and the *noetic* description that addresses the experiencing itself.[38]

The *noematic* account describes what we are experiencing, the *cogitata*, the meant object, such as the perceived, wished, or remembered object. It is the description "of the intentional object as such, with regard to the determinations attributed to it in the modes of consciousness concerned… which stand out when attention is directed to" it (Husserl 1995:36). The following is a passage from Husserl's *noematic* description of the phenomenon of 'perceiving a die'[39]:

> "The one identical die appears, now in "near appearances", now in "far appearances": in the changing modes of the Here and There, over against an always co-intended, though perhaps unheeded, absolute Here (in my co-appearing organism). (…) the near-thing, as "the same", appears now from this "side", now from that; and the "visual perspectives" change—also, however, the other manners of appearance (tactual, acoustic, an so forth), as we can observe by turning our attention in the right direction. Then, if we pay particular heed to any of the die's features that shows itself in the die-perception (for example: the die's shape or color, or one of its faces in particular, or the square shape or particular color of that face), the same is again the case. (…) looking straightforwardly, we have perhaps the one unchanging shape or color; (…) we have its manners of appearance (orientational, perspectival, and do forth) following one another in continuous sequence. Furthermore, each of these manners of appearance (for example: the shadowing forth of the shape or color) is itself an exhibition of the shape, the color, or whatever the feature is that appears in it" (Husserl 1995:39-40; italics, parentheses, and quotations marks from the original).

The *noetic* addressing describes the experiencing, the modes of the *cogito*—that is, the ways in which one experiences something, such as perceiving, wishing, or remembering something. When doing this for the phenomenon of die, the attention of the investigator should focus on the perceiving of the 'perceiving a die' rather than the die itself. Husserl noted on this theme:

> "This appearing "flows away" with its temporal extents and phases, which, for their part, are continually changing appearances *of* the one identical die. (…) Now the same die (the same for consciousness) can be intended in highly diverse modes of consciousness — simultaneously, or else successively in *separated* modes of consciousness — for example: in separate perceptions, recollections, expectations, valuations, and so forth" (ibid.:41-42; italics, parentheses, and quotation marks from the original).

This apparently double-sided description is truly the same description, because intentionality unites them in a *synthesis of identification* and in a *synthesis of types of*

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[38] *Noetic* is a Greek word rooted in the verb *noesis*, which corresponds to the Latin verb *cogito*. *Noematic* is the adjectival form of *noema*, a Greek word that means the same as the Latin *cogitatum*.

[39] Husserl performed this description with the aim of achieving a first description of the structures of consciousness itself. Husserl attempted to show that the structures of our experiences are what they are because the Ego, the consciousness that survives the *epoché*, has that same structure. This should be borne in mind when reading this quotation and the next one.

modes of consciousness. For Husserl, all phenomena, united in the referred syntheses, are possible on the grounds of a *fundamental form* that makes these syntheses of consciousness possible. That universal and grounding synthesis is the all embracing consciousness of internal time (Husserl 1995:43):

> "The correlate of this consciousness is immanent temporality itself, in conformity with which all the life-processes belonging to the ego that can ever be found reflectively must present themselves as temporally ordered, temporally beginning and ending, simultaneous or successive, within the constant infinite horizon: immanent time" (ibid.).

Temporality—which for Heidegger is the clue into the question of Being (Heidegger 1962)—is the ultimate ground on which the *noematic* and the *noetic* synthesis are united. Both syntheses belong to the same *pole of union* within the context of temporality. The phenomenological description of a phenomenon, as it is intuitively performed[40] upon its contours and involvement, opens the way for reducing the phenomenon to a phenomenon in consciousness.

2.3.3. Reduction

It was in the *Ideen* (Husserl 1982) that the technical concept of the *phenomenological reduction,* or the *epoché*, first appeared as a technique to offer the pure and unadulterated phenomena that could not be reached in the *naïve* or *natural* attitude of everyday life. Husserl defended the need for phenomenological studies to require a previous suspension of belief in the actuality, or reality, of the phenomena. The existence of the world must be put between brackets, not because the philosopher should doubt it, but merely because its existence is not the concern of phenomenology (Biemel 1980:627).

Husserl considered the technical process that leads to *suspending belief in existence* as the most important development of his phenomenology. He considered it a way to "secure phenomena in their pure and indubitable form, free from transcendent interpretations" (Spiegelberg 1994:107). To achieve this detached, non compromised way of turning *to the things*, we must make explicit the deepest assumptions on which we rely. "It is because we are through and through compounded of relationships with the world that for us the only way to become aware of the fact is to suspend the resultant activity, to refuse it our complicity (…), or yet again, to put it 'out of play'" (Merleau-Ponty 1962:xiii).

The reduction does not imply a judgement about the existence or non-existence of the world or of the phenomenon in question. "No denial of existence or any idealistic assertion is involved at this stage. (…) Instead we are to direct our glance by way of a peculiar reflection to what is left of the phenomenon in all its aspects, to intuit its essence, to analyse

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[40] In Husserl's example of the die the phenomenological reduction was already performed. He refers the contours and characteristics of the phenomenon as they appear in consciousness. In this investigation the reduction will only be performed upon the phenomena investigated, IT and strategy, after a first description is done, as mentioned above.

and to describe it without paying attention to its existence" (Spiegelberg 1994:120). As Merleau-Ponty noted, this move does not involve any fundamental claim. The suspension of belief in the existence of the world is not:

> "(…) because we reject the certainties of common sense and a natural attitude to things - they are, on the contrary, the constant theme of philosophy - but because, being the presupposed basis of any thought, they are taken for granted, and go unnoticed, and because in order to arouse them and bring them to view, we have to suspend for a moment our recognition of them" (Merleau-Ponty 1962:xiii).

The reduction is a technique that supports the neutrality of the investigator's position, helping her or him not to become committed to any explicit or implicit account of the empirical existence and contours of the phenomenon under investigation. Phenomena in consciousness is the theme of phenomenology, not their existence or non existence, that is, not their onticity. The reduction attempts to achieve a reflective standpoint that is appropriately uncommitted (Hammond et al. 1991:42). The main argument in favour of the relevance of this concept—one of the breakthroughs of phenomenology—is that in questioning the existence or non-existence of some phenomenon or object, whatever it would be, one must already be able to identify that phenomenon or object; otherwise, how would one be able to say that it exists or not? Therefore, we have to suspend belief in the existence of the intentional object in order to describe it. That which is to be apprehended is the pure phenomenon in consciousness, dropping all reference to the individual and to its particularities—as it manifests itself in consciousness, without any kind of evaluation, such as 'real', 'unreal', 'existent', 'non-existent', 'imaginary', etc. *Reduction* aims to suspend the taken-for-granted everyday existence of the world, and return to things as they are experienced in consciousness.

Reduction is a methodological step that can be taken either as an intermediary phase of the phenomenological method of investigation, or as its first phase. Husserl's use of reduction as his methodological first phase only shows that, on accounts of the phenomenon he was investigating—the foundations of knowledge—he had decided to bracket the empirical existence of the world, because it was the result of an implicit previous and performed description of the phenomenon addressed. Thus, an intuitive description whether explicit or not should indeed be the first phase of the method.

Within the theoretical foundations of this investigation, the reduction is taken only as the third phase of the method (after the description and the etymological analysis). In this way, we attempt to preserve the maximum intuitiveness of a first description of the phenomena of IT and strategy.

The *epoché,* or the reduction, is understood by some phenomenologists—including Husserl's contemporaries—not as a claim on epistemological grounds, but as a methodological step. Furthermore, some phenomenologists do not even consider the reduction necessary for a phenomenological investigation, but only as helpful (Spiegelberg 1994:107). This divergence has not had any serious consequences in the phenomenological

movement because the suspension of belief in existence works in both the 'helpful' or 'necessary' cases. That which determines the character of the reduction might indeed be not phenomenology, but rather the ontological and epistemological assumptions on which each investigator relies.

That this phenomenological concept is addressed either as *epoché* or as reduction seems to support both places it can have in the sequence of phases that comprise the phenomenological method. Performing the *epoché* seems to mean an entering into the investigation after already having suspended belief in the existence of the world. *Epoché* means this primary and conditioning position—a total "parenthesizing" of the Objective world (Husserl 1995:20). In contrast, reduction suggests a shrinkage of something already in place, that is, a bracketing out of the actuality of the described phenomenon. It is this phenomenon reduced to consciousness that is to serve as the basis on which the investigator proceeds towards the essence of that same phenomenon.

2.3.4. Essence
When we describe an object or an idea, and bracket out its empirical existence, we obtain an *example*. This example is not yet the *essence* of the phenomenon, but a first reduction towards the core phenomenological concept of essence. One can grasp the meaning of the phenomenological essence by saying that essences are the essence of phenomenology itself; phenomenology studies essences (Husserl 1964, 1970, 1995; Heidegger 1962, 1977, 1978, 1982; Merleau-Ponty 1962).

The traditional meaning of the word essence is *what something is in its own terms.* When addressing that which makes a thing what it 'is', we do not take into account those instances that make a thing a specific thing in time and space—a concrete empirical object. Instead, we focus our attention on those elements necessary for something to be part of a class of things we already take it to belong to. When distinguishing something particular, identifying some concrete object, or characterising some specific event, we implicitly admit to knowing in advance the kind of thingness to which the thing we are talking about belongs.

This initial meaning of the word essence has the character of an *a priori* necessity, a non-empirical, universal, and unconditionally valid condition (Husserl 1970). However, the phenomenological concept of essence underwent some change in the work of Heidegger. He did not understand it simply as 'what something is', but also as "the way in which something pursues its course, the way in which it remains through time as what it is" (Lovitt *in* Heidegger 1977: fn.3). Heidegger felt it was necessary to recover the etymological roots of the notion of essence, which meant the way in which a thing endures

as presence (Heidegger 1977, 1978b).[41] Heidegger re-addressed the issue of essence versus existence under the more fundamental question of the meaning of Being. The 'what-Being' (essence) and the 'that-Being' (existence) are undercut by the opening up of *Dasein's* essence "in its existence" (Heidegger 1962:67). Thus, Heidegger tried 'to develop a non-traditional concept of essence as "essential unfolding" (*wesen* as a verb) (Polt 1999:64). It is this temporalised notion of 'essence' that is adopted in this investigation.

Let us consider the desktop PC as an example. Why is it that we are able to refer to a particular PC, as a PC? To recognise particular PCs *as* particulars implies a recognition that those PCs are particulars of something else. PCs as particular must be delimited, actualised, concretised, specified, that is, they go beyond something that is common to all of them. This something common to all of them is that which is not particular but universal—that in which the essence of a PC is to be found. Thus, whenever we identify a thing as a particular thing (object, experience, event, and so forth) we have, in fact, unknowingly already entered the ground of essence.

The notion of IT—the idea, itself, of IT—is that against which, and in which, all actual IT devices are confronted. IT is the original object, which does not necessarily follow from existence in any real world outside consciousness; it only remains as the necessary substrate for an object to be that which we designate it to be. That which appears in consciousness is what is addressed, without taking an *a priori* stand on its empirical existence or non-existence. For, irrespective of its source—be it mental or sensory—*behind* every judgement about the particular, there always already exists an essence that made such a judgement possible in the first place.

For example, when one identifies a particular object as an IT device, *the ITness of the device must already be present in the subject's consciousness*, otherwise this identification would not be possible. The ideal, intuited object of ITness is the essence of all the actual objects we distinguish as part of an IT that is precisely defined by that same essence. Phenomenology deals with this essence implied in the act of intentionality as such. It addresses the *what-is-ness* of IT, in contrast to empirical research that address the *this-ness* or *there-ness* of IT devices.

Contrary to the common understanding of the meaning of the word essence, the phenomenological concept of essence does not rely on empirical generalisation, comparing many examples and identifying their common features. There are two main reasons for this. Firstly, the actualisation of an essence in a particular context means an understanding in actual terms, which may add various non-essential elements because they happen with the domain of empirical existence. Secondly, what is common to any given number of examples is not necessarily the essence of the examples. The essence, which is of course

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[41] This temporalised notion of essence has its roots in the ancient Greek word *Logos,* namely in what concerns its usage by Heraclitus—logos meant the way in which something is, and remains what it is.

common to all the examples, is common not only to the examples analysed *but also to every potential* example of that phenomenon—because the essence is such that there can be no phenomenon without it. Furthermore, the process of generalisation itself already presupposes the existence of essence since:

> "(…) the abstraction of the general idea 'red' is arrived at by leaving out of account all those respects in which several red objects differ in order to hold on to that respect in which they are similar. But the concept of similarity (or even respect) which is in question here itself presupposes the very comprehension (of the essence of 'red') which it is supposed to account for" (Macann 1993:9).

Therefore, essences are not generalisations. They are a different kind of common feature, inasmuch as they are the decisive elements in every particular example whose actualisation implies these decisive elements of the phenomenon in question. Essences are not actualised as something here or something there because they do not exist in the actual world, but are in the very structure of consciousness as foundations of knowledge and experience—as *a priori* and necessary features for knowledge and experience. This is clear in the generalisation that is central to the empirical sciences.

Essence is thus what a thing must be in order to be a thing of a particular class of things, which implies that it is not actualised as something here or there, in its existence in a particular time and space. Essences do not exist in the actual world, but in consciousness, as foundations of knowledge and experience. As such, essences are intuitively grasped—as a body in its *bodyness*, a man in his *humanness*, an apple in its *appleness*, a device in its *ITness*. This intuition is the base on which all knowledge of phenomena is to be founded. Such intuition is not achieved by inspiration, but by effort (Husserl 1982, 1964).

In phenomenology intuition does not have the meaning that it has in ordinary language, which is usually in the sense of an inspirational idea or an instinctive adaptation. Spiegelberg (1994:105) explained its phenomenological meaning: "Intuiting of general essences must be based on the careful consideration of representative examples, which are to serve as stepping stones, as it were, for any generalising "ideation". It is also necessary to vary such examples freely but methodically in order to grasp essential relationships between general essences". In this process of intuiting, we primarily conceive and understand an object, in nature or in imagination, before applying any kind of interpretation or analysis to it. "To every object there corresponds an ideally closed system of truths that are true of it and, on the other hand, an ideal system of cognitive processes by virtue of which the object and the truths about it would be given to any cognitive subject" (Husserl 1917, in McCormick and Elliston 1981).

For example, when we identify an object as a tree we are implying that we know in advance what it is to be a tree; otherwise, how could we ever recognise a tree? It is the same case as when we imagine a tree, not grounding that thought on sensory perception of any actual tree. Even fictional intuitions, for example in artistic works, are intuitions of objects, so carry 'object phenomena' intrinsically with them. These fantasised phenomena, not

characterised as actualities, are structured in consciousness in the same way as are objects in nature: as 'intentional objects' appearing in a nature 'out there', but for non-essential deviations:

> "Natural objects (…) must be experienced before any theorising about them can occur. Experience is consciousness that intuits something and values it to be actual; experiencing is intrinsically characterised as consciousness of the natural object in question and of it as the original: there is consciousness as the original as being there "in person" (…). Here, therefore, 'phenomenon' signifies a certain content that intrinsically inhabits the intuitive consciousness in question and is the substrate for its actuality valuation" (ibid.:11).

The idea of a tree, against which all actual trees are confronted, is the original object that does not call for existence in any *real* world outside consciousness, remaining necessary only as the substrate for an object to be a thing of this particular class. This ideal, intuited object is the essence of all the actual objects we distinguish as part of a class, which is precisely defined by that which is invariable for that class—its essence.

It might seem that, with the notion of essence, phenomenology would be abandoning its methodological purity, and entering ontological and epistemological grounds. Arguments countering this kind of claim have long been presented by Husserl, Heidegger, Merleau-Ponty and others. However, it seems that the issue is not entirely clarified. What needs to be demonstrated is that essence belongs to human understanding, in the same way that logic does, by being self-evident.

When Husserl concluded that pure Ego, surviving the bracketed world, is the apodictic—self-evident and primary—source of knowledge, he was also implicitly conceding that evidence and logic were the very initial criteria on which that source bases itself. This meant that evidence and logic are the understanding in which we are who we are.[42]

Logic and evidence are the understanding in which consciousness is. It is only because it is already evident for itself that consciousness logically determines its own self-evidence. Thus, evidence and logic are the indisputable grounds of thinking—they are in themselves self-evident, absolutely primary, only relying on themselves to appear as themselves in the ways they are in themselves, that is, as necessary truths. Because it is that which is presupposed whenever consciousness is what itself is, essence shares with logic and evidence the same foundational role.

In the course of performing his descriptions in *Cartesian Meditations*, Husserl (1995:69-71) noted that "such expressions as "essential necessity" and "essentially determined" force themselves upon us "for good reasons", noting that "a definite concept of the Apriori, first clarified and delimited by phenomenology, receives expression". At stake here are not the fundamental features of an experience, but the fundamental traits of every actual or

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[42] When we argue something, concluding such and such or when we refuse one argument in favour of another, we are revealing more than our position about the issues at stake. In arguing, in thinking, in concluding, we are conceding that evidence and logic are the very initial criteria, that is, that evidence and logic are the understanding in which we are who we are, as self-conscious beings.

potential experience in consciousness—the 'good reasons' themselves. If we discovered the fundamental traits of the pure description of all bracketed phenomena, we would be on the way to solve the mystery of that which would 'force themselves upon us'.

When one varies in imagination the case from which one starts, the descriptions of the variations are no longer the descriptions of one's own experience. These latter descriptions pick out not only features which all actual experiences have in fact, but also features of all imaginable experience. These features, as features of all imaginable experience—that is, of all conceivable and possible experience—are essential features of experience in that they are the characteristics which make an experience that which itself is. Thus, these essential features are not contingent on the existence of the experiences nor, for Husserl, dependent on the world whose existence has been bracketed. Hence, these essential features—this essence—is necessarily an *a priori* (Hammond et al. 1991:75-76).

This means that Husserl's 'good reasons', that is, essences, are not a feature of any particular experience, imagined or otherwise. Good reasons force themselves upon us because they are a feature of consciousness. For any particular experience, the 'good reasons' that force such and such to be described as a necessity are based on the apodictic concept of essence. Each particular essence of a phenomenon can be brought to the foreground of understanding only because the essence itself is the primary and apodictic foundation of all possible experiences—an *a priori* of consciousness, a feature co-foundational with the world.

Essence, not essence of such and such, but essence itself—the essence of essences—is thus a primary and absolute necessity in human understanding. Starting from a diverse question, Heidegger's investigations into the realm of truth point out that the "essence of truth is the truth of essence" (Heidegger 1978b:137). That is to say, what is essential for truth, the *whatness* of truth, that which truth *is*, is the truth-of-essence. Because essence is apodictic, truth itself is the realm in which it is self-evident that we are. We are in the realm of truth, and it is the experience of truth which is self-evident (Merleau-Ponty 1962:xvi; Husserl 1970b:190).

This intimate relationship between essence and truth can be fully grasped by following Heidegger's original account of these two notions. For Heidegger, the meaning of *essence*, of *essential unfolding*, is the way in which a being remains present, *endures***,** "*währen*" in German (Lovitt 1977:4 fn.1). "Socrates and Plato already think the essence of something as what essences, what comes to presence, in the sense of what endures" (Heidegger 1977:30). Thus, "*Wesen* [essence in English] is the same of *währen*, to last or to endure" (ibid.:161). "Enduring is a remaining there, a presencing" [*Anwesen* in German] (ibid.). This *Anwesen* has the meaning of having arrived in unconcealment (ibid.), in the sense of the ancient Greek word *alêtheia* (Macquarrie and Robinson *in* Heidegger 1962:57 fn.1), of a presencing in the realms of truth, of *Wahrheit* in German.

This case is further confirmed by accounts of the etymology of *Wahrheit* and of *währen.* When referring to the coming into unconcealment in the sense of *alêtheia*—of a belonging to truth—Heidegger hyphenates the word *Wahr-heit* in order to expose its stem, *wahr* (Lovitt 1977:12 fn.12), which is also the stem of *währen. Wahrheit* means truth, *währen* indicates to endure, *wahren* denotes to watch over and keep safe, *bewahren* signifies to preserve, *Wahrnis* means allowing to be manifest. All these words come from the Old High German word *wara*, which goes back to the ancient Greek word *ôra* (ibid.:165). *Ôra* points to "the respect we have, the honor and esteem we bestow" (ibid.:164). Thus, all German words with the stem *wahr* have a common derivation and an underlying meaning. "Hyphenating *Wahrheit* draws it overtly into this circle of meaning. It points to the fact that in truth, which is unconcealment, a safekeeping carries itself out" (ibid.:12 fn.12). Hence, essence belongs to the realms of truth. Essence as *währen* leads into *Wahrheit* substantively, in that essence as such is truth, first in itself (not depending on anything else) and absolutely necessary.

As we are conscious, we have consciousness of something: a tree, a computer, a number, or any other entity. The concept of essence is always already in place. It is on the grounds of essence that we distinguish particular entities, be it an individual tree, a specific number, or a certain computer. The concept of essence grounds the way we are what we are in the world. Thus, the idea of essence, as an *a priori* feature rather than the essence of this or of that, is fundamental to human understanding.

Essences are a primary and absolute necessity both for our ongoing everyday living in the world, and for the development and application of the rules of exact science. Only because exact science already knows what to look for, that is, what essentially defines the kind of data that it values as relevant, can it later generalise. Its first induction and its later deduction imply the grounding of the reasoning of exact science on essences—"the meaning of universal propositions can be satisfied only by the admission of general essences; that it presents instances in which we believe we face them directly" (Spiegelberg 1994:96). A genuine understanding of essences is derived from the foundation of the intuitive experiencing of the particular examples we are facing in their particularity. The meaning of universal propositions is established in this admission of the general essences of what is presented in the particulars.

Phenomenology is a non-empirical quest, which establishes a correct way of proceeding that relies on consciousness and its structures. This correctness is built on logic[43], on the

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[43] A key dictum of phenomenological investigations is the application of a logic known as the *noninference criterion*. For phenomenology, *to infer* has a precise technical meaning, different from common understanding. When we say 'I am reading this book', we would conclude that 'this books exists', that is, we infer the existence of the book. However, this conclusion cannot be logically supported because it does not exclude the possibility of hallucinations, of dreams, and so forth. What we can infer from 'I am reading this book' is, for instance, that that book, as it is, is supposed to be made of paper and bounded. As another example, having three books means I can infer that I also have one book, and two books as well—logically there needs to be one, and two, in order to be three. In phenomenology, we say something is inferred from a premise, or set of premises, if the falsity of the conclusion is incompatible with the truth of the premise(s). When something is inferred in this way, no empirical judgement

apodictic concept of essence, and on evidence. Evidence here is used differently to evidence in the empirical sense. It relates to that which is *self-evident*[44]—evident in itself, impossible to be conceived otherwise. To deny this foundational evidence would be to deny the very source of any empirical judgement already presumed.

Like any other method, a phenomenological investigation is realised through a methodological circle. However, phenomenology strives to accept, and to proceed only within, the primary and foundational circle of human understanding: consciousness and its *a priori* rules and procedures. The phenomenological method can be said to organise the investigation according to the way this *organising* organises itself, that is, the method explicitly organises the inquiry in the way thinking implicitly organises the method. To Husserl (1917:10), phenomenology "is inferior in methodological rigor to none of the modern sciences" because it is strictly based on evidence and logic, assuming nothing else than what has been thoroughly questioned and remained firm.

On this ground, the phenomenological notion of essence serves as a means of pursuing the ultimate goal of understanding our multifaceted, intricate, complex, contradictory, surprising, and strange engagement in the world as it is always and already unfolding. "[T]he essence is here not the end, but a means, that our effective involvement in the world is precisely what has to be understood and made amenable to conceptualization, for it is what polarizes all our conceptual particularizations" (Merleau-Ponty 1962:xiv). The aim of a phenomenological investigation is, thus, to bring into the foreground the thing itself, as it is—before reflection begins. The *eidetic* reduction, that is, the uncovering of the essence of the phenomenon, "is the determination to bring the world to light as it is before any falling back on ourselves has occurred, it is the ambition to make reflection emulate the unreflective life of consciousness" (ibid.:xvi). This is the deeper meaning of the phenomenological concept of essence.

2.4. The Phenomenological Method

That some relevant texts on phenomenology begin with the question "What is phenomenology?" (Merleau-Ponty 1962:vii; Dreyfus 1991:30; Hammond et al. 1991:1; Boland 1985:195) is an interesting clue on the deepest nature of phenomenology: a method. It is only because phenomenology has no typical intellectual construction that it is in order

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can show it to be false—"a statement of the noninference criterion is non-empirical in the sense that no empirical statement can show it to be false" (Schmitt 1996: 145).

[44] There are two types of self-evidence: *pure* and *impure* (Husserl 1982). *Pure* self-evidence does not include any reference to matters of fact; *impure* self-evidence does include such a reference. *Pure* self-evidence is in a *state of affairs* itself, e.g., '2 means 1 plus 1', 'two points determine a straight line', and so forth. *Impure* self-evidence is in an asserting proposition, e.g., 'the snow is white', 'the sky is blue', 'she is a student'. *Pure* self-evidence is a kind of self-evident structure of *being* what we ourselves are. It is not dependent on perceptual intuition. In ontic terms, every subject, everywhere, and every time, is in the realm of *pure* self-evidence. *Impure* self-evidence is dependent on the *life-world* of each subject; it is related to the ways in which the subject experiences and *is* in the world.

to start addressing its nature by the fundamental question 'What is phenomenology?' As Merleau-Ponty (1962:viii) noted: "Phenomenology can be practised and identified as a manner or a style of thinking", that is, as a method, not an epistemological or ontological theory:

> "[Phenomenology] does not subscribe to a 'standpoint' or represent any special 'direction'; for phenomenology is nothing of either sort, nor can it become so long as it understands itself. The expression 'phenomenology' signifies primarily a *methodological conception*" (Heidegger 1962: 50) [*italics* and quotations marks from the original].

Heidegger noted that the meaning of phenomenology is quite different to other similar expressions ending with '-logy', such as theology, sociology, and biology. These expressions designate the subject-matter of their respective sciences. Phenomenology, on the contrary, "merely informs us of the "*how*" with which *what* is to be treated in this science, gets exhibited and handled" (ibid.:59).

The word phenomenology, which taken literally means the study or description of phenomena, has its origins in ancient Greek. Heidegger (ibid.:50-63) traced back the meaning of the two components of the word phenomenology—phenomeno- and -logy. He suggested the following preliminary conception of phenomenology: "To let that which shows itself be seen from itself in the very way in which it shows itself from itself" (ibid.:58). In this important formulation 'that which shows itself' is the object meant, or the idea thought, or the concept conceived'; the expression 'be seen' means be experienced in consciousness; 'from itself' has the significance of making the thing manifest, making it accessible in its togetherness; and 'in the very way in which it shows itself from itself' points to an understanding of the object meant in its terms, as free as possible from presuppositions, contexts, and explanations.

For Heidegger this formulation does not say more than the well-known maxim of phenomenology "To the things themselves!". He concludes that phenomenology does not designate its subject-matter because its object is not a subject-matter but a *how*. This means that 'phenomenology' is first and foremost a method of investigation, whose object is *the way* in which phenomena are treated; "*such a way* that everything about them which is up for discussion must be treated by exhibiting it directly and demonstrating it directly" (ibid.:59). This directness is reached by the phenomenological method, which addresses the phenomenon as it is in itself for itself—in terms of its *thinghood* (ibid.:59). This thinghood is the *is-ness* of a being, the humanness of humans, the treeness of tress, the *ITness* of IT, the *strategyness* of strategy.

Our investigation into the essential nature of IT and strategy follows the phenomenological method as it was synthesised by Spiegelberg (1975, 1994). Nevertheless, minor changes were needed on the basis of the ontological and epistemological assumptions laid open as the investigation proceeded, and on accounts of the nature of phenomena inquired into as revealed by analysis. For this latter reason, the study of relationships between elements of

the same essence, and between essences of related phenomena, is not addressed *per se* as a single phase of the method, as Spiegelberg suggests (1994). Instead, it is part of the central *phase 4* in investigating the essence of the phenomenon.

This core phase of the method also accounts for some investigating procedures that are typical of the study of "the constitution of the phenomenon in consciousness" (Husserl 1964), which Spiegelberg suggests might be taken as a single phase of the method. Other phases of the method account for some aspects of that study as well.[45] We found this option to be more insightful than to work out "the constitution of the phenomenon in consciousness" as a single phase of the method.

Nonetheless, the main adaptation we introduce to Spiegelberg's presentation of the phenomenological method concerns the traditional etymological critique of this kind of investigation. We consider the phenomenological account of the etymology of the words that identify the phenomenon as not merely a step of the first phase of the method, but rather as a whole second phase in its own right. Such an adaptation, which to some extent is only a recognition of an important and recurrent phenomenological practice, is clearly supported by the phenomenological investigations of Heidegger (1962, 1977, 1978). Moreover, our methodological option is consistent with the ontological basis of this investigation, which claim a foundational status for language in the phenomenon of the being we ourselves are.

The phenomenological method we apply in this investigation into IT, strategy, and the relationships between these two phenomena, is therefore structured in the following six phases:

      (1) Describing the Phenomenon
      (2) Analysing the Etymology
      (3) Performing the Reduction
      (4) Investigating the Essence
      (5) Watching Modes in Which the Essence Appears
      (6) Interpreting Concealed Meanings

In specifying these six sequential phases, as we use them in this investigation, it is important to stress their implicit unity and essential connections. The phases are united in the basic purpose of "giving us a fuller and deeper grasp" (Spiegelberg 1975:57) of the phenomenon, which can only be achieved if all six phases are fully applied. The method is

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[45] When performing the description (*phase 1*) and when reducing the phenomenon to a phenomenon in consciousness (*phase 3*), either for the case of IT or strategy, we take into account some aspects of the modes in which 'the phenomenon gets constituted in consciousness'—the ways in which the phenomenon establishes itself and takes shape in our consciousness, analysing the essential sequence of its steps. The example of how one gets oriented in a new city highlights the kind of awareness this procedure might provide (Spiegelberg 1994).

applied in Chapter 4 to IT, and in Chapter 5 to strategy. Chapter 6 shows how the method is used in dealing with the relationships between what essentially IT and strategy are.

The following sub-sections present a succinct, but rigorous and somewhat detailed, account of each of the phases that constituted the method we applied.

Phase 1: Describing the Phenomenon.

The first phase of the method is devised broadly to articulate the phenomenon under analysis, setting its contours as 'free as possible from presuppositions'. Its objective is to address what appears, setting up the horizon, expressing the comprehensive context, and describing contours relating to the appearances of the phenomenon.

In this phase, the investigator might deal only with appearances of the phenomenon, that is, with modes and perspectives through which the phenomenon announces itself. The investigator needs to describe, for instance, "an observable event y, such as a symptom which announces a disease x by showing itself, and in or through which x announces itself without showing itself", or "x's announcing-itself in or through y" (Macquarrie and Robinson *in* Heidegger 1962:52).

The phenomenon itself is approached by providing a first description of its most intuitive appearances. This initial description is not devised to achieve an explanation of the phenomenon, nor to look for some specific kind of data; neither does it try to conform to some preliminary hypothesis, or previous intellectual construction in which the phenomenon makes sense. The aim of the investigator is not to explain, but just to describe what firstly and intuitively appears in the addressing of the phenomenon. To secure the most benefits from this first phase of the method, one may organise it in the following three sequential steps: *intuiting*, *analysing* and *describing*.

1st step: Phenomenological Intuiting

Firstly, the investigator characterises the ways in which the phenomenon appears by identifying its most obvious features and properties, such as its elements, shapes, sizes, colours, usage, functionality, purposes, aspects, and so forth. He tries to grasp intuitively the phenomenon in his own words and ideas, as they come to his mind.

Once this is done, he should contrast the phenomenon with intuitively related ones, comparing their similarities and differences, and describing their contexts. The context in which the addressed phenomenon appears should now be initially circumscribed and articulated. All these tasks of the first step should be performed while having perceptual access to the intentional object in question, for example, holding and looking at a mobile phone, recalling its usage, or reading texts on a specific concept or idea under analysis and recalling its applications, and so forth.

2nd step: Phenomenological Analysing

In this step, the investigator needs to distinguish the constituents of the appearances of the phenomenon: What are its elements? What kind of entities are they? How do they constitute the phenomenon? How do they relate to each other? Then, the connections between the particular analysed phenomenon and adjacent ones should be addressed: How are intuitively related phenomena connected to the addressed phenomenon? In what ways?

This second step concludes by reviewing its new results and those of the first step, in their togetherness. They should intuitively appear as belonging to the phenomenon under investigation.

3rd step: Phenomenological Describing

This third step is aimed at achieving a new richness of the analysis of the phenomenon, completing the description of the phenomenon as it intuitively appears for us. Here, the investigator must review and familiarise himself with the results so far achieved, and should progress towards an indication of the irreducibility and uniqueness of the phenomenon. In doing so, he might attempt to describe the phenomenon by negation, by analogy, and by metaphor.

Some kind of classification of the phenomenon might be proposed, for example, a framework of class names, or the 'location' of the phenomenon regarding an already developed system of classes. This kind of suggestion should be unambiguous in relation to whatever concerns the concepts used, which should be the terms of ordinary language or of a well known and agreed domain of technical terms. In the domain of management, for example, the terms 'human resources', 'plans', 'marketing', 'information systems', 'critical success factors', and so forth. These words should be used in the same way as in day-to-day activities, not dependent on, or emphasising, any technical meanings. This kind of classification does not bias one to their underlying assumptions, because they serve only as a way into the phenomenon, not as a substantive analysis of the phenomenon.

The investigator should make sure that he has put aside assumptions or pre-given interpretations when performing this last step of the first phase of the method. Describing the phenomenon in question is a process of "stripping away pretence, prejudice and unexamined assumptions [which] can be a painful process" (Boland 1985:199). This intuitive and direct description of the phenomenon outlines its most obvious and apparent characteristics by setting the grounds on which the next phases of the method proceed.

Phase 2: Analysing the Etymology

The task here is to trace back the origins of the words identifying the phenomenon. This analysis is not destined to bring back the meaning of words *per se*, but rather to bring forth

the meaning of the thing, "in the ante-predicative life of consciousness" (Merleau-Ponty 1962:xv).

The meanings of words in ordinary language, and their evolution through time and space, is a second beginning of the phenomenological analysis. Ordinary language does not have to reveal the complexity of phenomena, it is not its purpose and for sure it is not its achievement (Spiegelberg 1975). What counts is the "reliance on the early meaning of a word and its changes, to catch sight of the realm penetrating to the matter in question into which the word speaks" (Heidegger 1977:159).

This kind of phenomenological work shares some concerns with linguistic analysis, but goes beyond it. What is at stake here is the recalling of all the relationships of our experiencing of the phenomenon, that is, bringing back the *things*, as things themselves. It is a looking for what is a fact for us, before any thematisation, even before any articulation in language. "In

the silence of primary consciousness can be seen appearing not only what words mean, but also what things mean: the core of primary meaning round which the acts of naming and expression take shape" (Merleau-Ponty 1962:xv).

The work done in this phase is expected to lead to contours of the phenomenon that are close, or complementary, to the ones achieved in the previous phase—strengthening the characteristics of the phenomenon, and adding and clarifying further meanings. This could be important for a deeper grasping of the phenomenon under analysis. Still, the investigation may turn out to be one in which the results of the descriptive and the etymological phases are quite different. The clue to take into account in this situation is that, possibly, the reasons for that discrepancy are in themselves a clarification of what the phenomenon essentially is.

Phase 3: Performing the Phenomenological Reduction

The phenomenological reduction, as applied in our method, is strictly a methodological phase for investigating the phenomenon, detached from the 'everyday naive or natural living' (Spiegelberg 1994) while preserving the phenomenal content as fully and as purely as possible. This detachment process precisely suspends judgement on the existence or non-existence of the phenomenon addressed. No judgement is made in this third phase about the issues of empirical relevance to the phenomenon questioned.

The investigator's objectives here are to build on the consolidation of the results of the first two phases—description and etymological analysis—by performing the reduction, *bracketing out* the features, aspects, and characteristics of the actuality of the phenomenon, that is, its particular presence in time and space. References to the existence of particular manifestations of the phenomenon in an 'outer world' should be put aside. The

phenomenon starts to be directly addressed in its *generalness,* by being reduced to a phenomenon in consciousness.

This technique facilitates genuine intuiting, analysing, and describing, so enables the concentration on the *what-ness* of the phenomenon putting aside its ontic dimension, or its *this-ness* or *there-ness*. Having performed the reduction, the investigator achieves a description of the phenomenon that relates only to its features in consciousness, not the characteristics of its examples as they appear in the usually assumed empirical world.

Phase 4: Investigating the Essence

Once the reduction is performed on the consolidation of the findings of the descriptive and etymological phases of the methodology, the way is cleared for the investigation to advance into the essence of the phenomenon, which is the central phase of the phenomenological method.

This phase focuses on reaching the elements strictly necessary for a phenomenon to be what it is. These elements are invariant from one appearance to another, constituting the criteria that enable the phenomenon to be recognised as what it is. These particular appearances of the phenomenon can only be distinguished *as particulars* against a background the *generalness*, which is what is to be addressed in this phase.

Two specific techniques are applied to achieve this objective. Firstly, common elements of the appearances of the phenomenon are identified through generalisation, thus establishing a common ground. Secondly, freely varying the elements of this common ground, the investigator strips out characteristics of the phenomenon that are not necessary, despite being common features, thereby leaving us with an essential account of the phenomenon. The technique of generalisation could proceed by (i) distinguishing 'natural affinities' in particulars; (ii) lining up particular examples in a continuous series based on the order of their similarities; and (iii) identifying common patterns shared by these examples.

As we see the particulars *as particulars*, we see the common as universal, entering the grounds of essence as the irreducibillity of the phenomena. Yet, this *common-ness* is not yet the essence of the phenomenon. To uncover what is essential to the appearances of the phenomenon—"what one can and what one cannot imagine" (Hammond et al. 1991:76)— one has to discover what elements cannot be taken out of the established common ground of the phenomenon.

The second technique in this phase—'methodical variation', or Husserl's (1964, 1982) *free imaginative variation*—is devised to proceed from the grounds of generalisation to the realms of the essence of the phenomenon. It consists on varying elements of an example to reach its non-variant elements. At each step, we take out one element of the example—for instance, in imagination we take the foliage out of a tree, asking: 'Is this element a

necessary feature for this phenomenon to be the phenomenon we recognised before? Is foliage a necessary element for a tree to be recognised as a tree?'

If the investigator finds after several attempts that it has become impossible to subtract more elements without affecting the recognition of the phenomenon, he reverses his questioning, asking now: 'What are the necessary features an example must have in order to be recognised as the example we recognised before?' By varying elements of an example in these ways, the investigator reaches the essential elements of the phenomenon and the essential connections between them, that is, the investigation reaches what the phenomenon strictly is: its essence.

The investigator does not need empirical observations to provide answers because, in every new variation, the object described will be an object of the same kind if the investigator recognises it as such. Thus, the implicit criterion of recognition—*my* ability to recognise the object—is decisive in this essential reduction of the example. By applying this technique, the example opens us to the essence of the phenomenon.

The last procedure of this fourth phase of our method is one of uncovering essential relationships between the elements of the essence investigated, and between that same essence and closely related phenomena. This step is an attempt to refine the essence through *a priori* insight, studying how given elements, appearances, or essences relate to each other. This can be done by using identification, negation, simultaneity, or other approaches. For example, we can decide on grounds only of logic that the statement 'every colour is extended' is correct, and 'every extension has colour' is incorrect. Empirical observation does not affect these conclusions; it is just a matter of establishing logical relationships between the concepts of colour and extension (Kant 1985).

The investigator should make a further refinement, with regard to the relationships within a single essence. Here, he should verify if the components of the essence are indispensable to it? Are they or are not they essential to it? In the case of the relationships between several essences, or between the essence of the phenomenon addressed and appearances of what would be different phenomena, the investigator should ask: 'How do these entities relate to each other? Are the relationships between them necessary, possible or impossible?

For both of these questions, certain components should be set aside and others should be replaced by diverse elements to evaluate if the essence of the phenomenon in question remains, changes, transforms itself or reveals itself as impossible. What we try to explore is the "nexus among all of these elements in their necessities, possibilities, or impossibilities" as revealed by *free imaginative variation* (Spiegelberg 1994:700-1). This procedure clarifies the essence of the phenomenon by identifying essential relationships of its constituents, and by establishing the ways in which the essence in question relates to similar entities. In Chapter 6, this last step of the fourth phase of the method will be shown

to be particular relevant for this investigation, as it is where the relationships between IT and strategy are clarified.

Phase 5: Watching Modes in Which the Essence Appears

The fifth phase of the method is devised to explore ways in which the phenomenon investigated *essences*. It certainly does so in the phenomenon's most obvious appearances—the ones addressed in phase 1 of the method. Yet, phenomena hide to a lesser or greater extent behind appearances. An essence can show itself as that which *it is not* in many different appearances more or less intuitively connected. Thus, having identified the essence, the task of the investigator is to pay attention to the ways in which the essence unfolds: its appearances, aspects, perspectives, contexts, and modes in which it indirectly shows itself.

That which shows itself (the essence) as what itself *is* not (the appearances) is now to be investigated precisely in what concerns its appearances, that is, its actualities. This phase has the following main steps:

> (i)   Pay attention to the aspect of a given object from which we know it as a whole, and be aware at all times of what we experience or see, and imply or assume. For example, we can never see the whole of a tree, but always imply some of its aspects.

> (ii)   Pay attention to the appearance of the thing and to the relevance of the 'deformation' of the perspective, as it shapes the object given. For instance, to take notice of the way in which a side of a cube appears as a trapezoid.

> (iii)   Note the degrees of clarity and of distinctiveness of the thing that appears, as well as taking notice of the relevance of the context to the perception of the thing. For example, when seeing through fog or at unrest (Spiegelberg 1994:703 fls).

This phase of the method clarifies the ways in which the essence of the phenomenon shows to us in the world, either as aspects of the phenomenon in question or as appearances that, at face value, show themselves as diverse entities. One of the main values of this phase is the way it shows us how diverse events in which we are involved, and that matter to us, are essentially connected and logically interdependent.

Phase 6: Interpreting Concealed Meanings

This last phase of the phenomenological method, introduced by Heidegger's cardinal work *Sein und Zeit*, 1927 (Heidegger 1962), is provided to give access to phenomena whose essence has concealment within itself.

This phase involves decisive ontological and epistemological claims because the nature and beingness of that which is doing the phenomenological investigation, that is, we as we

ourselves are, is taken into account for the analysis of that which is given in that same phenomenological investigation, that is, the essence of the phenomenon addressed, and so on in hermeneutic movements. By re-analysing the findings of the investigation in the light of the ontological constitution of who is performing the investigation, this phase aims at an uncovering of particular meanings that might not immediately be manifest to our intuiting, analysing, and describing. This last phase of the phenomenological method is also particularly relevant to the examination of the phenomena of IT and strategy (sections 4.6. and 5.5).

2.5. Recapitulation

In Chapter 1 we identified the guiding question of this investigation: *How does IT affect strategy?* We established its contours and relevance, and claimed the need to make explicit the ontological and epistemological assumptions of the investigation. This outset opened up a way for a phenomenological account of IT and strategy against an ontological background based on Heidegger's (1962) findings and on the theory of autopoiesis, which are thoroughly reviewed in the Appendices.

In this chapter we introduce phenomenology, characterise its key concepts, and present the method of investigation to be applied. Phenomenology began to take shape with the impact of the first works of Husserl, in the early 1900s. Since then, phenomenologists have shared the principle that intuitive experiences constitute the ultimate foundation of all our concepts and beliefs. Phenomenology strives to be a method aimed at the foundations of all knowledge, based on nothing but pure evidence and necessary *primary-ness*. To phenomenologists, any data is of interest, provided it appears intuitively in consciousness, that is, either originating in sensory experience or in mental processes.

Phenomenology attempts to describe phenomena faithfully and presuppositionless, without expecting to arrive at an understanding from any starting point other than the facticity of an always and already experienced world (Heidegger 1962, Husserl 1970, Merleau-Ponty 1962). Phenomenology strives for an essential description of phenomena, as they are in consciousness, in their own terms. *To the things themselves* means a turning towards phenomena that might have been locked from sight by the taken-for-granted assumptions, or by the prevalent common sense of our daily coping (Husserl 1982).

Phenomenology is rich in technical concepts because the kind of phenomena it addresses, initial and foundational, is not that about which we usually speak and concern ourselves with. In this chapter we introduce the key phenomenological technical concepts of *intentionality, description, reduction,* and *essence,* which fundamentally characterise a phenomenological analysis in its full scope.

Phenomenology is first a method of investigation, whose object is *the way* in which phenomena are treated. Phenomenology does not subscribe to a standpoint or represent any

special direction of research – it is not an epistemological or ontological theory. Phenomenology "signifies primarily a *methodological conception*" (Heidegger 1962: 50), which addresses the phenomenon as it is in itself for itself—in terms of its *thinghood* (ibid.:59). This thinghood is the *is-ness* of a being, the humanness of humans, the treeness of tress, the *ITness* of IT, the *strategyness* of strategy.

Our investigation follows, exclusively, the phenomenological method in its original form as proposed by Husserl and developed by Heidegger. Its structure is presented and detailed in this chapter as follows: (1) Describing the Phenomenon, (2) Analysing the Etymology, (3) Performing the Reduction, (4) Investigating the Essence, (5) Watching Modes in Which the Essence Appears, and (6) Interpreting Possible Concealed Meanings. In specifying these sequential phases it is important to stress their implicit unity and essential connections. Their are united in the basic purpose of giving us a fuller and deeper grasp of the phenomenon; only by applying the six phases can one achieve a full phenomenological account of a phenomenon.

This investigation attempts to demonstrate the possibilities of phenomenology in its traditional form in the IS field of research. The method is applied in Chapter 4 to IT, and in Chapter 5 to strategy. Chapter 6 shows how the method is used in dealing with the relationships between what essentially IT and strategy are.

We hope our exclusive phenomenological approach and the way in which the method is detailed in this chapter will provide a significant methodological contribution to the IS field of research.

Appendices to Part I
Theoretical Foundations

Appendices to Part I
Theoretical Foundations

The ontological and epistemological assumptions on which an investigation is grounded decisively shape the inquiry. The ontological and epistemological grounds of this inquiry are based on Heidegger's (1962) findings on humanness, the biological theory of autopoiesis (Maturana and Varela 1980, 1992), and phenomenology.

As referred to in Chapter 1, Heidegger (1962) and autopoiesis have been applied in the IS field of research to some extent. Thus, our advice in respect to these appendices is that readers who are well familiarised with Heidegger (1962) and with autopoiesis, should skip this material as they will lose nothing of the development in Part II by ignoring what follows. They may want to check Appendix C, on the legitimacy of matching Heidegger's findings on humanness with the theory of autopoiesis.

However, for readers who have limited knowledge of Heidegger's *Being and Time* or/and of autopoiesis our advice is different: they should read these appendices immediately following their reading of chapters 1 and 2. We do not believe it is possible to understand Part II of this dissertation fully without a sound knowledge of both Heidegger (1962) and autopoiesis.

This is why, on the advice of my Supervisor, I have placed the Appendices to Part I directly following that Part, rather than putting them at the end of the dissertation which is the usual practice. This was done in order to force the reader to make a conscious decision about whether to skip the appendices, or not. Placing the Appendices at the end of the dissertation, which would be at the end of Part II, would be an invitation for readers to skip them, or to read them after having read the all dissertation. This would mean that they would not make the most of Part II, unless they already had a sound knowledge both of *Being and Time* and of autopoiesis.

Furthermore, the act of placing the Appendices to Part I in this position is appropriate and thoroughly consistent with the philosophical underpinnings of this investigation, especially those described in Chapter 6, which addresses the issue of authenticity.

Appendix A - Heidegger

> The word of thinking rests in the sobering quality of what it says. Just the same,
> thinking changes the world. It changes it in the ever darker depths of a riddle,
> depths which as they grow darker offer the promise of a greater brightness.
>
> Martin Heidegger
> *Early Greek Thinking* (1984:78)

Heidegger might prove to have been the most influential thinker of the 20th century (Merleau Ponty 1962, Dreyfus 1991, Polt 1999, Introna 1997, Derrida 1991, Levinas 1996, Sartre 1993, Feenberg 1999, Borgmann 1999, Zimmerman 1990, Introna and Whitley 1998, Wrathal and Malpas 2001). His work *Being and Time* has been regarded by many as the most important piece of Western thought in the 20th century, ever since it first was published in 1927 (Spiegelberg 1994). But what is Heidegger's core insight?

Heidegger tries to give an account of the world as it is, i.e., he tries do uncover the world that both empiricism and intellectualism always already presupposed whenever they explain that world. Any theory whatsoever must refer to a world previously experienced. This can be noticed in the cornerstone of much contemporary science, the Cartesian *Cogito, ergo sum*, in that to conclude 'I am' must show a previous awareness of what it means to be/to exist (Polt 1999:47).[46] Traditional ontologies passed over the world, quickly jumping to specific subjects that already implied a conception of being as *present*, as *actualitas*; world as such, in its worldhood, tends to be forgotten.

Empiricism and intellectualism fail to see that the world to which they refer is *there*, already, irrespective of whatever is thought about it. In a world always already there (Heidegger 1962), we think as the beings we are, which is the meaning of one of the oldest claims of Western civilisation: "Thinking and being are the same" (Parmenides *in* Heidegger 1984). Kant (1985) considered it a scandal that a proof of the existence of the external world had not yet been produced. Heidegger (1962) regards it as a scandal that such a proof had been searched for. Only because that which we are, as we ourselves are, cannot be stripped out of world, do we come to be revealed as *being-in-the-world*. A *world*

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[46] Descartes himself noticed the primacy of the world. In *Meditationes* (Descartes 1996), he argues that 'I am' is arrived at by induction, not by deduction. Yet, either by deduction or induction, the *Cogito* cannot have the meaning currently attached to it. Quite the contrary, thinking it through shows the pertinence of Heidegger's being-in-the-world. If the *Cogito* is taken as an analytical statement (Kant 1985), in which the predicate is contained in the subject, its meaning is one in which none of the expressions—'I think' and 'I am'—could precede the other because the 'I think' and the 'I am' would be logically not factually connected. The case for inductive statements also does not help Cartesian dualism. If 'I think' and 'I am' are both inducted, then there is no way of making either of them to precede the other, and the *Cogito* would be senseless because 'I am' would not depend on the 'I think'. The etymological analysis of the English word 'therefore' (MW, Crane 2001), whose meaning goes back to the ancient Greek word *logos*, supports the notion that 'I am' in the *Cogito* precedes 'I think'. The word 'therefore' does not point to a factual consequence, but to a logical necessity. Thus, *Cogito, ergo sum,* on logical grounds, is saying that *if* I think I must *already* be. A deeper meaning of the *Cogito* is indeed the opposite of what it is commonly understood to be. The 'therefore' relocates 'I am' at the forefront of the matter. Thus, it would be more correct to say that *cogito's* fundamental meaning is that 'I am' precedes 'I think', which is precisely Heidegger's claim: that we, as the beings we ourselves are, are just unable to suspend belief in the existence of the world.

that is is that which is most evident for us. "If the *'cogito sum'* is to serve as the point of departure for the existential analytic of Dasein, then it needs to be turned around, and furthermore its content needs new ontologico-phenomenal confirmation. The *sum* is then asserted first, and in the sense that "I am in the World" (ibid.:254).[47]

In-the-world beings make a difference for us, whether found in the present, in the past or in the future. Beings do not belong fundamentally 'here' to actuality; beings are not only entities, others, things, nature that are reflected upon in the moment of the present. Beings make a difference for us, that is, they are what they are as long as we find them with us in our own throwness from the past, acting in the present, and projecting towards the future (ibid.). The difference beings are is in the present, in the past, and in the future—that is, whatever makes a difference is found against temporality. Thus, temporality, for Heidegger (ibid.) shows up as the right context to understand Being; it is Being's context (ibid.).[48]

"As being-in-the-world Dasein has already discovered a 'world' at any time" (ibid.:145). What does 'at any time' mean? What is presupposed in the 'already'? Temporality is understood as the context within which Being is made manifest. Being is the already in place primary distinction of beings-in-the-world as such. Thus, Being's basis, foundations, and possibility is temporality itself (ibid., Division II). Against this horizon of temporality, being-in-the-world is a *belonging together* of *being-in* and *in-the-world*. In-the-world defines the idea of *worldhood* as such (ibid.:91-148). Being-in is the ontological constitution of *inhood* itself (ibid.:78-79). The belonging together is the *entity*, ourselves, that in every case has being-in-the-world as the way in which it is. These items constitute the phenomena in its wholeness, and should be accessed only as ways into this primary structure of being-the-world, which is firstly and primordially a whole.

Because every ontologically-explicit account of Dasein's Being must have had its way already prepared by the kind of Being which Dasein has (ibid.:360), we need to detail the first account of being-in-the-world within a deeper understanding of the kind of beings we ourselves are. This signifies the need to enter an analysis of temporality itself, at the light of the preliminary findings on humanness. The analysis of these themes is the articulation of a world always and already discovered by Dasein. It aims the world as *that which is,* and its addressing is a formal indication of an ontological ground. Thus, being-in-the-world accounts for the *true story* referred by the ancient Greek expression *onta logos* (Chapter 1).

A.1. Being-in-the-world

The primary concern of Heidegger in *Being and Time*, Division I, is to make sense of our ability to make sense of things. Being-in-the-world, our ontological constitution, is Heidegger's answer.[49] Because it always comes first and comes as a whole (ibid.:65-148) we present firstly the belonging together of being-in and worldhood, detailing later on the two constitutive items of the phenomenon.

Heidegger considers that humans are beings that comport themselves towards their own Being. We are delivered over to our own Being; Being matters to us. Whether we like it or not, Being is an issue for us—we care for Being. This characterisation of the beings we are

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[47] Heidegger goes on: "Descartes, on the contrary, says that *cogitationes* are present-at-hand, and that in these an *ego* is present-at-hand too as a wordless *res cogitans*" (1962:254).

[48] Temporality is a phenomenon so entangled with Being that in some of Heidegger's text it appears he is identifying *time* with *Being*.

[49] Heidegger's investigations into humanness are devised to serve as a way—the right way (Heidegger 1962)—into the more profound issue of the meaning of Being, which were to be thouroughly addressed in the never written Divisions III and IV of *Being and Time*.

is what Heidegger calls *Dasein.*[50] "The essence of Dasein lies in its existence" (ibid.:67),[51] that is, what makes Dasein to be what it is, is *the way in which it is*. The *existentia* of each particular Dasein has *existence* as its essence. Our way of Being is our essence. As such, the characteristics that can be exhibited when analysing this entity are not 'properties' of some entity which looks so and so (ibid.:67).[52] The essence of this entity we ourselves are is *its 'to be'*—this entity "in its very Being is *in each case mine*" (ibid.).

Because Dasein is *mineness*—"The Being of any such entity is *in each case mine.*" (ibid.:67)— those *things* which are to be exhibited when analysing Dasein are possible ways for Dasein to be, to choose, to take, to fulfil, to disclose, or to pass over. Dasein always is its own understanding in terms of its existence, in-the-world (ibid.:33). Dasein is in a world whose existence cannot be bracketed out (Chapter 1 and 2). Its way of being establishes itself in a world already found, and a world that matters to Dasein. This world is the *wherein* Dasein lives (ibid.). Because this *wherein* matters to Dasein, world is the significant whole in which one dwells (Polt 1999:49).

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[50] Heidegger's ontology is the laying out of all that which is implied in his "most important terminological innovation": Dasein (Polt 1999:29). But why did Heidegger not use the expression 'man', which is probably more intuitive and evident? Heidegger avoided 'man' because it was a long-used term in philosophy and science. He wanted us "to look at ourselves with fresh eyes" (Polt 1999:29). To understand man in an ontological manner should not, and cannot, take into account any kind of interpretation, classification, or label already in place. Heidegger does not investigate the *animal rationalis*, but rather man as it is—before the Aristotelian label of 'rational animal' takes on all that which is precedent, primary, and decisive on man. Dasein is the expression used to address our own delivering over that which is essential about ourselves. In the German language, the word *Dasein* means 'everyday human existence' (Dreyfus 1991:13), or 'existence' (Polt 1999:29); literally, it means 'being there' *(da sein)*. Thus, Dasein is not to be taken as synonymous with 'man'. If it were taken this way, one would not understand man within the traditional assumptions that run with the word—the subject, the rational thinking entity, the self-sufficient observing self. It was to avoid all this that Heidegger coined the word Dasein, which translators have left untranslated.

[51] Heidegger reserves the term *existence* to address the way of Being of Dasein. When he refers to some entity that exists, he uses the term *existentia*, which has a strictly ontic connotation.

[52] The pertinence of Heidegger's views were recently confirmed by the results of research within the 'human genome project'. Venter (Venter et al. 2001) writes that the preliminary catalog of the human genome "has provided a major surprise: we have found far fewer genes (26,000 to 38,000) than earlier molecular predictions (50,000 to over 140,000)." (…) "The modest number of human genes means that we must look elsewhere for the mechanisms that generate the complexities inherent in human development and the sophisticated signaling systems that maintain homeostasis." The paper adds that "[m]any diverse sources of data have shown that any two individuals are more than 99.9% identical in sequence, which means that all the glorious differences among individuals in our species that can be attributed to genes falls in a mere 0.1% of the sequence". This is important in elucidating a key issue: since it is evident to us that each one of us, as the beings we ourselves are, is essentially singular and unique, then the results thus achieved in the human genome project cannot explain that which is sought, that is, what it is to be human. This conclusion of ours is in part accepted by the genome project researchers' themselves. Venter (ibid.) concludes by saying that "[t]here are two fallacies to be avoided: determinism, the idea that all characteristics of the person are "hard-wired" by the genome; and reductionism, the view that with complete knowledge of the human genome sequence, it is only a matter of time before our understanding of gene functions and interactions will provide a complete causal description of human variability. The real challenge of human biology, beyond the task of finding out how genes orchestrate the construction and maintenance of the miraculous mechanism of our bodies, will lie ahead as we seek to explain how our minds have come to organize thoughts sufficiently well to investigate our own existence." The characteristics of our genes are not what defines us, as we essentially are. What defines us is a way of being which might rely on the complex interactions of the more diverse elements of which we are comprised. So far, those wider interactions have been touched on only slightly in related research. For instance, the *International Consortium* (IHGSC 2001) recognises that "it is impossible to provide a comprehensive analysis of this vast dataset (…). In principle, the string of genetic bits holds long-sought secrets of human development, physiology and medicine. In practice, our ability to transform such information into understanding remains woefully inadequate". Implied in here is a critique of the reductionist, Cartesian approach on which the research is based. As genome results continue to come in while the central question at stake—*What is a man?*—remains unanswered, what is being discovered is that the parts do not explain the whole. The clue is indeed that the whole, always coming first, is that which explains the parts, and how the parts interact.

Heidegger pointed out that we do not come to understand our world by reflecting on it. Instead, Dasein always already *understands* the world, because it has competence *to be in the world*—to understand something means 'being competent to do something' (Heidegger 1962:183). Dasein is always and already acting, directed towards something in the world. This understanding is pre-ontological: "The world as already unveiled in advance is such that we do not in fact specifically occupy ourselves with it, or apprehend it, but instead it is so self-evident, so much a matter of course, that we are completely oblivious of it" (Heidegger 1982:165).

The world is so encompassing, and at the same time so near, that it becomes transparent. We are in the world, like a fish is in the water (Introna 1997). We *see* through the world. "Unnoticed, presupposed, encompassing, world is always present, transparent and eluding every attempt to grasp it as object" (Palmer 1969:133). *Being-there* is this non-thematical embodiment of the world; it is the *in-the-world*. Ontically, the 'world' is the totality of 'outer' beings. Ontologically, the world is in-the-world in a world *there is instead of is not* (Heidegger 1962), which as such makes a difference for us—we inhabit, dwell, are engaged in a meaningful world. "Our world is the context in terms of which we understand ourselves, and within which we become who we are" (Polt 1999:30). Thus, the phenomenon of world is prior to any consciousness of world as such. "World is prior to any separation of self and world in the objective sense. It is prior to all 'objectivity', all conceptualising; it is therefore also prior to subjectivity, since both objectivity and subjectivity are conceived within the subject-object schema" (Palmer 1969:132).

World and Dasein are inseparable parts of the ontological constitution of man—"There is not such thing as the 'side-by-sideness' of an entity called 'Dasein' with another entity called 'world'" (Heidegger 1962:81). Dasein and world, in being-in-the-world, are not something subjective; rather, they are, as unity, the foundational act of revealing that which is. Thus, our competence over being is not a projection of the reflexive consciousness "but the medium by which a situation or matter is disclosed as it is" (ibid.:228). World is always understood by us because we have it as essential to our way of being—world is already understood and everything is based on *worldliness*. Dasein characterises at equiprimordial levels both "the involvement of being in human nature and the essential relation of man to the openness ("there") of being as such" (Heidegger 1957:270).

Man does not stand out when he thinks of being, or when he cares for other beings. Dasein is always and already standing out as an embodied understanding of Being. This essential understanding is the pre-ontological grasping of being (Heidegger 1962), which distinguishes Dasein as essentially as a *who*, not a *what* a thing or an object is (ibid.:73). Dasein *exists*[53], standing out in its openness. Always-already-in-the-world, immersed, in existing Dasein is always interpreting itself. From an ontic viewpoint, this means that Dasein is ontological.

As an ontic ontological being, Dasein is *mine*. It is always already in a world that matters to itself as an individual. Each and every one of us, having our own individuality being an issue for ourselves, becomes a unique person. A dog is a dog, but a human is a unique person who acts in the world always and already in a uniqueness shown by the singularity of its own name. To *exist* in this sense means being an issue for myself; it means being unique.[54]

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[53] The etymological root of exist, *ek-sist,* means to stand out (Heidegger 1962).

[54] When my daughter Ana was 5 years old, in 1997, I tried to interview her while video-recording (I still have the tape). I asked her some ontological and epistemological questions (must be boring for so young a child…). When confronted with the question "Do you know you exist?" she started to pretend to be playing like a…dog. She ran out of patience for that kind of conversation. The point is that her reaction intuitively makes the question

Dasein's way of being is the result of being socialised into practices. "Dasein has grown up both into and in a tradition of interpreting itself: in terms of this it understands itself primarily and, within a certain range, constantly" (ibid.:41). Yet, we are not born in Dasein's way of being, but in Dasein's world; we come to *exist* in Dasein's way of being; we get into the in-the-world. The human way of being is acquired in the first few months of life by human beings—more precisely, by the beings who have the possibility of becoming human—who are reared among other humans (Heidegger 1962, Bourdieu 1977, Dreyfus 1991, Polt 1999, Giddens 1993, Maturana and Varela 1992). Powerful examples that support these findings are provided by the cases of children who have grown up from birth in the company of animals, such as wolves and monkeys, as they never adapt themselves to our world[55] when brought into the company of humans.

Being-in-the-world is the fundamental structure of Dasein. It is "something *a priori;* it is not pieced together, but it is primordially and constantly a whole (…). The whole of this structure always comes first" (Heidegger 1962:65). It is man's *to be*, that is, its essence. Man's way of being is not the result of an aggregation of several and diverse items. Dasein's way of being, being-in-the-world, cannot be further reduced. We always and already find ourselves in-the-world. We are beings in-the-world in the sense that the being we are always and already fundamentally presuppose, assume, and act in a world that is ours and in which we are what we are.[56]

A.1.1. Worldhood

World, as it is in itself, is bounded by its worldhood. The issue is not to explain the world, or describe the things we encounter in the world, but to gain access to the world in its worldhood. To understand the world as the totality of things, people, and nature is to already imply a conception of Being as decontextualised ontical beings. Whenever we address the 'world' as nature—as an object of scientific analysis or of philosophical reflection—the world in its *is-ness* has already been presupposed (ibid.:92). Any addressing of the world other than in its worldhood not only already presupposes that which is most essential for world as world, but also passes over it (ibid.). It is this world as it is, to which our everyday activities, science, and theories always refer, that Heidegger seeks to address.[57]. He wants to point the world in which a *factical* Dasein already lives (ibid.:93).

The way in which we experience the world is the way we have already found the world itself, that is, "within the horizon of average everydayness" (ibid.:94). Knowing the world, in the sense of reflecting on features or items of the world, presupposes a preceding dwelling in the significant whole that world is. Thus, world is not the whole of all things, persons, and nature, as they are grasped as objectified entities. Instead, it is the whole in which Dasein is "surrounded by its manifestness as revealed through an always pregrasping, encompassing understanding" (Palmer 1969:132).

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meaningless. It is sensible to consider that, in her humanness, she knows that the question would be meaningless if addressed to a dog—because a dog does not *exist* in the sense that human beings exist.

[55] See for example, Giddens' (1993:80 ff.) review of the cases of 'Genie' and of the 'wild child of Aveyron'; and Maturana and Varela's (1990) case of the wolf girl (Appendix A.2.).

[56] This argument is supported by exact science accounts, which while studying human being as objectified entities—*present-at-hand* beings in Heidegger's terms (1962:71-5)—conclude that only in a planet as Earth can the beings we are be at all (NASA 2001). Interestingly enough, one instructional module of NASA (2001b) is titled "Life Support… Don't Leave Earth Without It!"

[57] Dreyfus (1991:88-9) considers Heidegger's insight into the *worldliness* of the world "the most important and original contribution of *Being and Time.* (…) [W]orldliness is the guiding phenomenon behind Heidegger's though in *Being and Time* and even in his later works."

In trying to uncover this already-experiencing of world, Heidegger addresses the Being, i.e., the essential way of being, of things we encounter in our ongoing dealings in the world— "simply what gets used, produced, and so forth." (Heidegger 1962:95). These things are found in our *concernful dealings*[58] in the context of the practical setting of our everyday life; they are "essentially 'something in order-to…'"(ibid.:97). Heidegger call these entities *equipment*[59]—equipment such as that used for writing, communicating, working, travelling, and so forth. As equipment, we understand things, objects, ideas, *as* something transparent while being used, as something *ready-to-hand*, unobstructive, dealt with; *not* as something merely present, reflected upon, analysed, or studied, that is, as something *present-at-hand* (ibid.).

The significance equipment gains is by referring to other equipment. "To the Being of any equipment there always belongs a totality, in which it can be this equipment that it is" (ibid.:97). The totality of the equipment in which we dwell makes the sense of individual items as they refer to each other. The *in-order-to* is the structural reference that assigns equipment to the context of other equipment.

Let us briefly exemplify this. How do we make sense of a mouse? This question immediately presses us to clarify the whole of references to which the 'mouse' belongs? Is it an animal or a computer device? The sense we make of 'mouse' depends on the context to which it belongs. However, if we clarify that the 'mouse' we are referring to is a computer mouse, this *thing*, is not identified *per se*, but rather on the basis of the totality of references in which its meaning is immersed: firstly, the computer, then the office, the professional life, and so forth. Our understanding of the totality of the equipment is more fundamental than our understanding of the particular item, the mouse.[60] By using the mouse it enters the ready-to-hand mode of being, becoming transparent equipment—we use it while focused on something else. We experience this mode of being of things when they become unnoticed as our activity goes on.

The intensive web of references in which we are immersed makes sense for us because in-the-world "our activity has a point" (Dreyfus 1991:92)—it has a "towards-which" (Heidegger 1962:99). Computational equipment makes sense for us because we use it for something, such as work. We work for the sake of something we understand ourselves to be—a *for-the-sake-of-which* (ibid.) that organises our activities and our identity (ibid.). This final point, the for-the-sake-of-which, is not a goal one has in mind as something to achieve. Instead, it is a self-interpretation that informs and orders all of one's activities (Dreyfus 1991:95). For example, at the office (the practical *where-in* context), I use a computer to produce a particular report (assigning the equipment to an equipment whole—in-order-to),

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[58] Heidegger (1962:96) states that the ancient Greek word for "things" meant "that which one has to do with in one's concernful dealings". This meanings is still used nowadays, for instance in expressions such as "I must go to take care of my things", "do not interfere with my things", and so forth.

[59] Equipment is Macquarrie and Robinson's translation (Heidegger 1962) for the original German expression *das Zeug*. They advise us that *das Zeug* has no precise English equivalent. Although it might mean instrument, tool, or implement, Heidegger used *das Zeug* as a collective noun which could be translated as gear, paraphernalia, stuff, or equipment. Macquarrie and Robinson choose this last one, recalling that equipment has this *collective* meaning.

[60] The mouse points to the data and to signals that appear on the screen. In its turn, the screen refers itself to CPU, hard disk, keyboard. All this equipment makes sense for us on the basis of its totality. Mouse, keyboard, CPU, hard disk, etc. refer to each other. This equipment gains its meaning on the basis of its totality. This can be proven by trying to add a completely novel device to this totality of equipment. For instance, what sense would it make if someone gives us a plastic sphere while we are working at the computer? If the sphere is said to be a device that works with the computer, we would have a first reference to make sense of it. However, if we do not obtain further references that thing would be meaningless in the totality of equipment to which it was referred to as belonging.

as a step towards meeting a deadline (achieving a goal—*towards-which*) for the sake of being a competent professional (the final point—for-the-sake-of-which).[61]

Equipment makes sense for us because we have goals. To understand something is to point a reference of that something towards something else. The in-order-tos, the towards-whichs, and the for-the-sake-of-whichs establish what is Dasein's *referential whole* (Heidegger 1962). Before any individual item shows up "a totality of equipment has already been discovered" (ibid.:98). In dealings a ready-to-hand entity is not *grasped* thematically as an occurring Thing (ibid.):

> "In dealings such as this, where something is put to use, our concern subordinates itself to the "in-order-to" which is constitutive for the equipment we are employing at the time; the less we just stare at the [computer] (…), and the more we seize hold of it and use it, the more primordial does our relationship to it become, and the more unveiledly is it encountered as that which it is—as equipment" (ibid.:98).

The computer uncovers itself as what itself fundamentally is while we are using it to focus on that which we are doing. The primordial way of understanding equipment is to use it— "the only way to understand *ready-to-hand* entities is to *handle* them" (Polt 1999:50). Whenever we come to reflect on something, its readiness-to-hand is not characteristic of its being any more.

The work in which we are engaged is our concern whenever we are dealing with ready-to-hand equipment. Ready-to-hand beings, in their readiness-to-hand, *withdraw*. They are not the focus of our direct concern. Heidegger calls the Being of ready-to-hand entities *availableness* (Heidegger 1962:114).[62] As available, objects, practices, concepts, and tools vanish from our explicit attention; available equipment disappears, becoming a part of our assumptions in the context of the dealings in which we are involved. Like the air we breathe, available equipment is there, unnoticed. This is illustrated by the example of the 'blind man's cane' (referred by Wittgenstein 1967; Polanyi 1973; Merleau-Ponty 1962; Introna 1997; and Dreyfus 1991). Let us read a passage of Dreyfus:

> "We hand the blind man a cane and ask him to tell us what properties it has. After hefting and feeling it, he tells us that it is light, smooth, about three feet long, and so on; it is occurrent for him. But when the man starts to manipulate the cane, he loses his awareness of the cane itself; he is aware only of the curb (or whatever object the cane touches); or, if all is going well, he is not even aware of that, but of his freedom to walk, or perhaps only what he is talking about with a friend. Precisely when it is most genuinely appropriated, equipment becomes transparent" (Dreyfus 1991:65).

In these kinds of dealings the user becomes transparent as well—as absorbed by the unfolding of the situation, he loses self-awareness. There is awareness, but not self-awareness. The user and the available equipment become entangled—"self and world belong together in the single entity, Dasein" (Heidegger 1982:197). This grasping of the situation is something that cannot be gained thematically, because any subject-object distinctions lose the most essential characteristics of the situation.

Nietzsche (1990:94) recovers the 'child at play' to indicate this intense absorption in-the-world as essential to that which man is—"Mature manhood: that means to have rediscovered the seriousness one had as a child at play". Dasein is that absorption in the

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[61] This example is not to be taken in accordance to the traditional representationist epistemology. The discussion below explains why this analysis does not necessarily presuppose an intentional mental content.

[62] That which a particular item is, and how it is what it is, is primordially constituted by its involvement in usage where it belongs—"what determines a piece of equipment as an individual is its equipmental character and equipmental nexus" (Heidegger 1982:292). Heidegger considers the involvement in which the equipment reveals itself as ontological definitive, in that that way of being is the way in which we-are-in-the-world-along-other-beings.

world—"Dasein… is nothing but… concerned absorption in the world" (Heidegger 1985:197).

As an illustration the candidate can offer his recollection of his own experience of playing while 4, 5 or 6 years old. Some memories from those times always were clear enough for me. I remember not so much being at playing, but the sudden change of situation when playing stopped. It was as if I were called into another world: I felt I was forced to act and think in a different, difficult, and, to some extent, pointless manner as I was not able (nor interested I would say…) in making the discourse corresponding to actions I would take at playing. When called from playing, it was as everything had stopped, and I was urged to control a situation that was happening, and kept on waiting for its continuing unfolding. Sometimes I remembered that I played such and such, as if only by remembering I were discovering something new. I remembered how I liked more one play instead of the other. Yet, as the next day arrived the situation, the opportunities, the playing always were what led my actions—immersion at playing was the obvious world.

This picture might have experienced some change by the time I was 5 or 6 years old, when I consciously linked my image on a mirror to who I am. The realisation of my image and of my body, that is, of the fact that I had a body and an image—not so much this or that image but a body and an image—suggested me some lessening of the possibilities opened at playing. I realised that those were my image and my body. It was like discovering who I was—whom my parents, sisters, family, and all the others address—in that other world into which sometimes I came when having stopped playing.

At play, at working, engaged in familiar or friendly activities, fully aborbded—in a *focal moment*, or *living life at its best*, as Borgmann (1984), and Dreyfus, Spinosa, and Flores (1997), try to capture these situations, respectively—the world is fundamentally revealed in its readiness-to-hand. The world, as the totality of references, is the primary ready-to-hand entity. Yet as we are a in-the-world we simply disregard that basic evidence that is our involvement in a significant whole (Polt 1999:49).

Only when something breaks down, not going the way it usually goes, do we experience the coming to the foreground of our attention of some of these relationships. If and when transparent coping finds something that does not work "the way it should" (Dreyfus 1991:68), we notice the equipment as obstructive; we observe that something is missing, we look at it in a different way. When equipment loses its character of *available* we turn our conscious reflective attention to it—we analyse it, observe its properties and characteristics, test it, and so forth. The entity becomes something to be analysed. The more urgently we need that which is missing, the more obstructive becomes the entity. This way of being—present-at-hand (Heidegger 1962)—makes explicit to us that which makes equipment ready-to-hand; references that make the equipment function in its referential whole become explicit. We discovered its unsuitability "not by looking at it and establishing its properties, but rather by the circumspection of the dealings in which we use it" (ibid.:102). When ready-to-hand entities breakdown, that to which they refer becomes obvious:

> "When equipment cannot be used, this implies that the constitutive assignment of the 'in-order-to' to a 'toward-this' has been disturbed (…) *when an assignment has been disturbed*—when something is unusable for some purpose—then the assignment becomes explicit (…). The context of equipment is lit up, not as something never seen before, but as a totality constantly sighted beforehand in circumspection" (ibid.:105).

This means what is constitutive both for ready-to-hand and present-at-hand is the *totality constantly sighted beforehand.* Such a priori and primordial totality is the ontological character of being-in-the-world itself. Both ready-to-hand and present-at-hand entities are founded upon this *there* (ibid.:105) that is the world *that is instead of is not*. This

understanding of Being is primarily revealed in our ongoing coping in, and with, the world—with entities we find in the world. As these entities become obstructive, as they do not work in the way they are supposed to, we switch our mode of coping to one of a *subject-object* deliberate intentionality. This mode of knowing the world is thus a derivative one, presupposing a more primary ready-to-hand experiencing. In-the-world we are always and already coping with it, which amounts to a "nonthematic circumspective absorption in references or assignments constitutive for the availableness of a equipmental whole. Any concern is already as it is, because of some familiarity with the world" (ibid.:107).

Before focusing our attention, we are already coping with the world, assuming such and such, and presupposing that and that. Whenever we notice something that requires our deliberate attention, our absorbed coping experiences a break. Heidegger points out that mental content, in the sense of Cartesian subject/object epistemologies, arises whenever the situation requires deliberate attention—the point at which there is a *breakdown*. For example, the keyboard does not type the expected characters, the mobile phone cannot be turned on, the mouse does not click, and so forth. These kinds of disturbances reveal new ways of Dasein's being. In these situations, absorbed coping is gone, and we notice a new strangeness in the equipment: "a more precise kind of circumspection, such as 'inspecting', checking up on what has been attained" (ibid.:409) comes into play. This mode of being of Dasein reveals the mode of being of objects as present-at-hand.

The malfunctioning of equipment is shown to us in "a certain unavailableness" (ibid.:102). In most cases, we have ways of coping with that malfunction—we just do what is supposed to correct the disturbance, then carry on coping. This doing of 'what is supposed' is done on the basis of the availableness of something with which one concerns oneself (ibid.:103), never losing sight of the readiness-to-hand of the equipment itself. In rigour, our transparent coping is disturbed but does not comes to a pause.

However, *malfunction* can evolve to a deeper breakdown. If we try in vain to correct the malfunction the way it is supposed to be done, we find ourselves in a situation where our coping is blocked. Our activity and involvement suddenly and unexpectedly change— "deprived of access to what we normally count on, we act *deliberately*, paying attention to what we are doing" (Dreyfus 1991:72). When we find ourselves in this kind of situation all of a sudden we notice the referential whole in which we were operating—the references and assignments show up; we are in a *temporary* breakdown. For example, if the mouse does not click anymore, we might move it from side to side, shake it, and discover it still carries on not clicking; we look at it, we pause our activity, notice that all other equipment is OK, and focus on the mouse with a higher degree of attention. We recall that perhaps we should try to clean it. We do that, it works, and we return to the previous coping. We have experienced a temporary breakdown.

In a temporary breakdown, the object which was previously ready-to-hand is revealed as present-at-hand. But this new mode of being, the *occurrentness*[63] in which it now comes to the fore, is bound up in the availableness it had moments before. The unavailable only shows up against the background of a practical context that reveals equipment in its most relevant aspects, such as being light, heavy, easy, fast, and so forth. These characteristics are important, and indeed may be decisive for the coping situation, but they do not belong to present-at-hand things. A mouse is not fast or light *per se*. It can be considered as such only on the basis of an involved context. It is this involved context that reveals things as

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[63] Heidegger characterises the way of being called *pure occurrentness* as pure contemplation, disinterested attention, a self-contained subject confronting a self-contained object, without recontextualisation, in the way Dasein can just stare at the object without recontextualising it in its occurrentness—Dasein can see "not in order to understand what is seen… but just in order to see" (Heidegger 1962:83). He also notes that *occurrentness*, in a context of a *total breakdown*, does not necessarily lead to theoretical reflection.

available or unavailable, in the way they are found in our ongoing activity as appropriate or as non appropriate.

A breakdown can go deeper when we lose sight of our involved background. Our mouse definitely stops working. We stop our activity and begin to reflect on that which a mouse is—How is it built? For what? Of what is it made? How does it function? Can it be improved? At this point, we have refocused our attention on the mouse's properties. We have decontextualised it. The mode of being the mouse had while it was equipment is gone. Through theoretical reflection, the mouse is revealed "'in a new way', as something present-at-hand" (Heidegger 1962:412), as something definitively occurrent.

In this situation, our ongoing activity breaks down. We do not just stare at the object, but engage ourselves in a new activity: theoretical reflection. Experiencing the mouse as occurrent in its occurrentness, the object—the mouse—is deprived of its involved context, though it still refers to the whole which makes it *a mouse*. This referential whole is now the background that enables one to address the mouse in terms of *its properties.* Once the mouse is deprived of its involved aspects, the characteristics that remain can be analysed, broken up, and quantified: "By reason of their being-just-occurrent-and-no-more… entities can have their 'properties' defined mathematically in 'functional concepts'" (ibid.:122). This latter activity is a recontextualisation; it is a new projection, which reveals objects—the mouse in this case—in this new way of being occurrent.

Either in availableness or in occurrentness the world is always there: "Whenever we encounter anything, the world has already been previously discovered" (ibid.:114). The world is that which is, and in terms of which the ready-to-hand is ready-to-hand, and the present-at-hand is present-at-hand. Only because there is a world can any entity be ready-to-hand or present-at-hand. This fundamental insight of Heidegger's ontology changes the whole basis for understanding our coping in the 'world', which, within Cartesian epistemologies, has the meaning of the totality of *res extensa*. In-the-world the ready-to-hand is what is *closest* to us. This does not mean what is close to us in space or time, but rather that with which we are 'close by', in our everyday dealings, which has the character of *closedness* (ibid.:135). This closedness is established in terms of circumspective concern, "circumspective 'calculative' manipulating and using" (ibid.).

That which is 'close by' cannot be discerned by measuring distances, but rather it is as such because it is already ready-to-hand in our *involvement whole*. The involvement whole is where the *closedness* gets established; it is the whole of the involvements which make us the individual each one of us is. The involvement whole, guides what is *close to us* with regard to its direction, accessibility, and usage. Thus, the place equipment occupies is not a physical spatial location in an outer world, but a *place* in our involvement whole. When we say that a person has a special place in our heart, we are indicating a *place* within our involvement whole; this is the place it has as it *is* in itself.

The involvement whole, in its readiness-to-hand, does not indicate a definitive place for particular things to be encountered. Within the involvement whole, things and people are encountered; as such, they are brought close because they are brought into the range of Dasein's concern. It is within this range, varying from one particular activity to another, that Dasein can experience things *near* or *remote*. Equipment has its *place* because it is assigned to a totality of references forming the referential whole in which the equipment is what it is. For example, each IT device has its *place* in an office. This *place* is assigned by the references each device has to the other devices. It is this *place* that will define the spatial location of the device—not the other way around.

In our concerned absorption in the world each item has *its place*. The nearby item is not noticed 'objectively'; rather, it is used, assumed, manipulated and presupposed. The degree

of closedness or remoteness, and thus the manner and caring intensity in which things matter to us, has no relation to an item's physical spatial position. To bring something close by, does not signify fixing it at a spatial position with a minimal distance from some point of our body:

> "When something is close by, this means that it is within the range of what is proximally ready-to-hand for circumspection. Bringing-close is not oriented towards the I-Thing encumbered with a body, but towards concernful Being-in-the-world—that is, towards whatever is proximally encountered in such a Being" (ibid.:142).

Things show up in world as having a certain accessibility, which is experienced in accordance with my ability to grasp or procure these things. "A thing is near to me when I am able to get a maximal grip on it" (Dreyfus 1991:133). The higher degree of nearness is characterised in that: while coping, Dasein is transparently working with the equipment nearby; and, while absorbed, it is fully focused, involved, entangled in a situation where readiness-to-hand is constitutive. Having an optimal understanding, for example, of a computer, involves not only doing an activity that presupposes a computer, but also being involved with an operation that actively engages the computer, fully focused on some goal brought closer by the readiness-to-hand of the situation. The optimum grip includes both using equipment and absorbed attention.

It follows that Dasein, being in physical space, is not defined by citing the position at which some corporeal Thing is present-at-hand (Heidegger 1962:142). Dasein's involvement, the way in which it is in a referential whole, is the centre of Dasein's world—"An individual Dasein is located in the referential whole of equipment by occupying a position from which some equipment is easily available and some is out of reach" (Dreyfus 1991:134). "The degree of accessibility of all things yonder defines my centred, lived space—my here" (ibid.).

My yonder, as a centre of the world, means that 'objective' features of things, their present-at-hand characteristics, reveal themselves only within a larger, meaningful context, which cannot itself be explained in terms of its presentness-at-hand. "The astronomer determines that a certain star is millions of kilometres away from the sun. That is correct, but it means something to the astronomer and to the rest of us only if we can relate it back to the lifeworld in which three kilometres are a gentle afternoon stroll, and thirty kilometres are a good day's hike" (Polt 1999:59). A computer technician measures the surface of a screen and finds it is 27 centimetres wide and 21 centimetres high. That is correct. So what? What does this fact mean? What is its relevance? This measurement would be meaningless, and the technician would never have bothered finding them out, if they were not already meaningful in the world in which he exists, lives, and has a profession as PC technician. Trauger, quoted in Polt 1999, highlights this point: "Scientists do what fascinates them, and what fascinates them is not something you can discover with science. They are interested in investigating where planets come from, say, not because science tells them to do that, but because as human beings they find that interesting" (*The New Yorker*, 9/12/1999).

As being-in-the-world, Dasein has always and already understood physical spatial positions on the basis of their already-established places in its involvement whole. "The Objective distances of Things present-at-hand do not coincide with the remoteness and closedness of what is ready-to-hand within-the-world" (Heidegger 1962:141). Present-at-hand distances are understood, interpreted, and assumed on the basis of Dasein's yonder. *Per se* a present-at-hand distance has no meaning. Its meaning only appears on the basis of Dasein's yonder (see Table A.1).

The ontic space is 'where planets come from'; the ontological space is 'the interest in where planets come from'. Heidegger's findings show that the ontic distance is a derivative spatiality because its meanings must be based on some presupposed ontological distance.

The ontological distance tell us the meaning of the ontic distance. Thus, ontic distances are indeed relevant, but only on the basis of some previously presupposed and assumed ontological distance. Thus, fully-fledged space consists not of points where objects are located, but of *places* where things and people *belong* or *do not belong* (ibid.:136,145).

Table A.1 - **Ontic and Ontological distances**

Ontic distance	Ontological distance
Present-at-hand	Ready-to-hand
Physical space	Place of concern
Occurrent space	Lived space
No centred space. Homogeneous space.	Dasein's centred space. Personal space.
Pure extension.	Orientation: up/down, right/left.
Three-dimensional space.	Remoteness/nearness of items
Undisclosed space	Regional space
Measurements of distance	Degrees of availability

Adapted from Dreyfus 1991:139

A.1.2. Being-in

The world is a network of references and involvement showing where things belong and how they fit in our lives. In this world, Dasein has itself to be, it is responsible for who it wants to be. But how is Dasein *responsibly* in the world? Heidegger's answer is clear: it is in the world as it already was, before reflection on this issue began—Dasein is in the world in its *everydayness*. Although the expression 'everydayness' is taken from the first pages of *Being and Time*, Heidegger makes its meaning explicit only on page 422. Everydayness is the *how* in accordance with which Dasein 'lives unto the day':

> "'Everydayness' manifestly stands for that way of existing in which Dasein manifests itself 'every day'. And yet this 'every day' does not signify the sum of those 'days' which have been allotted to Dasein in its 'lifetime'. Though this 'every day' is not to be understood calendrically, there is still an overtone of some temporal character in the signification of 'everyday'. But what we have primarily in mind in this expression "everydayness" is a definite "*how*" of existence by which Dasein is dominated through and through 'for life'. In our analyses we have often used the expression 'proximally and for the most part'. 'Proximally' signifies the way in which Dasein is 'manifest' in the "with-one-another" of publicness, even if 'at bottom' everydayness is precisely something which, in an existentiell manner, it has 'surmounted'. 'For the most part' signifies the way in which Dasein shows itself for Everyman, not always, but 'as a rule'" (ibid.:422).

Dasein begins to be itself while absorbed in the everyday world. As a being-in-the-world, Dasein is already in the world coping; it is-with-others, with things, with nature—coping. People and things are always experienced in relation to a social and meaningful context—"My ways of using the thing, and the thing itself as a tool, *refer* to my human community" (Polt 1999:60). The Being of other people insofar as I encounter them in my world is a *Being-with*, a *Dasein-with*. Other Dasein "already *are with us* in Being-in-the-world" (Heidegger 1962:152).[64]

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[64] As indicated previously, this seems to be shown by the way human beings who have grown up outside human communities—with apes, wolves and so forth—show no human way of being.

Other Dasein are neither ready-to-hand nor present-at-hand items. These two modes of Being belong only to entities other than Dasein. Dasein and other Dasein encounter themselves, within-the-world, *in* their being-in-the-world. Other Dasein "are *like* the very Dasein which frees them, in that *they are there too, and there with it*" (ibid.:154). This means that Dasein is *world* too, which supports the initial indication that Dasein and world encompass each other.

Other should not be understood as everyone else, but "rather those from whom, for the most part, one does *not* distinguish oneself—those among whom one is too" (ibid.). The Others are those against whom the 'I' stands out. I am there too with others and others are there too with me. This 'too' indicates the sameness of Being as circumspectly concernful coping in the world; it is not a 'categorical' too, but an existential 'too'. As such, the world is revealed to be the world I always share with Others. Dasein is structurally characterised by being-in and by *being-with.* Dasein is Dasein while with-others. "The world of Dasein is a with-world. Being-in is a *Being-with* Others. Their Being-in-themselves within-the-world is *Dasein-with* (ibid.:155). Dasein-with is part of the essential constitution of Dasein. Dasein-with is the way in which Dasein is what it is, unfolding its *presence* in-the-world.

Because Dasein is already Dasein-with, it presupposes a common world. "This common world, which is there primarily and into which every maturing Dasein first grows, as the public world governs every interpretation of the world and of Dasein" (Heidegger 1985:246)". I am always already involved in a shared world, which is the world where I found myself alongside-the-others-in-the-world. Because this shared world is primary, Dasein is the others—"One belongs to the others oneself and enhances their power" (Heidegger 1962:164). Dasein is firstly and already coping alongside-the-others in a way in which the others already are there. Thus, for the most part, Dasein is within Others—it exists as *the they (das Man)*[65]. For example, "in selecting my clothes, I take care not to look unfashionable—I consult my own sense of style and property. But this sense of style is really not "my own". It is simply how *one* dresses, how *they* dress in my community—and I *am* the 'they'" (Polt 1999:62). 'The they' is that which is primarily always already there. It is not you, nor the other one, nor some people, nor the sum of them all; this *they—das Man*—is a neutral term, which is presupposed in order to have our shared world:

> "In utilising public means of transport and in making use of information services such as a newspaper, every Other is like the next. This Being-with-one-another dissolves one's own Dasein completely into the kind of Being of 'the Others', in such a way, indeed, that the Others, as distinguishable and explicit, vanish more and more. In this inconspicuousness and unascertainability, the real dictatorship of the "they" is unfolded. We take pleasure and enjoy ourselves as they take pleasure; we read, see, and judge about literature and art as *they* see and judge; likewise we shrink back from the 'great mass' as *they* shrink back; we find 'shocking' what *they* find shocking. The "they", which is nothing definite, and which all are, though not as a sum, prescribes the kind of Being of everydayness" (Heidegger 1962:164).

The Being of everydayness—'the they'—has its way of being. This way is characterised by an already in place accepted way of Being-with-one-another—i.e., the *averageness* (ibid:164) of 'the they'. For instance, 'the they' establishes the polite distance that should be maintained between two people in an office, the street, the pub, and so forth. We are usually unaware of this 'distantiality', but whenever its *averageness* changes—when we go abroad for example—we immediately notice people as being 'cold' or 'pushy'. Their sense of a polite distance is different from our own sense, that is, the averageness of 'the they'

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[65] The German word *Man* means One, such as in the expression "One should do this". Polt (1999:62) suggests 'the anyone' might be more appropriate. Dreyfus (1991:152) supports 'the One' as the closer translation of Heidegger's 'das Man'.

dictates a different kind of comportment to that which is *average*, *natural*, unnoticed (Polt 1999:62).

'The they' as an *existentiale*, a primordial phenomenon belonging to the constitution of Dasein, does not impose directly on our each and every particular behaviour. Of course, we can choose how we dress—but only up to a point. The question is: To what extent can I escape 'the they' by dressing *against* prevailing fashion? (ibid.:62) I cannot, because to be conscious of how I fit in my community, in fashion, against fashion or out of fashion, implies that I base myself on the *prevailing* fashion itself. I can be against only something that establishes the norm, the rules, the criteria—"I am still basing my personal look on the "they"—I still depend on the "they" as a guideline (a negative one) for how I should behave" (ibid.:62).[66]

The 'they'—whether it is the prevailing one or any *counter-they*—is a *way of existing*, in which we ourselves already are accommodated. 'The they' is "as little present-at-hand as it is Dasein itself" (Heidegger 1962:166). 'The they' is always guiding, dictating, and evaluating. Nonetheless, in some situations 'the they' becomes more explicit, for instance in a judicial trial whose opening is characterised by the strong articulation of expressions such as "The people of the State of ABC against Mister D". However, this example does not illustrate the typical behaviour of 'the they'. Quite the contrary, it illustrates an exceptional practice because the more openly 'the they' behave, the harder it is to grasp, and the slyer it is (ibid.:166). 'The they' as the ""Realest subject" of everydayness" (ibid.) is that on the basis of which *everydayness* unfolds and as its foundation.

One important way in which *everydayness* is revealed is in equipment as such. Equipment is equipment, no matter who uses it. A PC, a house, or a car, are what they are whoever uses them. Equipment is not just "for me", but it is for "anybody"; that is equipment is for *them;* it has appropriate ways of being used. One ('the they') cannot, or should not, use a PC to sit on—equipment *obeys* norms, referring to the *normal* user (Dreyfus 1991:151).

Norms establish what is right and what is wrong, but do not *per se* present justifications—"the common sense of the one knows only the satisfying of …public norms and the failure to satisfy them" (Heidegger 1962:334). Our customary *normal*[67] behaviour, acquired along with our familiarity with the shared world in which we dwell, is the *averageness* of 'the they'. This averageness has a crucial function in our being-in-the-world. Because it establishes an *average* way to do things, it sustains the very referential whole in which things, items, nature, show as they themselves are. "Without such averageness there could be no equipmental whole" (Dreyfus 1991:153). For equipment to work, that is for it to be found in their readiness-to-hand, its *average* usage must already be found. One can use eating equipment only because we have norms which fix in advance how *one* eats, when *one* eats, where *one* eats, what *one* eats (ibid.:153).[68]

The source of the intelligibility of the world is thus "the average public practices through which alone there can be any understanding at all. What is shared is not a conceptual scheme, i.e., not a belief system that can be made explicit and justified (…). What we share is simply our average comportment" (ibid.:159). This averageness, this shared agreement, is the foundational ground of being-in-the-world; thus, the individual person is not the

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[66] *Counter-they* quickly tend to become a subculture which rules as the more common *they* rules. "Nonconformists are rigid conformists within their own subculture" (Polt 1999:62).

[67] The word normal has its etymological roots in norms—that which is conform to norms (MW).

[68] For Heidegger, and Wittgenstein as well, language provides the best example of the relevance of averageness. For us to understand anything said, there must already be an agreement on language itself—"in the language which is spoken when one expresses oneself, there lies an average intelligibility" (Heidegger 1962:212). Language is the norm to which that which is said has to conform.

source of everyday significance, but rather it is 'the they'. "The for-the-sake-of-whichs available to Dasein are not first created by you or me, but rather are public possibilities provided by society" (ibid.:158). Dasein is always already in the there as 'the they': *"Dasein just is a more or less coherent pattern of the comportment required by the public "roles" and activities—an embodiment of the one"* (ibid.:159).

Still, this does not mean that Dasein's possibilities are fixed once and for all. Quite the contrary, that Dasein is a Dasein-with, and that it is its possibilities, means it is a constant *chooser*. Its choosing shows new ways, new possibilities, new challenges. When these options are taken by Dasein, and as they are appropriated by society, changes occur in the very background of intelligibility that are social practices. The background on the basis of which Dasein chooses is always changing. The roles, norms, practices, behaviour, and so forth, open to Dasein are never the same. They are understood within the 'has been' that each and every Dasein already is. That within which Dasein finds itself thrown is understood within the projections of Dasein's possibilities into the future. These projections, in their turn, can be articulated only on the basis of a shared background of meaning in which Dasein already finds itself (Heidegger 1962).

Within 'the they' I am always familiar with a range of social expectations and interpretations that mark me as belonging to a culture, on which we have already agreed upon, and on the basis of which we can be what we are. "When I exist as the *they-self*—as I do, most of the time—I simply accept these expectations and interpretations, and let my world be structured by them" (Polt 1999:63). This *"dispersal* into the "they"" (Heidegger 1962:167) characterises concernful absorption in the world. But it is possible for Dasein, for *me*, to exist in another way. As Dasein, I can take myself, as I myself am, within the shared world in which I am who I am, to work out for myself *who am I*—Heidegger calls this revealing of myself the *authentic Self* (ibid.:167),an *existentiell* modification of the *they Self* (ibid.:168).

Authenticity does not imply that we have to get out of a tradition of our own, but it does mean that we should pursue *clear-sightedly* and *resolutely* the possibilities opened up by that tradition (Polt 1999:63). We simply cannot get out of the "they" of the community, the shared world, in which we are what we are (Heidegger 1962:213, 224, 299, 345, 435; Polt 1999:63). However, in authenticity, Dasein experiences that it has itself to be. Dasein experiences that it is a *chooser*, and as such it is already its own possibilities. Dasein is already there, outside itself, projecting into the future, *ahead of itself*.

In authenticity or within 'the they'—in inauthenticity—Dasein *daseins*. It daseins not just by being-in-the-world, but by being in a *situation* (Heidegger 1962:165), "dealing with something specific in a context of things and people, directed toward some specific end, doing what it does for the sake of being Dasein in some specific way" (Dreyfus 1991:163). Being in a situation is absorption in the world, involving one activity or a few practices simultaneously. Dasein absorbs itself into the world by elaborating subworlds which presuppose world itself.

"Each Dasein's *there* is *the* situation as organised around its activity" (Heidegger 1962:165). Already within-the-world, Dasein is its yonder; it is its being in a situation, which essentially discloses the there. Being-in is thus a disclosed situated activity of the individual Dasein; it is *how* we are there, and it is characterised by three equiprimordial aspects: *attunement*, *understanding*, and *falling* (ibid.:171-2, 400).

Always within a situation, already-in-the-world, Dasein is attuned,[69] always in a *mood*. To Heidegger, moods do not cut us off from things. Instead, they *disclose* things as they are,

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[69] The German term *Befindlichkeit* is used by Heidegger to indicate the "*ontically* most familiar and everyday sort of things: our mood, our Being-attuned" (ibid.:172). Polt (1999) and Dreyfus (1991) note that there is no ideal

already mattering to us. "Moods or attunements manifest the tone of being-there" (Dreyfus 1991:169). 'World', as present-at-hand things, and world, as ready-to-hand equipment and Others, are always found through the mood in which we are.

Because Dasein is Dasein-with, moods are not specific to individual Dasein. Dreyfus (ibid.) calls our attention to the German word that addresses a wider meaning of moods: *Stimmung*. Stimmung has a broader range than mood, as it can mean the ways in which Dasein can be affected. "Mood can refer to the *sensibility* of an age (such as romantic), the culture of a company (such as aggressive), the *temper* of the times (such as revolutionary), as well as the mood in a current situation (such as the eager mood in the classroom" (ibid.). These moods are all ways of finding that things matter to us. These examples are indications of *ontic* situations which reveal the ontological existential condition that things already matter: "I am always already surrounded by objects that matter in some specific ways" (ibid.:173). Attunement is this ontological condition.

We often address the mood in which we are. "How is it going?", we ask a friend. He replies "It's going OK." What does the 'it' refer? Everyone knows that the 'it' is nothing in particular, but how life is going in general, *for you*. The 'it' addresses the 'being-in-the-world-as-whole' being experienced by the friend. It is how he finds himself *attuned* at the moment. 'It's going OK' is an articulation of the overall situation, that always has to be going on in some way. It is how *I'm there.*

How we experience the overall situation escapes our will, determination, or explanation in a great many cases. We may have just "got up the wrong side of bed this morning" (Polt 1999:66). That makes sense for us because we are always already attuned—"we are never free of moods" (Heidegger 1962:175). Attunement points to the fact that I have a past—"I find that I have been thrown into the world" (Polt 1999:66). We are *thrown* into the *world* with a *past*—this is attunement. Dasein in its *facticity* is faced everyday with the task of being what it has already been, and choosing what it can be (ibid.:66-7). Heidegger used the double adverb 'always already' to stress the inescapable past which, as such, belongs to us. Thrown into the world, Dasein finds a world that already matters to it because revealed within, by and through an attunement in which Dasein is.[70]

Since Dasein is thrown, we always and already are in the world from a particular perspective, which implies the impossibility of "building truth from scratch", of "new beginnings", of "total knowledge", and so forth. We already have a past that disposes us to a particular way in the world—our unique and unavoidable way. Heidegger's argument is that attunement is not to be understood as a feature of humans, which implies humanness to

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English equivalent of this expression. Both disagree with Macquarrie and Robinson's translation, "state-of-mind" (Heidegger 1962:172). "After all, Heidegger consistently tries to avoid giving the impression that Dasein exists inside a subjective sphere, such as a mind" (Polt 1999:65, fn. 41). "'State-of-mind' suggests, at least to philosophers, a mental state, a determinate condition of an isolatable, occurrent subject. Heidegger is at pains to show that the sense we have of how the things are going is precisely *not* a private *mental* state" (Dreyfus 1991:168). What is needed is a term that designates our moods as ways of finding ourselves in the world; it is a word that conveys *"being found in a situation where things and options already matter"* (ibid.:168). Polt stayed with Stambaugh's translation "attunement" (Heidegger 1999)—"one's attunement discloses one's *throwness*: attunement is our way of finding ourselves thrust into the world" (Polt 1999:65). We also use Stambaugh's translation.

[70] Traditionally, philosophers have tried to escape 'moods' or 'emotional states'. Descartes looked for a situation where he would have had "no worries or passions": locking himself in a "small stove-heated room", hoping to come out with an unshakeable system of reason (Descartes 1993:6-7). Descartes takes no notice of the fact that it is an already experienced world which *conducted* him to that room, and that reason and reasoning "presupposes a prior revelation of the world, a revelation that is largely achieved through attunement" (Polt 1999:67). Heidegger makes this aspect clear: *"The mood has already disclosed, in every case, Being-in-the-World as a whole, and makes it possible first of all to direct one-self towards something"* (Heidegger 1962:176). Descartes went to the small *stove-heated room* because it already meant something to him.

be experienced before/without that feature, but rather that attunement is ontological—it is part of the *essence* of being human.

Things matter to us because of our having a past—a past that is meaningful to us because it is *who* we are, and it is what enables us to project *who* we can become. *Attuned*, we find ourselves already disposed in a world that we understand. We-are-in-a-world-that-worlds— that is evident to us; we understand it, and have competence over it. Understand is a knowing how, our ability to cope in the world; not a knowing that, our capacity to explain this or that. Understanding is previous to articulation and previous to reflection. "Being-in-the-world is disclosed as such, and this disclosedness we have called "understanding" (Heidegger 1962:182). Because Dasein is an issue for itself, the world is already found as meaningful—"everything has meaning" (Merleau-Ponty 1962:xviii). Thus, Dasein as being-in-the-world, being-there, already understands the world in that all has meaning for it.[71] Understanding in this way indicates our competence over Being (Heidegger 1962:183).

Understanding has in itself the structure of *projection* (Heidegger 1962:185), that is, the way Dasein understands itself is in terms of possibilities, of "available ways to be" (Polt 1999:69). *Projecting* is not thus comporting oneself according to a plan, or to a set of identified goals or objectives. Projecting is in the way Dasein understands itself. Dasein is thrown into the kind of Being which is projecting. Dasein has already projected itself, and as long as it is, it is projecting" (Heidegger 1962:185). We understand the world by taking a stand on our life, by adopting some way of acting, of existing. Dasein always and already understands a world in which it is attuned and projecting.

In its everydayness Dasein has fallen into 'the they'. The they-self is always absorbed in what it is doing in a superficial and conventional manner. 'The they' dominates the public *space* of Daseining, in which things have already been interpreted in a way which constitutes that which is presupposed in Daseining. This implies that 'the they' is a *levelling down* (ibid.) that, as such, draws Dasein away from its primordial sense of what it is—Dasein has *fallen* into the world (ibid.). "In falling Dasein *turns away* from itself" (ibid.:230). Absorbed in the world, Dasein is *fascinated* by and with the things found— is 'Being lost' (ibid.). Fallen[72] is a permanent tendency in the human condition, although Dasein sometimes resists and overcomes falling—Heidegger's examples are *anxiety* and *moment of vision*.

In anxiety, Dasein is unsettled—"not at home" (ibid.:233)—and feels itself alienated. Dasein is anxious about nothing in particular; it is in a general mood, which reveals entities and their meanings as irrelevant, inconsequential, insignificant (ibid.:231). This can only be because Dasein is an issue for itself. Thus being-in-the-world, as such, is that in the face of which Dasein is anxious. In moment of vision (ibid.:387-8), Dasein faces up to its mortality, recognises the finitude of its *unlimited* possibilities, grasps its current situation in the world, recovers who it is as a *having been*, and authentically and resolutely understands how it

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[71] In *Basic Problems of Phenomenology*, Heidegger (1982) clarifies this issue by etymologically analysing the German word for understanding: *Vorstehen*. Literally the word means "stand in front of or ahead of it, that is stand at its head, administer, manage, preside over it" (Dreyfus 1991:185). "In German we say that someone *Vorstehen* something. This is equivalent to saying that he *versteht sich darauf* [understands in the sense of being skilled or expert at it, has the know-how of it]. The meaning of the term "understanding"… is intended to go back to this usage in ordinary language" (Heidegger 1982:276: square brackets from Dreyfus 1991:185). Heidegger's technical expression *understanding* means this kind of know-how—a skilful coping more basic than the distinction between thought and action (Dreyfus 1991:185).

[72] Heidegger characterises falling in three basic ways: *idle talk*, *curiosity*, and *ambiguity* (ibid.). Idle talk is the way in which issues appear already interpreted by the 'they' and, as such, are superficially and conventionally accessed. Curiosity is seeing not in order to understand but just in order to see; it is a manifestation of Dasein's tendency to become lost into the world. In *ambiguity* Dasein self-interprets itself in terms of the world it finds in idle talk and curiosity, closing off its own *self* by *destining* itself among the they (ibid.).

forms part of its life. Taking over its tendency of falling within what proximally surrounds it, Dasein uncovers a moment of deeper meaningfulness in which what it will be, as a having been, appropriates the possibilities itself chooses. In this way, it illuminates and discloses the authentic future, past, and present.

These examples of Dasein's overcoming of falling "have the potential to wake us up to the difference it makes that there is something rather than nothing" (Polt 1999:77). Any authentic grasp of things develops itself from everyday superficiality. We are thrown into a world already meaningful for us. Our *facticity* is that we remain in the thrown, "sucked into the turbulence of the "they's" inauthenticity" (Heidegger 1962:223). Having touched upon the overall structure of Being-in, we must recall that being-in-the-world is a phenomenon which is primordial and constantly a whole, that always comes first.

Factically in-the-world, Dasein is its own caring for itself and other things in the world. Dasein has always a past because it cares for who it is already. It has a future because different possibilities matter differently to Dasein—it cares about its possibilities. In the present, Dasein is absorbed in-the-world, involved with Others and things, caring for them and for itself. Dasein is there because is *cares:*

> "Dasein exists as being for which, in its being, that being is itself an *issue.* Essentially ahead of itself, it has projected itself upon its ability to be before going on to any mere consideration of itself. In its projection it reveals itself as something which has been thrown. It has been thrownly abandoned to the 'world', and falls into it concernfully. As care—that is, as existing in the unity of the projection which has been fallingly thrown—this entity as been disclosed as a 'there'" (ibid.:458).

Because the Being of Dasein is an *issue* for itself, Dasein cares for that which it finds in the world. Dasein is an issue for itself because it *cares* about the world in which it is what it is. Being makes a difference to Dasein only because it cares. Care is the ontological meaning of 'making an issue of itself'. *Care* is thus the essence of Dasein. Care unifies all the structural aspects of the human way of being: understanding, attunement, and falling. Care is a primordial structural totality, lying before any specific situation Dasein finds itself in. Care is the a *priori existentiale* that always has already defined Dasein in its ownmost Being.

Each epoch and culture embodies a diverse self-interpretation of itself. Nonetheless, all of them rely on the previous disclosedness of care as the essence of being human. Heidegger calls attention to the fact that care does not express the priority of the practical attitude over the theoretical one. Care is previous to both attitudes: "When we ascertain something occurrent by merely beholding it, this activity has the character of *care* just as much as does a "political action" or taking a rest and enjoying oneself" (ibid.:238). Care is already in the world because care is that which reveals the world to us. As such, care encompasses the world, and is previous to practical concerns and theoretical reflections. Care is that on the basis of which there can be practice and theory.

Dasein understands the world because it cares for being—it is not a matter of indifference for Dasein that it *is*, and that a world *is*. Caring for being, Dasein is in the world for-the-sake-of its potentiality for being; this "Being towards one's ownmost potentiality-for-Being means that in each case Dasein is already *ahead of itself* in its Being" (ibid.:236). Ahead-of-itself, already-being-in-the-world, Dasein is *factically* absorbed caring for things of its concern.

Being-ahead-of-itself is the aspect of understanding that discloses Dasein as its own possibilities, because that which is primordially disclosed is the future itself. Dasein is a *having a future*. Yet Dasein is already in a world. It is attuned to a world that matters to itself. "I already have a life" (Polt 1999:79). Dasein cannot disengage itself from that which

it already is. Dasein always has a past, which dictates who it was and enables it to project who it wants to be. Towards the future—*ahead of itself*—from the past—*already in*—Dasein is always a precencing in the world—*amidst*, coping, anxious, fearful, joyful, absorbed, contemplative. Future, past, and present matter to Dasein.

We have seen the overall structure of Being-in. How attunement, understanding, and falling reveal Care as the essence of Dasein. This overall schema has already suggested temporality as its horizon. Temporality implicitly enables us to make sense of the threefold structure of care—*already* (past), *ahead* (future), *in* (present).

Having interpreted everydayness, Heidegger uncovers temporality as the background, the presupposed and always implicit horizon of everydayness. To get a fuller grasp of this horizon, in Division II of *Being and Time*, Heidegger inverts his analysis—by taking everydayness as background he intends to disclose temporality as itself is.

A.2. Temporality

Everydayness is the Being that is between birth and death (Heidegger 1962:276). From the beginning of our past, when we had no past at all, until the end of our future, when we will have no more possibilities in front of us, we-are-in-the-world in the ways characterised above. As we live, we care for the world in which we are. "If you knew that this was the last day of your life what would you do? The answer to this question says a lot about who you are—what you care about the most and how you really want to live. The certainty of death is liberating, in a sense: it frees us from trivialities" (Polt 1999:85). This questioning can indeed be useful in clarifying who each one of us is, elucidating the kind of being we, human beings, all of us are.

Death emerges as the limit of all possibilities for Dasein. Dasein's possibilities are always limited by the possibility of the impossibility of *existing*—this is the meaning Heidegger attaches to death (Heidegger 1962:279). In this sense, only human beings are capable of *death.* Animals do not share a way of being in which death makes sense. This is the reason we call ourselves *mortals*. Thus, mortality is not a one-off event, but the ongoing human condition itself. The meaning our past has for us, the possibilities we project into the future, only make sense for us against the certainty of *death*:

> "If we become truly immortal [in this world or in life after *death*], and death is no longer a possibility for us at all, then we will have entered a radically different state of Being and will no longer be Dasein. An entity whose possibilities always have to remain open, who is guaranteed a future and is essentially impervious to death, is not Dasein. Such an entity would have a fundamentally different way of acting and understanding" (Polt 1999:87).

Death is certain (Heidegger 1962:299) and "this certainty, that 'I myself am in that I will die', is *the basic certainty of Dasein itself*" (Heidegger 1985:316). In this analysis, temporality is that on the basis of which Dasein can have its own *certainty*. As such, it shapes Being-in. *Being-towards-death* Dasein can face up to its *mortal* condition or it can cover it up within 'the they'. When Dasein is facing up to death, already-in-the-world-ahead-of-itself, it is forced to make something of itself. Dasein always has itself to be. Facing up to its own limited possibilities, Dasein realises the importance of choosing a possibility of defining itself—this is what Heidegger calls *anticipation*.

Dasein is *indebted* to its past as it does not control it. Dasein did not bring itself to the world—it is *already there*—and it cannot change what it has already been. To be who we want to be in the future, we are always from the past, indebted to it, having to work with it and from it. Yet, Dasein's past is still open, in that its meaning is ever changing in

accordance with the projections Dasein embodies into the future. We project possibilities that always include our past, and these possibilities—as they are these and not others—make us responsible for what we choose. Below Table A.2 presents a synthesis of the way temporality is revealed in Dasein's Being.

Entangled in time Dasein can choose because it cares. On its own, it can choose to choose or not to choose (ibid.:312-4). Thus, *choosing to choose* is the way Dasein *authentically* exists, owning up to its possibilities, facing up to its mortality, and taking for itself the meaning it wants for its life. In day-to-day coping we are always choosing; but we can choose within 'the they', as things go on and on, not taking the burden of being responsible for the way in which we are already. Choosing to choose can indeed have no consequence in the kind of ontical actions we are performing, but as these actions are authentically appropriated by us, the world opens up more clearly, and the possibilities we face show up in deeper meaningfulness. Heidegger calls this way of being *resoluteness* (ibid.:314,343). We have all experienced this whenever we ponder and decide, sometimes even in a fraction of a second, upon an issue which we know will change our life—for example, taking a new job, engaging in a deeper religious life, going to live in another country.[73]

Table A.2 - **Future and Past**

Future	Past
Death	Birth
Possibilities	Foundations
Responsibility	Indebtedness
Projection	Throwness
Understanding	Attunement
Existentiality	Facticity
Being-ahead-of-itself	Being-already-in-the-world

In resoluteness we no longer exist as a falling *they-self,* but we experience the seizing of one's future and one's throwness. Being-in-the-world gets illuminated, and the possibilities we project for our life get brighter and deeper—this is the *moment of vision* (ibid.). This moment of vision enables one to make explicit choices, which would need to be reinforced again and again because of Dasein's structural tendency to fall into 'the they'.

However, we should note that Dasein does not choose its possibilities from nowhere. Dasein already is in a shared world who takes a possibility furnished by 'the they' and makes it its own. In a sense, while resolute its life becomes something that is not characterised by following 'the they', but by leading itself within 'the they'. Resoluteness involves a recognition both of having a past, and of the limitations of possibilities by our own Being-towards-death. Thus, resoluteness is entangled with *anticipation* (facing up to mortality).

> "[*Anticipatory resoluteness*] simply means that one accepts our basic condition as human beings: we have to make something (or someone) of ourselves, and this project of living is subject to some important limitations. First, the life one builds must be based on one's facticity, on who one already is. Secondly, one's life will exclude an infinity of other possible lives that one could have led. Thirdly, a human life is susceptible to termination at any moment. When we make our choices in full

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[73] These examples are just some situations in which resoluteness might be experienced. However, resoluteness might not always be experienced in these situations. It is also plausible to consider such examples being run by the they, rather than the authentic self.

recognition of these limitations, we take authentic, clear-sighted stances" (Polt 1999:95).

Authentically we are projecting, disclosing possibilities for being and illuminating our past. Projecting is our pre-ontological understanding of Being. As a being, whose beingness is care, Dasein "has in every case already projected itself upon definite possibilities of its existence" (Heidegger 1962:363). Meaning signifies the *upon-which* of the primary projection of the understanding of Being (ibid.:371). "The primary projection of the understanding of Being *gives* the meaning" (ibid.:371-2). Thus, care is the grounding of meaning.

Heidegger contents that in essential caring anticipation and resoluteness are implied. We care because we always already anticipate. We care because we are always already resolute. These aspects are not features of being a man, but rather are that which man essentially is as the being who cares. "That which was projected in the primordial existential projection of existence has revealed itself as anticipatory resoluteness" (ibid.:372). In *anticipatory resoluteness*, the being who faces up to mortality chooses to choose its possibilities. Anticipatory resoluteness is Dasein's ownmost distinctive way of being:

> "This letting-itself-*come-towards*-itself in that distinctive possibility which it puts up with, is the primordial phenomenon of the *future as coming towards*. If either authentic or inauthentic Being-towards-death belongs to Dasein's Being, then such Being-towards-death is possible only as something *futural*" (ibid.:372-3).

What is at stake here is not the common understanding of the word future as a 'now' somewhere in an pre-determined order of sequential time. The primordial dimension of *future* is disclosed in potentiality-for-being. Dasein already is its grasping of possibilities. A possibility, as a possibility of ours, is a coming towards ourselves. It is something already on the way towards Dasein itself, disclosed in *Daseining* as a possibility, that is, as something possible for Dasein. As such the future gest disclosed as already coming towards Dasein. The future lies in Dasein's being. Dasein is ahead of itself, as it already was, united in its beingness *from* the future, not *from* the past nor *from* the present. It is the *future*, as understanding of possibilities for Dasein being *as it already was,* that is the primordial dimension of temporality. Dasein was already ahead of itself, in this becoming what Dasein has been gets its disclosure.

Dasein's possibilities are not certain because they can vanish into the *past,* appropriated by the process of *having-been,* being not any more a possibility; or, because in choosing, Dasein sets aside what it does not choose; or, because Dasein lets itself be engulfed by 'the they'; or, finally, because Dasein is itself *towards-its-death*, with the impossibility of having possibilities always on the horizon.

Being-in-the-world, in a situation, within a projection in which itself is, Dasein takes on a possibility that makes sense for who it is, as a *having-been*. This means that *making present*—that is, the *Present* itself—receives its meaning from the primordial understanding of Being that grounds the future for Dasein as a *having been*. This character of "'having been' arises from the future, and in such a way that the future which "has been", the *already* going projecting of Dasein's being, releases for itself the Present. This phenomenon has the unity of a future which makes present in the process of having been; we designate it as '*temporality*'" (ibid.:374).

In this way temporality grounds care—*"temporality is the meaning of care"* (ibid.:374,375). It is only because Dasein's beingness is in temporality that Dasein cares—*a contrario*, present-at-hand objects do not care because they are locked in a kind of Being in which future, past, and present make no difference at all to them (Polt 1999:97). Dasein's care structurally brings together the *future*, disclosed in understanding; the *past*, disclosed in

attunement; and the *present*, disclosed in fallen. "The "ahead-of-itself" is grounded in the future. In the "being-already-in…", the character of "having been" is made known. "Being-alongside…" becomes possible in making present" (Heidegger 1962:375). Being matters to Dasein because it cares. As such, Dasein is always-ahead-of-itself-already-in-the-world-alongside-the-others.

What Dasein already was, ahead of itself disclosed in its own possibilities, gets its meaning from the future because, in action, it keeps coming towards Dasein as possibilities. Thus, the past is always changing, as the making present—fulfilling Dasein's projections—opens up new possibilities into the future, and new meanings for what it already was. The past, the present, and the future are united in Dasein. This make us see that *Daseining* is a never ceasing change of past, present, and future. Nothing stands still, everything has evolving meanings—this recalls us of Heraclitus' key insight: "you could not step into the same river twice" (Heraclitus quoted *in* Plato 1998).

The word 'ahead' of the *ahead-of-itself* points to a 'before'. Thus, it points to a 'later' as well. These notions are not to be understood within the common concepts of the 'course of time'. Nothing happens before something else that happens later, as that would have implied we have understood Dasein as something present-at-hand. The notions of 'ahead', 'before', 'later'—implied in the structural items that formally indicate temporality as the horizon of care—all indicate the future "as of a sort which would make it possible for Dasein to be such that its potentiality-for-Being is an issue" (Heidegger 1962:375). "Temporalizing does not signify that ecstases come in a 'succession'. The future is not later than having been, and having been is not earlier than the Present" (ibid.:401). Only on the ground of temporality, and against the *future*, can Dasein be what it is. "Self-projection upon the 'for-the-sake-of-oneself' is grounded in the future and is an essential characteristic of *existentiality. The primary meaning of existentiality is the future*" (ibid.:375-6).

We are always already projecting into the future. This projection is the primordial understanding of ourselves, and it is based on a pre-ontological understanding of Being. Into the future, we are a *having been* thrown*;* we are always "as already having been, in the sense of the "I *am*-as-having-been". The making present is disclosed as we appropriate some possibilities for being on the basis of that which we already were, as beings who are projecting. Ahead-of-itself, Dasein always has already understood who itself was, on the basis of who itself will be. The past and present thus get disclosed in account of the future.

Within this fundamental articulation of time, Dasein's coping in-the-world takes various forms—either in authenticity or inauthenticity. For the most part, Dasein in not in authenticity, but rather in inauthenticity. While absorbed, coping with its task, Dasein is not *anticipating*. Instead, it is ongoing, seeing what is coming out of its efforts; in short, it is *awaiting* (ibid.:386).

Authenticity "lets Dasein come towards itself as its ownmost potentiality-for-Being" (ibid.). Resolutely facing up to mortality, Dasein chooses to choose—chooses authenticity—which means that, already and always ahead-of-itself, Dasein chooses an *authentic future* instead of an *inauthentic future.* Dasein does not choose the future, instead of the Present or the Past', as the basis for the meaning of its life. That which Dasein is, means that Dasein already and always faces the future as *coming towards itself*. Thus, in inauthenticity the future is already disclosed, precisely, as an *inauthentic future* (ibid.).

In *inauthentic* future, Dasein is in everydayness, concerned with the environmentally available. It projects itself upon that which it is concerned with, "or upon what is feasible, urgent, indispensable" (ibid.). Dasein is not coming towards itself in its ownmost potentiality-for-Being, but rather it has fallen into the present environment, and is concerned only with "*making present* the things [it] is dealing with" (Polt 1999:99). Dasein

is awaiting the results of its activity. This is how temporality temporalises inauthentic future: it "has the character of *awaiting*" (Heidegger 1962:386), as opposed to *authentic future*, which has the character of *anticipation*.

While at the office, engaged in some routine task, we are fallen into the office-environment, reaching for tools and parts: the keyboard, the mouse, a pen, a book, the phone, and so forth. We are absorbed, manipulating things and bringing about results: finishing a document, replying to an email, answering the phone, agreeing to a meeting, and so on. We *await* the result of our work. Our "relationship to the future is just a matter of seeing what will come" of our efforts (Polt 1999:99); it is waiting-towards (Heidegger 1962:387).

Waiting-towards characterises inauthenticity in absorbed coping. In contrast to this Present in inauthenticity, Heidegger uses the term moment of vision to describe the Present in authenticity. "To the anticipation which goes with resoluteness, there belongs a Present in accordance with which a resolution discloses a situation. Moment of vision cannot be understood in terms of 'nows'. Nothing can occur in the moment of vision" (ibid.:388). A moment of vision opens up ways into authentic appropriations of possibilities-for-Being, which go deeper both into the future and into the past. In resoluteness, the Present is not only brought back from distraction with the objects of one's closest concern, but it gets held both in the future, and in having been.

In inauthenticity and in authenticity, the Future and the Present are entangled with the Past, but in a quite different mode. Temporality grounds Dasein's union of its projecting with what it already is. In a moment of vision, we get in touch with what we already are; we experience our own choosing nature, and proceed by appropriating some particular possibility that not only makes sense—provides meaning for our being into the future—but uncovers, and recovers, that which we *already were*. For Heidegger, this phenomenon is the temporalisation of the past— "repetition" in Macquarrie and Robinson's translation of *Being and Time* (ibid.), "retrieve" in Stambaugh's translation (Heidegger 1999). In a moment of vision we assume that which we are and while taking up our previous life, we reinterpret it and reaffirm it—the future, the past, and the present show up in united in authenticity. Yet this retrieving of the past does not take place most of the time. In inauthenticity, we have already *forgotten* our past. We are concerned with that within which we have fallen. In inauthenticity "Dasein has *forgotten* itself in its ownmost thrown potentiality-for-Being" (Heidegger 1962:388). Dasein just remembers what it needs in order to do that within which it concerns itself in the moment.

Table A.3 - **Dasein's Temporal Way of Being**
(adapted from Polt 1999:99)

		Temporality		
		Future	**Past**	**Present**
Dasein's two essential ways of being in the world	**Authentic**	Anticipating	Retrieving	Moment of vision
	Inauthentic	Awaiting	Forgetting	Waiting-towards

We have now come full circle in addressing the two basic modes of Dasein's being-in-the world—authenticity and inauthenticity—within the three *ecstases* of temporality: the future, the past, and the present. In both authentic and inauthentic existence, the future, the past, and the present are at work together (ibid.:401). "They open up a world, or clear the 'there' (ibid.:402) by carrying us away to their "horizons" (ibid.:416).

In inauthenticity the Present takes a central relevance, subordinating the Future and the Past. In authenticity the Future shows up as the ground for all ecstases of temporality—the Present is experienced in fresher and deeper meanings, gained from the Past, but especially from the future; and the Past recovers what we already are and what we carry with us into new future possibilities of being, which change the experience of what we are in the present, were in the past, and will be in the future.

Table A.3 summarises the core concepts dealt with in the last part of this section. However, it can help only if it is remembered that Future, Past, and Present are not successive nows. All of them in their authentic and inauthentic modes are grounded in the future. They all belong to understanding, to the "*projecting towards a potentiality-for-Being for the sake of which any Dasein exists*" (ibid.:385). Caring, Dasein has always understood itself against the horizon of the future. The future is the ground of temporality.

Being-in-the-world in Heidegger's words

"Dasein exists as an entity for which, in its Being, that Being is itself an *issue.* Essentially ahead of itself, it has projected itself upon its potentiality-for-Being *before* going on to any mere consideration of itself. In its projection it reveals itself as something which has been thrown. It has been thrownly abandoned to the 'world', and falls into it concernfully. As care—that is as existing in the unity of the projection which has been fallingly thrown—this entity has been disclosed as a 'there'. As being with Others it maintains itself in an average way of interpreting—a way which has been Articulated in discourse and expressed in language. Being-in-the-world has always expressed *itself*, and as *Being alongside* entities encountered within-the-world, it constantly expresses *itself* in addressing itself to the very object of its concern (Heidegger 1962:458).

Circumspective concern includes the understanding of a totality of involvements, and this understanding is based upon a prior understanding of the relationships of the "in-order-to", the "towards-which", the "towards-this", and the "for-the-sake-of". The interconnection of these relationships has been exhibited (…) as "significance". Their unity makes up what we call the "world" (ibid.:415).

Dasein exists for the sake of a potentiality-for-Being itself. In existing, it has been thrown; and as something thrown, it has been delivered over to entities which it needs *in order to* be able to be as it is—namely, *for the sake of* itself. In so far as Dasein exists factically, it understands itself in the way its "for-the-sake-of-itself" is thus connected with some current "in-order-to". *That inside which* existing Dasein understands *itself*, *is* 'there' along with its factical existence. That inside which one primarily understands oneself has Dasein's kind of Being (ibid.).

We have defined Dasein's Being as "care". The ontological meaning of "care" is temporality. (…) temporality constitutes the disclosedness of the 'there' (…) [, in which] the world is disclosed along with it. The unity of significance—that is, the ontological constitution of the world—must then likewise be grounded in temporality. *The existential-temporal condition for the possibility of the world lies in the fact that temporality, as an ecstatical unity, has something like a horizon.* Ecstases are not simply raptures in which one gets carried away. Rather, there belongs to each ecstase a 'whiter' to which one is carried away. This "whiter" of the ecstasis we call the "horizonal schema". In each of the three ecstases the ecstatical horizon is different. The schema in which Dasein comes towards itself *futurally,* whether authentically or inauthentically, is the *"for-the-sake-of-itself"*. The schema in which Dasein is disclosed to itself in an attunement as thrown, is to be taken as that *in the face of which* it has been thrown and that to which it has been abandoned. This characterises the horizonal schema of *what has been.* In existing for the sake of itself in abandonment to itself as something that has been thrown, Dasein, as Being-alongside, is at the same time making present. The horizonal schema for the Present is defined by the *"in-order-to".*

The unity of the horizonal schemata of future, Present, and having been, is grounded in the ecstatical unity of temporality. The horizon of temporality as a whole determines that *whereupon* factically existing entities are essentially *disclosed.* With one's factical Being-there, a potentiality-for-Being is in each case projected in the horizon of the future, one's 'Being-already' is disclosed in the horizon of having been, and that with which one concerns oneself is discovered in the horizon of the Present. The horizonal unity of the schemata of these ecstases makes possible the primordial way in which the relationships of the "in-order-to" are connected with the "for-the-sake-of". This implies that on the basis of the horizonal constitution of the ecstatical unity of temporality there belongs to that entity which is in each case its own "there", something like a world that has been disclosed (ibid.:415-7)

In so far as Dasein temporalises itself, a world *is* too. In temporalizing itself with regard to its Being as temporality, Dasein *is* essentially 'in a world' (…). The world is neither present-at-hand nor ready-to-hand, but temporalises itself in temporality. (…) If no *Dasein* exists, no world is 'there' either. *The world is already presupposed* in one's Being alongside the ready-to-hand concernfully and factically, in one's thematizing of the present-at-hand, an in one's discovering of this latter entity by Objectification; that is to say, all these are possible only as ways of Being-in-the-world" (ibid.:417).

Appendix B - Autopoiesis

The biological theory of autopoiesis, developed by the Chilean biologists Maturana and Varela, has had a growing worldwide impact in the social sciences for the last two decades. It is founded on well-established findings in biology and neurophysiology, but its overall approach is a completely new one. It is moulded within a strong systems perspective, supplying genuinely fresh insights into that which essential makes a living being to what it is. Heidegger got to the core of the issue autopoiesis addresses when wrote that to be alive is a *self-bringing forth*, an arising out of itself. Autopoiesis, as *poiesis en heautoi,* is devised to uncover this *bringing forth* on its own:

> "The bursting open of a blossom into bloom, in itself (en *heautoi).* In contrast, what is brought forth by the artisan or the artist, e.g., the silver chalice, has the bursting open belonging to bringing-forth, not in itself, but in another (en *alloi),* in the craftsman or artist" (Heidegger 1997:10-1).

Autopoiesis generates explanations for the interpretative and hermeneutic characteristics of human beings and their languaging (Mingers 1995:5). Its effects have been felt in many areas of scientific research. Autopoiesis differs from the exact science approach because what it found worthy of investigation was not the empirical evidence, the *data*, that traditional exact science's approaches are always looking for. Instead, Maturana and Varela were concerned with the results themselves. Although Maturana and Varela handled the same data of traditional biological researches, they questioned their assumptions, namely the implicit ontological presupposition that living beings are open systems in an *objective outer world,* and ended up with radical different conclusions.

Autopoiesis suggests a change of paradigm as characterised by Kuhn's (1996:111) explanation that during "revolutions scientists see new and different things when looking with familiar instruments in places they have looked before. (…) What were ducks in the scientist's world before the revolution are rabbits afterwards", conceding that in the most radical shifts these 'rabbits' were something never heard of before. At the heart of autopoiesis is the claim that living systems are self-organised and self-produced *closed* systems—they are not open systems.

In some sense, one can find only what one already knows. One can look forward only on the basis of an assumed background. We must bear in mind that the ontological foundations of any scientific quest whatsoever do not vary with the results, but rather the contrary: the significance of the results can have diverse meanings as they rely on diverse ontologies. These "ontological foundations can never be disclosed by subsequent hypotheses derived from empirical material, but (…) they are always 'there' already, even when that empirical material simply gets *collected*" (Heidegger 1962:75).

Autopoiesis belongs to the Western intellectual tradition of complexity and self-organisation, a current of scientific thinking that had its modern[74] prelude with Darwin's theory of natural selection, compiled and presented in 1859 under the title *The Origin of*

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[74] The work of Plato *The Laws* (Plato 1988), describing the arrangements that characterise human life in a city, may well be taken as the first fully worked out systems theory. Palmer (1996) suggests that *The Laws* is to some extent a "lost book" because Western intellectual tradition tends to place it in the realm of political science, where it only shows up as a "unworkable utopia". Sounding strange in the field of political science, *The Laws* sounds enlightening if understood within the grounds of system's theory. Still, what is more interesting is that in *The Laws* Plato was theoricizing about a human system and was doing that in ways that are autopoietic at their core. "Plato was essentially describing an autopoietic system inhabited by human beings in the form of the city. So the first systems theory was at the same time the first known, well articulated, development of an autopoietic theory" (Palmer 1996). If Plato's *Laws* is indeed a description of a system intrinsically autopoietic, then there is some irony in that this system is one about human social relations, which is precisely the area about which there is no consensus today on the validity of the application of autopoietical theory.

Species By Means of Natural Selection or the Preservation of Favoured Races in the Struggle for Life (Darwin 1985).[75] However, neither autopoiesis nor chaos theories—two prominent schools of thought within the complexity arena—agree with the supremacy of the 'external environment' as presented in Darwin's theory of natural selection. What is at stake for complexity theories[76] is a much more intricate process of reciprocally triggering effects. Living systems do not change as their environment alters. Instead, they behave according to their own rules, reacting to both external and internal stimuli. These essentially closed system are only open to the environment in relation to the elements that actualise—materialise—their being. What they are, as they are, is closed to environment.

Autopoiesis tries to capture the characteristics highlighted above. Maturana first established autopoiesis' key features in "Biology of Cognition" (1970). However, the word autopoiesis was coined only three years later, when presenting the paper "Autopoiesis: The Organization of the Living" (1973).[77] The word autopoiesis[78] has proved to be useful, as it unifies and intuitively suggests the basic features Maturana and Varela want to highlight: autonomy and self-production. They claim that it "simplified enormously the task of talking about the organization of the living without falling into the always gaping trap of not saying anything new because the language does not permit it" (Maturana and Varela 1980:xvii).

In addition to autopoiesis' influence on the IS and management fields of research, already referred to in the Introduction of this dissertation, it has made inroads into the social sciences ever since its presentation in "Biology of Cognition". In the mid-eighties, German sociologist Nicholas Luhmann published the work *Soziale System* (1984), which used the autopoietic characterisation of living systems to develop a more general theory of self-referential systems centred around the concept of communication. Luhmann subsequently further developed his theory that there are core principles of autopoiesis at work in social systems (Luhmann 1986; Luhmann 1982, 1988; Van Twist and Shaap 1991). Using Luhmann's proposal, Gunther Teubner, a German law theorist, started a new approach to the understanding of legal systems (Teubner 1988, 1991; Deggau 1988). For Teubner autopoiesis proved useful in creating awareness of the legal system's lack of renewal and resistance in adapting to new issues in the economy and in society at large. The political scientist Bob Jessop (1990) used autopoietic lenses to explain, from a Marxist standpoint, how the capitalist system survives in spite of its tendencies towards crisis and struggle.

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[75] Although the Darwinian concept of *natural selection* is not usually understood as belonging to the field of self-organisation, it fulfilled its essential requirements. Taking a very broad view, one can summarise Darwin's claims by saying that he claimed life on earth as a *self-organising* development, in which the beings who survive are those whose varieties and instincts, through generations, better fit their direct and indirect interaction with their external environment.

[76] In the mid-1980s, Prigogine and Stengers (1985) published *Order Out of Chaos: Man's New Dialogue with Nature*, a work on thermodynamics that set the ground for major developments on the notion of self-organisation. Some works that develop Prigogine's proposal have had relevant influence on the field, such as Gleick's (1988) *Chaos* and Stewart's (1989) *Does God Play Dice?* This strand among the theories of complexity is centred around the concept of *far-from-equilibrium* systems, which are considered to be open systems. The *far-from-equilibrium* system embodies complex sequences of chaotic patterns generated by non-linear feedback, either positive or negative. In these systems, very small changes in the environment or in a system's boundary can dramatically expand and radically change system's behaviour. This means, for instance, that the performance of an institution, either for- or not-for-profit, is affected in an unpredictable manner "by changes, disturbances, and 'noise' from the environment" (Stacey 1991:396-7).

[77] These two papers are considered both by Maturana and Varela (1992:13) and the academic community in general as the foundational papers of the theory of autopoiesis. They were later published as one book under the title *Autopoiesis and Cognition: The Realization of the Living* (Maturana and Varela 1980).

[78] The word *autopoiesis* is a juxtaposition of the Greek words *auto* (self made, self based) and *poiesis* (produced, generated, created). It was formulated to mean self-production, as that identifies the autonomous character of a living being. Maturana and Varela claim that this new word for addressing the phenomenon of life allowed them to escape traditional assumptions and meanings in the domain of biology.

Walter Kickert (1993) used autopoiesis to understand how public administrative bodies "might be able to survive any hostile storms that they may encounter".

Some authors claim that autopoiesis has evolved to the point that it could now be regarded as a general theory of systems, not just as a biological theory (Varela 1979, Goguen and Varela 1979, Benseler 1980, Luhmann 1986, 1987, van Twist and Shaap 1991, Capra 1996, Introna 1997, King 1993, Von Krogh, Roos and Slocum 1994). Arguments have also been put forward to show that autopoiesis' relevance can be grasped only if it is seen as a new theoretical paradigm, which, as such, presents itself in many forms (King 1993, Von Krogh and Vicari 1993, Von Krogh and Roos 1995, Von Krogh, Roos, and Slocum 1994). For Fritjof Capra (in Maturana and Varela 1992) autopoiesis outlines a unified scientific conception of mind, matter, and life. Capra (1996) claims that autopoiesis is the first scientific theory that overcomes the Cartesian split of mind and matter, taking them not as belonging to separate categories, but as complementary aspects of the phenomenon of life—the process aspect and the structure aspect. "At all levels of life, beginning with the simplest cell, mind and matter, process and structure, are inseparably connected. Mind is immanent in living matter as the process of self-organization. For the first time, we have a scientific theory that unifies mind, matter and life" (Capra in Whitaker 1996). Stafford Beer (in Maturana and Varela 1980:63-72) deploys the same argument, emphasising that autopoiesis belongs to the historical recovery of synthesis against analysis, which has taken place from Plato, Aristotle, and Aquinas to the modern day.

B.1. Autonomy, Organisation, and Structure

What is a living system[79]? What makes a being a *living* being? One evident answer is that life is what makes a being to be a *living* being. Thus, the issue is how to define, to describe this *living* of a living being. A typical approach would build up a list of features that characterise living beings, such as reproduction, growth, irritability, and so forth. However, doing this would be insufficient because it needs a previous criterion that enables one to know when such a list has been completed:

> "We had to accept that we could recognize living systems when we encountered them, but that we could not yet say what they were. One could enumerate features of living systems such as reproduction, heredity, growth, irritability, and so on; but, how long a list was necessary? When would the list be completed? In order to know when the list was completed I had to know what a living system was, which was, in fact, the question that I wanted to answer in the first place by producing such a list" (Maturana and Varela 1980:xiii).

Thus the 'list approach' is inappropriate for a fundamental grasping of that which a living being is. One has to look elsewhere.

"*It looks alive!*" is a common expression that tries to capture the essence of a living being. We hear it when someone facing a common situation feels something is not under control when it should have been, e.g. a computer that performs in a chaotic manner or a car that does not obey us in the way we are used to it. "In these encounters autonomy appears so obviously an essential feature of living systems that whenever something is observed that seems to have it, the naive approach is to deem it alive" (Maturana and Varela 1980:73). We experience something that looks like having its own initiative, which we cannot anticipate or control. In its autonomy, unpredictability and uncontrollability, we recognise the typical situation of facing a living being.

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[79] Autopoiesis relies on a traditional account of what comprises a system: "any definable set of components" (Maturana and Varela 1980:138).

Maturana and Varela took the single living cell as their paradigmatic example, to highlight the essential autonomy of a living being. The cell is an autonomous living being in that it produces all the components it needs to continue producing those same components: "the product of their functioning is the same functioning organization that produces them" (ibid.:9). This is an ongoing fundamentally circular process because the cell produces and is produced by, nothing other than itself. The cell, like all living beings, is characterised by its ability, literally, "to be continually self-producing" (Maturana and Varela 1992:43).

In a living being—whether it is a single cell or a multicellular entity—the kind of components, and relations between components, that make it what it is are self-generated. Because living beings are self-produced, always behaving according to their own rules, they are autonomous systems.

Figure B.1 - **The Living System and its Components**

LIVING SYSTEM
produces the components necessary for the system
to keep on producing the components

Autopoietic system

COMPONENTS
make the system that produces
the components necessary to make the system
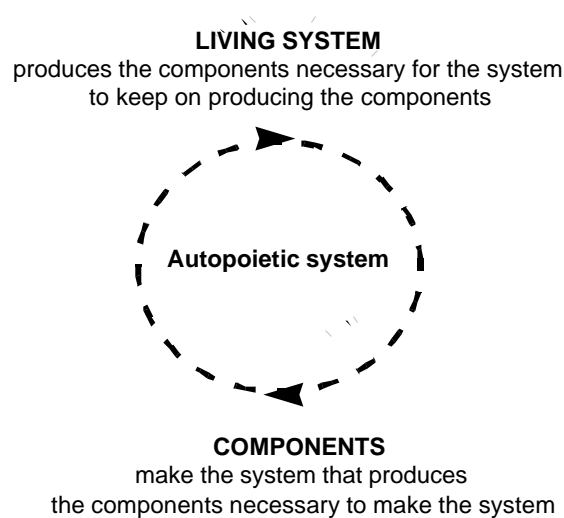
The organisation of living systems "is such that their product is themselves, with no separation between producer and product. The being and doing of an autopoietic system are inseparable, and this is their specific mode of organisation" (Maturana and Varela 1992:49). This circular nature of a living system implies that the system differentiates itself from its own environment (not itself). The boundaries set the living system's limits; otherwise the cell would not constitute a discrete unity and its metabolism would disintegrate. Thus, we can distinguish two types of relations in an autopoietic system: a network of dynamic transformations that produces its own components; and a boundary that, as part of the interior of the autopoietic system, is essential to the operation of the network of transformations that produced it as a unity (ibid.).

The cell, as a living system, maintains the essential relations between its components that define what the system is for itself, as long as it is alive. In a living system, a cell or any other, nothing but itself determines how it functions, behaves, and interprets its environment. The relations of the components that constitute the living being are unchangeable; they are not determined by the environment. Any possible state of activity of a living being always leads to or generates further activity within itself, on its own terms. Through its components, the cell adjusts itself to its environment as a particular cell. Living systems are determined or co-determined by their *structure*, the actual components and relationships that make an organisation to exist as such, at each particular instant. The structure determines the compensation made in response to a perturbation, as well as what in the environment can or cannot be a perturbation.

The cell as a self-productive system does not depend on any other entity for its maintenance, but the it fulfils its potentialities in a specific environment because it can adapt only to an environment that is itself adaptable to the cell. Thus, the cell is alive only as long as it is *structurally coupled* to its environment. Living system and environment are inseparable; they are coupled through their own structures (Maturana and Varela 1980, 1992). It is the selection of the appropriate environment that enables the autopoietic living being, as a part of a whole, to continually produce itself—and therefore to be alive.

The biological cell is the paradigmatic example of an *autopoietic system*. It has all the features that define a living system: autonomy, operational closure, self-referentiality, its own organisation and its own structure, and the capability to be structurally coupled to its environment. Most living systems are more complex than a cell, so other classes of autopoiesis also arise, namely second-order *metacellular* systems and third-order *social* systems. The essential characteristics of the living cell remain valid in these, but in higher orders of complexity (Maturana and Varela 1992).

Let us now address directly the autopoiesis of metacellular systems. Why is a dog not a cat? For a dog to be a dog, certain relations between specific components must be present. That is the same for the cat, where we need to consider other relations and specific components. The characteristics that make something to be that something define its *organisation*. "Organisation signifies those relations that must be present in order for something to exist" (ibid.:42). We have to consider not only the components themselves, but also the whole— and the properties that emerge from it.

Metacellular systems, such as dogs, cats and human beings, are close aggregations of cells. In the dynamism of that aggregation, the history of the interactions of each cell with other cells is complementary within the constraints of their participation in the metacellular unity they constitute. This is why "the ontogenic structural changes of each cell necessarily differ, depending on how they participate in the constitution of that unity through their interactions and neighbouring relations" (ibid.:79). As a result, "life of a multicellular individual as a unity goes on through the operation of its components, but it is not determined by their properties" (ibid.:80). Instead, it is determined by the emergent properties of the whole.

Even when the components are quite similar, the beings they comprise can have different organisations—i.e., they can be different living beings—because of the relations and processes in which the components are engaged.[80] Components are viewed in terms of their participation in the basic constitution of the unity that is a living being, in which all components are actually integrated in a particular manner that characterises its organisation.

Structure is the actualisation of the organisation. Structure consists of the actual components, all of their properties, and the actual relations holding between them. Structure "denotes the components and relations that actually constitute a particular unity and make its organization real" (ibid.:47).[81] It concretely realises "a system as a particular member of

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[80] Recent papers on the genome project (Venter et al. 2001, IHGSC 2001) are quite instructive in this matter. Humans have almost the same number of genes as mice, and 98% of human genes are the same as the ape's genes. Rice has almost the double the genes of a human being. Autopoiesis perspective grounds the obvious differences in these living beings on the grounds of the very different relations that emerge from very similar components.

[81] When my son André was 3 years old, he sometimes used an affirmative and a negative in the same phrase, in order to characterise a specific object, story, or picture. Typically, what he said was of the form: "A looks like B, but it also does not look like B", or "that something is, but it is not …". For example, he would say something like: "This lighter looks like the other lighter, but it also does not look like the other lighter", or "a cartoon seems to be other cartoon and also does not seem to be it." We found this languaging very amusing and related it to a particular way André deals with things. Subsequently, my wife told me that she had understood what André wanted to express when he said "it is, but it is not": that the lighter he was facing looks like a lighter, whose reality as a lighter— which he learned from other lighter—is different, unique, or never before seen by him. I find this very interesting because, to me, it meant he was distinguishing the concepts of essence and existence, of organisation and structure,

the class (kind) of composite unities to which it belongs by its organization" (Maturana and Varela 1980:xx). This means that organisation is a subset of the relations actually realised in a structure. It also means that an organisation might be realised through many different structures.

The unity of interactions adapts its structures to the evolving ambience in which it lives—its niche—allowing "for evolutionary change in the way the circularity is maintained, but not for the loss of the circularity itself" (ibid.:9). The living being thus constitutes a homeostatic system whose purpose is to produce and maintain its circular functioning by determining "that the components that specify it be those whose synthesis or maintenance it secures" (ibid.:9). This basic circularity of the living system is that which makes it a unity of interactions. Its circularity must be maintained in order to keep itself alive, retaining itself as the same unity. This unity of interactions, as the *same* and as it is *mine*—that is, from the being's own living experiencing, and not from an observer perspective—is the system's identity.

Organisation has functional significance only in relation to the maintenance of its circularity, which means that the domain of interactions the being undergoes is specified by its organisation. As the interactions are self-referring, they maintain the system's circularity and reinforce the system's coupling with its environment. This implies that the living of a living system is a continuous bringing back of previous internal states, of the same coherence and coupling—"the circularity of their organization continuously brings them back to the same internal sate" (ibid.:10). The living system maintains itself alive by maintaining its recurrent functioning; by repeating what has worked for it.

Thus, organisation is closed to the environment, as it cannot be changed; and structure is open to the environment, as it is always affecting and being affected by it. Organisation is the is-ness of a being and has an ontological dimension. Structure is the actual existence of an organisation, a such-ness, and has an ontic dimension.

The living being is limited in its autonomy in that it must stay coupled to its environment in order to keep its autopoiesis going. During the life of the system, the organisation always remains as it is—but structure always adapts to environment. The maintenance of the organisation sets limits for changes that would take place in its structure. For a living system to maintain its kind, its structure must evolve within the organisation that defines what it is. Such *structural change* has to happen coherently within the organisation of the living being—it cannot alter the system's organisation "The organisation is realised through the structure, but it is the structure that can interact and change. So long, as the *structural* changes maintain the *organization*, the system's identity remains" (Mingers 1995: 29).

In summary, anything that autonomously maintains itself, surviving in an environment, is a living system, an autopoietic system.[82] The aim of a living system—its guidance from itself and for itself—is to survive. It does this by conserving its identity through the persistence of that which makes it to be what it is, that is, its organisation in a structure. The self-production and implied autonomy of a being is what unifies the phenomenon of the living. This insight is autopoiesis' fundamental response to overcoming the limitations of the "list

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of common and particular. Organisation/essence is about something "that looks like"; structure/existence is the other something "that does not look like". What "looks like" is something not physically present, but something which shapes the understanding of the thing present. This existent, present thing "does not look like" because it has a unique structure, that is, it is another thing—another of the same class of that which "looks like".

[82] In contrast to autopoietic systems, *allopoietic* systems do not act to maintain themselves. For example, a computer, a car, or a rock does not produce itself. Allopoietic means something that is brought forth by the production of another (refer to Heidegger 1997:10-1, quoted at the beginning of this Appendix).

solution". "The greatest hindrance in the understanding of the living organization lies in the impossibility of accounting for it by the enumeration of its properties; it must be understood as a unity" (Maturana and Varela 1980:5).

B.2. Living Systems and Environment

Environment and living systems are independent systems engaged in a never ending reciprocal adjustment. The ongoing compatibility of a living system with its environment, maintaining a decisive congruence, is structural coupling. The living system is an autonomous, structurally-determined system. "Environment and unity act as mutual sources of perturbation, triggering changes of state" (Maturana and Varela 1992:99). Structural coupling explains the necessary congruence between an organism and its environment. The evolution of environment does not, as such, specify the adaptive changes that will occur in the living system. Autopoietic systems "subordinate all changes to the maintenance of their own organization, independently of how profoundly they [in their structure] may otherwise be transformed in the process" (Maturana and Varela 1980:80). However, this ongoing adaptation of a living system is not determined by the environment on its own, but by a process of mutual changes, in the living being and in the environment.

In structure-determined systems, all the interactions with the environment should be described as perturbations which lead to a particular compensation, dependent on the structure of the living system. Perturbations are structural changes compatible with the conservation of the unity. Destructive interactions are structural changes not compatible with the conservation of the unity, because they affect its organisation. These changes undergone in the structure of a living being—which an observer describes as movements or actions—are its behaviour.

What the entity perceives in its environment can only perturb it to a point that triggers compensations or structural changes. These changes are determined at each particular instant by the structure and history of the perturbed entity. "The structure at any time determines (1) all possible structural changes within the system that maintain the current organisation, as well as those that do not, and (2) all possible states of the environment that could trigger changes of state and whether such changes would maintain or destroy the current organisation" (Mingers 1995: 30). "The nature of the effect of a particular substance is determined not by the substance but by the organism" (ibid.:31). Each organism has its own particular domain of interactions that can affect it.[83]

Structural changes permit the living being to maintain itself, as it is in its organisation, coupled to its environment. Changes either are triggered by perturbations 'coming from the environment' or are a result from the autopoietic system's internal dynamics. In both situations, the change that occurs is determined internally, i.e., by the living system itself. "The actual changes that a system undergoes depend on the structure itself at a particular instant" (ibid.:30). What is 'external' is either ignored altogether, or can trigger only internal responses—it can never determine them (Maturana and Varela 1980, 1992) or control a pre-determined behaviour.

The perturbations of the environment "do not determine what happens to the living being, rather it is the structure of the living being that determines what change occurs in it. This interaction is not instructive, for it does not determine what its effects are going to be"

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[83] Some examples highlight this issue: human beings have vision receptors that can be triggered by colours, while the receptors in dogs' eyes can be triggered only by the black and white light they see; bats can receive high-pitched sounds that humans cannot hear; oxygen is vital for the health of human beings, but is poisonous for plants.

(Maturana and Varela 1992:95-6). There can be no 'instructive interactions' as no environment—be it physical or communicational—can determine its own effect on a structure-determined system (Mingers 1995: 30). An autopoietic system only captures and reacts to what it distinguishes in accordance with its own laws (the system's *organisational closure)* and the experiencing of its living at each moment (the system's *structural determination)*. Thus, autopoietic systems do not depend for their activity on a continuous process of incoming inputs and outgoing outputs. This does not mean that such systems are isolated and have no interactions with their environment. Autopoietic systems are organisationally closed but interactively open because they interact with their environment through their structure.

Living systems either undergo interactions that repeat the way in which their circularity is maintained, or undergo interactions that change the way in which their circularity is maintained. From generation to generation, there can be changes—*evolutionary changes* (Maturana and Varela 1980:11)—in the aspects of the organisation of the living system that are subservient to the maintenance of their basic circularity; but the changes do not determine the system's organization. What changes is the way in which the system's organisation is maintained, not its very basic organisation which, in its turn, can change only by disintegration or, as an exception, by metamorphosis.

The continuously self-producing system produces the components, or to be more precise the kind or variations of components more appropriate to the evolving environment. Thus, the structure of the entity changes because its process of autopoiesis produces relatively different components. The more adaptable components will dominate the structure of the unity. Thus, "continued autopoiesis will lead to selection in the organism of a structure suitable for that environment" (Mingers 1995: 35).
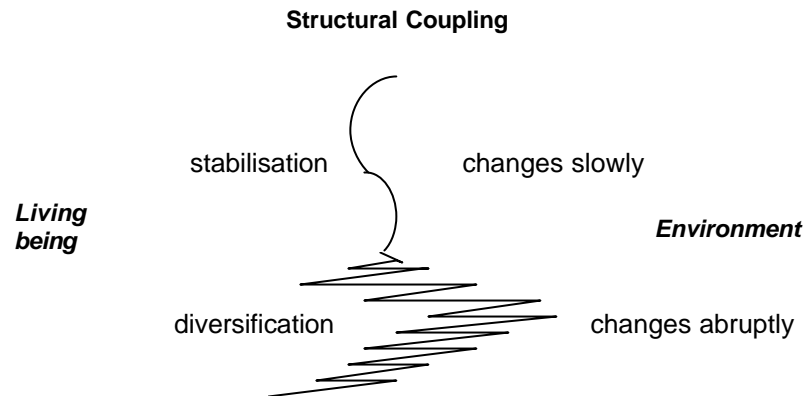
There is a necessary congruence between environment and an organism's behaviour, because "inasmuch as the changes of state of an organism (…) depend on its structure and this structure depends on its history of structural coupling, changes of state of the organism in its environment will necessarily be suitable and familiar to it, independently of the behaviour or environment we are describing" (Maturana and Varela 1992: 138):

> "In the history of interactions of a composite unity in its medium, both unity and medium operate in each interaction as independent systems that, by triggering in each other a structural change, select in each other a structural change. If the organization of a composite unity remains invariant while it undergoes structural changes triggered and selected through its recurrent interactions in its medium, that is, its adaptation is conserved, then the outcome of this history of interactions is the selection, by recurrent or changing structural configuration of the medium, of a sequence of structural changes in the composite unity, which results in that the changing structure of the organism follows the changing structure of the medium through a continued structural coupling to it" (Maturana and Varela 1980:xxi).

The structural drift of the environment is affected by the structural drift of the living beings, because they are always structurally coupled; they do not just exist, but co-exist. Living beings and their environment are two structures that vary independently of each other. The organisms can vary at each reproductive stage, and the environment changes in accordance to its own laws and, in part, in response to the organisms that inhabit it. Environment and living systems are engaged in "a never ending reciprocal adjustment leading to the continued success of some groups and the dying out, through loss of autopoiesis, of others" (Mingers 1995: 40). Evolution is this process of maintaining organisation and adaptation in a changing environment. Structural coupling is an ever-present process and each particular case is a result of random variations. "We can describe only *a posteriori* how its transformations occurred. In the same way we would observe a drifting boat, moved by changes in wind and waves which we cannot access" (Maturana and Varela 1992: 115/6).

Figure B.2 represents a high-level schema of the relationships between an organism and its environment.

Figure B.2 - **Patterns of Coupling Between Living Being and Environment**

Structural Coupling

There is a necessary structural congruence between the environment and a living being, otherwise the latter disappears. As long as the perturbation is not a destructive one, the systems adjusts itself, maintaining its autopoiesis—it remains structurally coupled to its environment. Yet because of the autonomous way in which this coupling is achieved, system's specific way of adjusting is unpredictable. There is no way for an observer to determine how an autonomous being is to react to particular perturbations. We cannot anticipate or forecast what path will be taken by the next structural drift of an organism.

Evolution is a result of highly complex mutually adaptive processes, among organisms and between organisms and environment, which make sense only from myself as I act in a world that my action has been bringing forth. Thus, in a sense, environment is what prevails; not as an unavoidable determinant, but as that which precedes and continues the existence of the living being. Environment does not determine the changes in the living system, but triggers changes that may or may not preserve the living being.

What evolves is always a unity of interactions defined by the ways in which a living system maintains its identity. It is of no significance whether the living system is a single basic unity, e.g. a cell, an aggregation of such unities, e.g. a multicellular organism, or an aggregation of these multicellular compound unities "that form self-referring systems of even higher order (insect, societies, nations)" (Maturana and Varela 1980:12). Autopoietic system in their organisations define, predict, or specify domains of interaction in which they can act in ways that are relevant to the maintenance of themselves. The evolution of living systems is therefore the evolution of their cognitive domains—autopoietic systems are cognitive systems, and life is to know, and to know is to live (Maturana and Varela 1992).

B.3. Human Beings

Human beings are autopoietic systems. All their activities, actions, thoughts, and ways of being must satisfy their autopoiesis. We—the beings we ourselves are—are autonomous, organisationally closed, structurally open, structurally determined, and structurally coupled to environment. As the environment evolves, it triggers reactions, compensations, changes, in ourselves. These changes cannot be understood from an observer's perspective, but only by *myself* as I live my life—in accordance with my own organisation and structure. The

changing environment cannot determine changes or actions of human beings, but only trigger their reactions.

Having said that, as human beings we have a way of being a whole that make us a unique kind of being. We have our own type of organisation that define us as the kind of beings we are: human. In human beings, the functioning of the nervous system, which is subservient to the maintenance of the basic circularity of the living being's organisation, "enlarges the domain of interactions of the organism by making its internal states also modifiable in a relevant manner by 'pure relations', not only by 'physical events'" (Maturana and Varela 1980:13). This signifies that an organism with a nervous system has a domain of interactions with its own internal states which acts as they were independent entities; this corresponds to what we usually call *thinking* (Maturana and Varela 1980:29). It is this expansion of the process of behaviour—that is, of the expansion of the cognitive domain—that allows for non-physical, linguistic, interactions between two living beings.

"The orienting behavior becomes a representation of the interactions towards which it orients, and a unit of interactions in its own terms" (ibid.:14). We can generate descriptions of ourselves and, by interacting with these descriptions of us observing ourselves, we further describe ourselves describing ourselves, and so on "in an endless recursive process—this is self-consciousness (ibid.). Here lies the basis for communication, which is "the coordinated behaviours mutually triggered among the members of a social unity" (Maturana and Varela 1992:193). Communication takes place in a domain of social behaviour. Biologically, "there is no 'transmitted information' in communication. Communication takes place each time there is behavioural coordination in a realm of structural coupling" (ibid.:196)—this is *language*. Each person says what he says, or hears what he hears, according to his or her own structural determination; saying does not ensure listening (ibid.).

In insects that socialise, the mechanism of structural coupling takes place in the interchange of substances: it is a chemical coupling. "There is a continuous flow of secretions [trophallaxis] between the members of an ant colony through sharing of stomach contents each time they meet" (ibid.:186). Human beings have social unity based on *linguallaxis*, a linguistic *trophallaxis*, coupling themselves to each other. The linguistic domain is the ontogenic coordinations of actions. "The central feature of human existence is its occurrence in a linguistic cognitive domain" (Maturana and Varela 1980:xxiv). "We human beings are human beings only in language" (Maturana and Varela 1992: 212).[84]

"The linguistic domain as a domain of orienting behaviour requires at least two interacting organisms with comparable domains of interactions, so that a cooperative system of consensual interactions may be developed in which the emerging conduct of the two organisms is relevant for both" (Maturana and Varela 1980:41). Thus, our mutual structural coupling in language does not mean *we know* the world, but it means that we adapt to each other and to our environment by together specifying the world we live in. It is our history of recurrent interactions that "makes possible our ontogenic structural drift in a structural coupling that affords interpersonal coordination of actions; this takes place in a world we share because we have specified it together through our actions" (Maturana and Varela 1992: 233). Thus, the world in which we are structurally coupled through language is a world we have been agreeing upon.

Humans are structurally coupled in language. Humanness relies on this coupling. Humans are not already human beings who afterwards couple themselves through language. What we are is beings-coupled-*in*-language. We realise our individual worlds and contribute to

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[84] Recent research into the human brain and nervous system are consistent with the idea that self-consciousness is not possible without language as a phenomenon of recursion (Damásio 1994, 2000; Crick 1995).

the determination of the individual worlds of others. All human actions, however individual as expressions of preferences (states of pleasure) or rejections (states of displeasure), constitutively affect the lives of other human beings (Maturana and Varela 1980:xxvi). "When a human being makes the choice of a particular way of living, apparent in his realization of a particular set of social relations, he makes a basic ethical choice in which he validates a world for himself and for others that he has explicitly or implicitly accepted as partners in living" (ibid.:xxvi). The phenomenon of society relies on these explicit or implicit choices.

The biological stabilisation of the structures of the interacting organisms that results in the recurrence of their interactions—that is, the languaging itself—is the social dimension of being human. Social systems are thus constituted on the basis of recurrent interactions of human beings with other human beings. Yet Maturana (in ibid.:xxvi) went further than this. For him, languaging is enmeshed with the basic stabilising factor of human social system, which is the phenomenon of love (ibid.:xxiv): "the seeing of the other as a partner in some or all the dimensions of living" (ibid.). Love is a phenomenon intertwined in/with language. Love is in language; it is only possible in the meaningfulness of language. When Merleau-Ponty (1962:173-99) concluded that the *word is the meaning*, he indicated that language is the very grounding horizon of meaning.

B.3.1. The Individual and the Collective

Maturana and Varela (1992) define organisms as meta-systems of components with minimum autonomy, and human societies as meta-systems of components with maximum autonomy.

In social systems, there is a necessary adjustment between individual and community aspects of conservation. There is a balance between individual maintenance and subsistence, on the one hand, and group maintenance and subsistence as a greater unity that includes the individual, on the other hand. For the group as unity "individual components are irrelevant, for they all can be replaced by others that fulfil the same relations. For components as living beings, however, their individuality is their very condition for existence" (ibid.:197). This picture indicates an apparent conflict between the individual and its community.

The balance is achieved because the individual is also realised in his belonging to the community: "the organisms through their structural coupling into higher-order unities (…) include the maintenance of these unities in the dynamics of their own maintenance" (ibid.:197). Thus, if the community does not survive, conserving itself as what it is, the identity of the individual—that is, his own conservation—could be jeopardised. [85] Individuality is therefore also expressed by being a member of a group. Individuality could be described as 'altruistically' selfish or 'selfishly' altruistic, because its expression includes its structural coupling with the group the living being belongs to.

In social systems, "each individual is continually adjusting its position in the network of interactions that forms the group according to its own dynamics, owing to its history of structural couplings in the group" (ibid.:192). Any particular living being "is a member of a social unity only as long as it forms part of that reciprocal structural coupling" (ibid.:193). Each human being who belongs to a society undergoes interactions within the society,

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[85] This argument leads to a relevant explanation of apparent altruistic behaviours, which are almost universal and not unique to human beings. For example: "The behavior of the antelope that stays behind [when the antelopes are running to hide from a predator] has to do with conservation of the group; it expresses characteristics proper to antelopes in their group coupling, as long as the group exists as a unity. At the same time, this altruistic behaviour in the individual antelope as regards group unity results from its structural coupling in an environment that includes the group as an expression of conservation of its adaptation as an individual" (Maturana and Varela 1992: 197).

which "are necessarily confirmatory of the relations that define it [the society] as a particular social system" (Maturana and Varela 1980:xxvii). A society is thus:

> "(…) generated through the interactions of structure-determined autopoietic systems and operates as a medium that selects the path of ontogenic structural change of its components, which, thus, become structurally coupled to it. In our case, we as social beings generate, through our structure-determined properties, our societies as the cultural media that selects our individual paths of ontogenic change in a manner that leads each one of us to the structure that makes us generate the particular societies to which we belong. A society, therefore, operates as a homeostatic system that stabilizes the relations that define it as a social system of a particular kind" (ibid.:xxvi-xxvii).

This means that a social system is conservative and self-reinforcing system. It also means that to be a member of a society, and to grow as such, involves becoming, and keeping structurally coupled, to that society, i.e., in having "the structures that lead to the behavioral confirmation of the society" (ibid.:xxviii). In the domain of human experience, this coupling means the stabilisation of human conduct. However, human communities that "embody enforced mechanism of stabilisation in all the behaviour dimensions of their members, constitute impaired human social systems: they have lost their vigour and have depersonalised their components; they have become more like an organism, as in the case of Sparta" (Maturana and Varela 1992: 199).

The identity of each particular human being, that is, its life as lived by himself, "depends on the conservation of adaptation of human beings not only as organisms (in a general sense) but also as components of their linguistic domains" (ibid.:198). "The organism restricts the individual creativity of its components unities, as these unities exist for that organism. The human social system amplifies the individual creativity of its components as that system exists for these components" (ibid.:199). Table B.1 indicates a spectrum comparing the relative autonomy of different types of living system.

Table B.1 - **Comparative Autonomy of Components**

Minimum autonomy of components			Maximum autonomy of components
	→	→	
Organisms	**Social insects**	**Sparta**	**Human societies**
Physical structural coupling	→	→	Linguistic structural coupling

The transgenerational stability of behavioural patterns—ontogenically acquired in the communicative dynamics of a social environment—gives continuity to the history of a group, through imitation and ongoing intragroup behavioural.[86] Thus, cultural behaviour arises because of social living over many generations, in which all members of the social group aim at preserving themselves as individuals and as a community, while they are continuously replaced as singular entities.

Social systems provide a more stable medium in which the multicellular organisms can live, just as these multicellular organisms provide a more stable environment for the cells. In both cases, the elements of the higher-order entity are part of a structure, which is

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[86] Imitation is an essential and unique capacity of vertebrates, permitting a certain type of interaction that goes beyond the ontogeny of one individual being (Maturana and Varela 1992).

subordinated to the higher-order organisation; its components are kept together by organisation and the potential structural variation that it allows.

In conclusion, the theory of autopoiesis enables us to support the notion that the existence of organisms in natural drift is geared to conservation and adaptation "in an individual encounter with the environment that results in survival of the fittest" (ibid.:197). This is valid for first, second, and third order autopoietic systems, for all of which to survive as what they are for themselves is what matters most (Stafford Beer in Maturana and Varela 1980:70).

The living entity—whether it is a plant, an animal, a human being, an organisation, an industry, or a country (ibid.)—is autonomous and adapts its open structure to an environment with which it interacts. A living entity does not change its organisation, except for metamorphoses; it only adapts its structure. When this process of structural coupling does not happen, the living being ends its existence, i.e., it dies. Thus, the very nature of a living system lies in the kind of coupling it can achieve with its environment.

Appendix C - Matching Heidegger and Autopoiesis

It is our argument that Heidegger's (1962) phenomenology of humanness and Maturana and Varela's theory of autopoiesis are ontologically and epistemologically compatible, and coherent and complementary on their findings. Taken as foundations for an investigation, such as this dissertation, they demonstrate their great potential as a unique body of theory about the nature of human beings and their action in the world.

It is not our aim, in this dissertation, to match these two theoretical developments in depth. Doing so, would be an enormous task not appropriate for this kind of investigation, which above all intends to answer the question *How does IT affect strategy?* Our task in this realm is twofold. Firstly, to show that the match is legitimate—that it can be done on fundamental grounds, its result can stand up to scrutiny, and it is a consistent and sound theoretical development. Secondly, to match effectively Heidegger's findings and autopoiesis in relation to the issues commonly identified as action, change, data, information, meaning, and knowledge.

Both Heidegger's phenomenology and the theoretical development of autopoiesis appear against a background of historicity in which the most fundamental issue is an ontological one. *Onta logos* as the disclosure of that which is, appears in Heidegger and autopoiesis against a background in which *action* as such is the very initial ground.

Some of the basic Heideggerian and autopoietic core notions have been around for more than 2,500 years, as part of the Western demand for fundamental ontological thinking. At the same time, the notions that these theories embody have been frequently suppressed because they contradict the background from which traditional ontology emerged. Heidegger (ibid.) points this out in *Being and Time*, when promising to undertake a *positive destruction* of the history of Western ontology (ibid.). There is no other way to advance in these new realms of investigation, because much of the prevailing research—in both science and philosophy—has been based for a long time on the specific understanding of Being as *pure presence*, as *beholding*. This understanding of Being, put forward by Parmenides, developed by Plato and stressed by Aristotle, closes off Being as *unfolding*, as "that which, whether presently or not, presences in unconcealment" (Heidegger 1984:55). The understanding of Being as *pure presence* shrinks Being's relevance to *present-at-hand* and opens up the way to identify Being with *actuality*:

> "Meanwhile an epoch of Being soon comes in which *bringing forth into unconcealment*[87] is translated as *actualitas*. The Greek is shut away, and to the present day the word [Being] appears only in Roman type. *Actualitas* becomes *Wirklichkeit* (reality). Reality becomes objectivity (*Objektivität*). But objectivity must still preserve the character of presencing if it is to remain in its essence, its objectiveness. It is the "presence" of representational thinking. The decisive turn in the destiny of Being as *bringing forth into unconcealment* lies in the transition to *actualitas*" (ibid.:57-7).

As we have explained in Chapter 1, in whatever pursuit man engages his understanding of *that which is* in its *which-is-ness* is what is decisive for whatever is to be claimed. Ontology—that is, the primary stance we take on the meaning of Being, projects itself in its overwhelming decisiveness in all further investigations.

The understanding of Being as *actualitas*, as that which presents in actuality, opens a way for a preliminary *mathematisation* of the world, and for representational thinking (Heidegger 1977, 1978, 1984). This *a priori* mathematisation equalises the world to what

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[87] Translated from the Greek of Heidegger's original text.

can be mathematised, ontologically opening up the word to being studied as actual. The difference that something makes in its own being becomes the difference it makes in being present; not the difference as such.

Heideggerian and autopoietic central notions negate the presupposition of Being as *actualitas*. Instead, they point to Being as a *bringing forth into unconcealment,* a becoming, a recovering the most initial meaning of *presencing*—making a difference in the future, in the past, in the present. World as a *bringing forth* thus relies on the difference it makes, for a being in its individuality, that there is something instead of nothing. As such, the meaning of Being, and therefore of beings themselves, escapes actuality by contextualising itself against a horizon of temporality and historicity.

Figure C.1 - **Matching the theories of Heidegger and Autopoiesis**
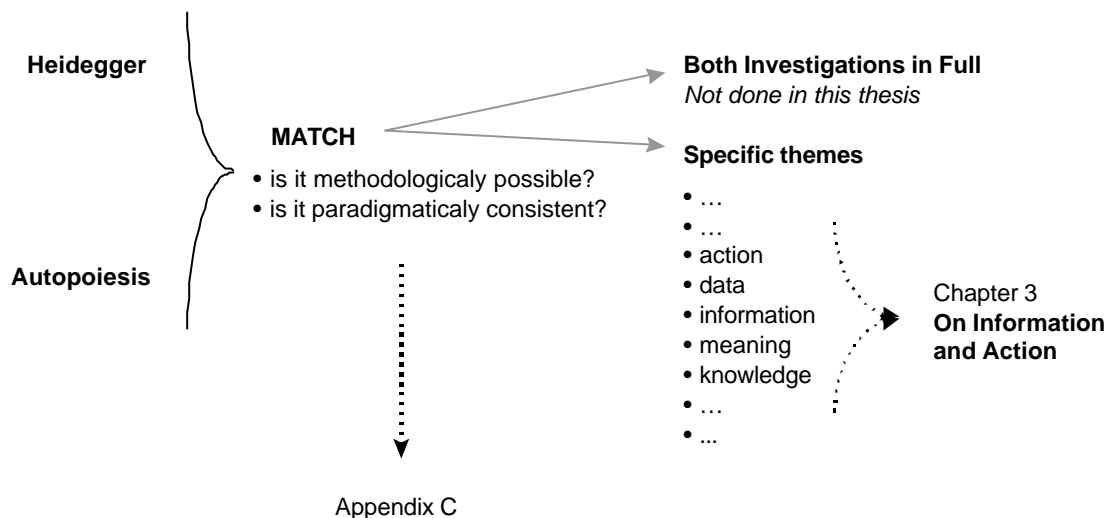
This appendix review the reasons, the legitimacy, and the possibility of the match identified in Figure C.1, ontologically and epistemologically contextualising all the material presented in Part II of this dissertation. The matching of the specific themes identified above—action, data, information, meaning, and knowledge—is presented in Chapter 3, and it is the body of theory on which our investigations into IT (Chapter 4) and Strategy (Chapter 5) are directly based. Because for every new proposal its success is what most legitimises it, we intend to show that this matching has the potentiality for opening up the phenomena of IT and Strategy in ways that we can not access on the basis of more commonly used Cartesian foundations.

At the core of the matching of Heidegger's and Maturana and Varela's findings is the intellectual possibility that a background of logic and evidence will reveal that both theories are compatible in their deeper assumptions. We aim to demonstrate this by arguing that Heidegger's phenomenological investigations and autopoiesis' theoretical biology are located in the same ontological and epistemological realms.

If we start by looking at the two diverse *worlds* to which the findings of Heidegger and of Maturana and Varela intuitively belong, their matching initially show up as something uneasy, even *contra-natura*.[88] However, this perception is not sustained as one digs deeper

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[88] As we are involved in a phenomenological investigation, we cannot avoid considering this match as a phenomenon itself. What would be a first, intuitive description of the phenomenon of the matching itself? The answer seems to revolve around difficulty, uncertainty, adversity, reluctance. Why is this? The phenomenon at stake has three main elements: Heidegger's findings, the theory of autopoiesis, and the matching of these theories. The findings of Heidegger, which form our departure point, are already in the phenomenological context in which

into Maturana and Varela's work—after a first reading of Heidegger the match appeared to us at once, as something evident, plain, clear, and rewarding. Figure C.2 presents a brief scheme of the main notions and relationships that characterises this match.

Figure C.2 - **Heidegger and Autopoiesis Main Relationships**

Ontology
Being
as
distinction (A)
difference (H)

Same method | *and conclusions*

Dasein: What is the meaning of Being? (H)   Human beings: What is a living system? (A)

Phenomenology
Essentialist approach (H,A)

Living
Mineness (H)
Organizational closure (A)

Human's Essence
Language (H, A)
Care (H)
Love (A)

(H) Heidegger
(A) Autopoiesis
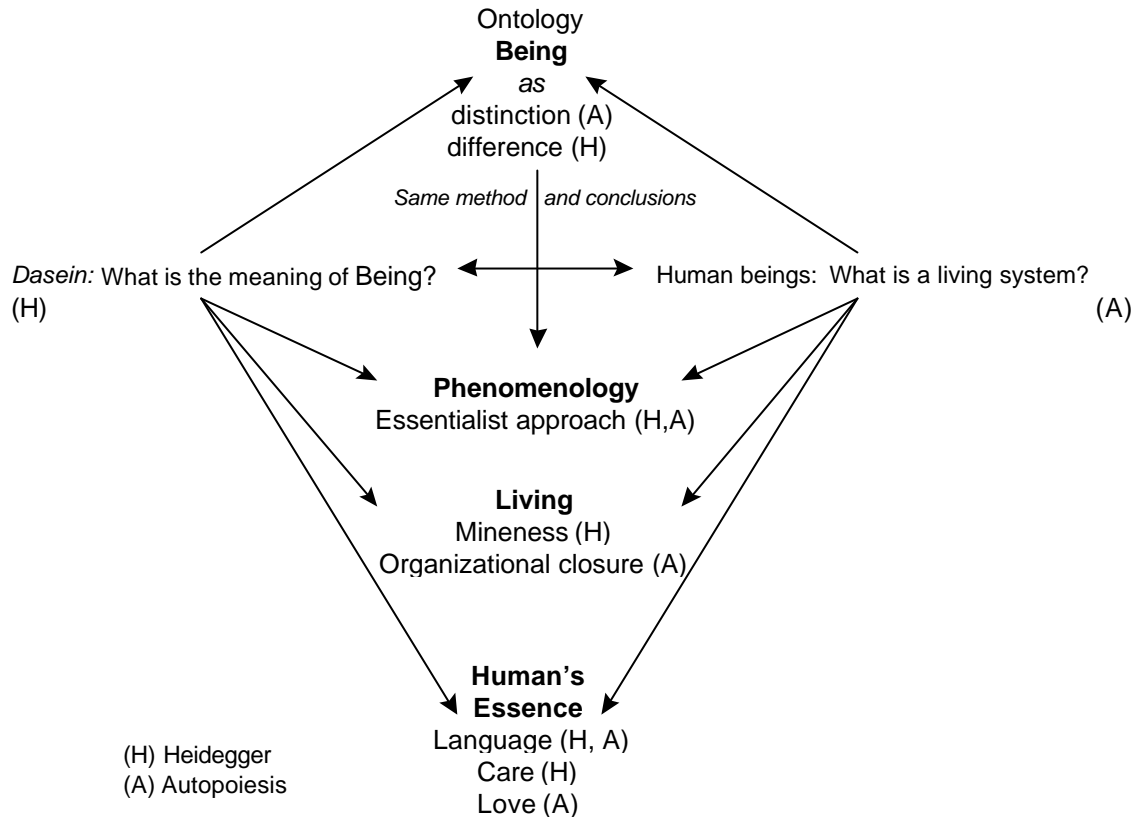
Heidegger addresses the question of man during his investigation of the meaning of Being. As highlighted in section A.2. we, as we ourselves are, are the kind of being for which our Being is an issue. Heidegger noted that Being is the *is* itself, and this *is* means that which makes a difference for us (Polt 1999). We are beings entangled with the *difference* Being makes for us. The Being of a being (Heidegger 1962), that is, the essential way in which a being unfolds, is that which makes a difference for us (Polt 1999). In its essence, that is, in its reduced beingness, a being *is* the difference. The Being of IT is the difference IT makes for us; the Being of strategy is the difference strategy makes for us.

But how can this difference be grasped? Against what should this difference be accessed? The answer is both surprising and evident: the difference arises between the Being of a being and nothing. Our noting that there *is* also embodies the difference-ness in which our own being arises. This difference-ness belongs to our own being, which means all beings are beings as long as they make a difference for us; beings are beings as long as we

we are also immersed. Thus, the perturbing element when trying to grasp the essence of this phenomenon of matching seems to be autopoiesis. Intuitively, at a first look, the biological theory of autopoiesis shows up against a background of *exactness*, of the quantification and measurement of phenomena. Its biological origins, and the word *autopoiesis* suggest a diverse realm of research, of *reality*, from that of Heidegger's work. The word autopoiesis was defined by Maturana and Varela(1980) to refer to the novel notions they introduced. It has subsequently shown both considerable advantages and some weaknesses. The meaning of the expression auto is nowadays far from its Greek origins, which meant *self, self-produced* or *self-generated* (MW). Auto is today commonly used as an indication of automation. In contemporary culture, auto means a machine; to be precise, a complex machine such as an automobile or an electronic device.

distinguish them from a background in which we both are (Maturana and Varela 1980, 1992). To distinguish is to experience a difference. Thus, to be rigorous, Heidegger's *difference* is Maturana and Varela's *distinction*. The difference a being makes for us is the distinction we make of that being. These notions correspond to each other, which matches Heidegger and autopoiesis in crucial aspects of their theories.

Although Heidegger's findings and autopoiesis emerge from diverse paths of investigation, they both point to the same phenomenon. Heidegger's differences and autopoiesis' distinctions embody the same ontology—an ontology in which living beings, and human beings in particular, already find themselves in a world they know, have experienced, and in which they are already distinguishing and making differences. A human being always and already has distinguished a world in which it is thrown according to its own rules, making, uncovering, assuming, and suggesting differences.

As human beings, we are always already distinguishing in the future, in the past, and in the present (Maturana and Varela 1980:xx). It is in temporality that beings matter for us (Heidegger 1962). In the world, we are the experiences we have gone through, the regularities that have shown up in keeping us alive, the comportment we take up in order to adapt to a world we always and already have been brought forth. This key ontological claim belongs to both Heidegger and autopoiesis.

Heidegger's basic description of Dasein as a being-in-the-world, although detailed at a different level and with different intentions, is in several aspects close to the autopoietic description of living systems as closed systems. If we ignore the specific technical terminology of each investigation, we can verify that the notions they are pointing to are quite similar. They both use the phenomenological concept of essence to address the phenomena they are investigating. Heidegger refers to it as the Being of a being. Maturana and Varela call it organisation. Both these notions point to the phenomenological concept of *essence*, which, for example, can be verified in the following passages:

> "We do not *know* what 'Being' means. But even if we ask 'What is 'Being'?', we keep within an understanding of the 'is', though we are unable to fix conceptionally what that 'is' signifies" (Heidegger 1962:25; italics from the original).

> "We have to be aware that merely asking the question of how to recognise a living being indicates that we have an idea, even if implicitly, of its *organisation*" (Maturana and Varela 1992: 42; italics from the original).

On grounds of the phenomenological concept of essence, there is a correspondence between the autopoietic concept of organisation and the Heideggerian notion of Being of a being (Heidegger, 1962). Being of being is for Heidegger the beingness of Being itself, the essence of all beings. The Being of a being is Heidegger's articulation of the essence of a being—that which makes an entity the being it is. This is precisely what defines the autopoietic notion of organisation. Human being, as the kind of being that is human, therefore must be defined by its own human essence, both from Heideggerian and autopoietic standpoints. For Heidegger, human's essence, immersed in being-in-the-world, is language and care (ibid.); in autopoiesis, it is language and love. These notions unite both theories at their most essential finding.

To Heidegger, the phenomenon of *care* is that which Man *is*. Man is the being whose essence, in what is most fundamental for him and distinguishes him from all other living beings, is *care*. This *care* is essentially *care for Being*. Care *a priori* unites the essential modes of *being-in*—attunement, falling, and understanding—and it is *how* man essential unfolds in the world. For Maturana, human societies are based on recurrent interactions that take place in languaging, which is revealed to be the social necessity on being human. For Maturana, languaging is enmeshed in, and with, the central feature of human existence:

love, the seeing of other as partner, the caring for others (Maturana and Varela 1980). Language/care/love are therefore basic common findings of these investigations.

This matching of Heidegger's *care* and autopoiesis' *love* at a grounding level of human beingness is a phenomenon hinted at by other thinkers of the Western world. "Love is the essential", wrote the Portuguese poet Fernando Pessoa (Pessoa 1982:157); "Love is life. Anything at all that I understand, I understand only because I love. Everything is – everything exists – only because I love. All is bound up in love alone", concluded Tolstoi in *War and Peace* (1982: Book IV:1165).

This theme of the entanglement between care and love was presented by Hubert Dreyfus to Heidegger himself. Dreyfus (1991) says that, in a conversation he had with Heidegger, he pointed out that care in English has connotations of love and caring. Heidegger "responded that that was fortunate since with the term "care" he wanted to name the very general fact that *"Sein geht mich an"*, roughly, that 'being gets to me'" (ibid.:239). Figure C.3 illustrates the entanglement of essences we are referring to.

Figure C.3 - **The Entanglement of Essences**
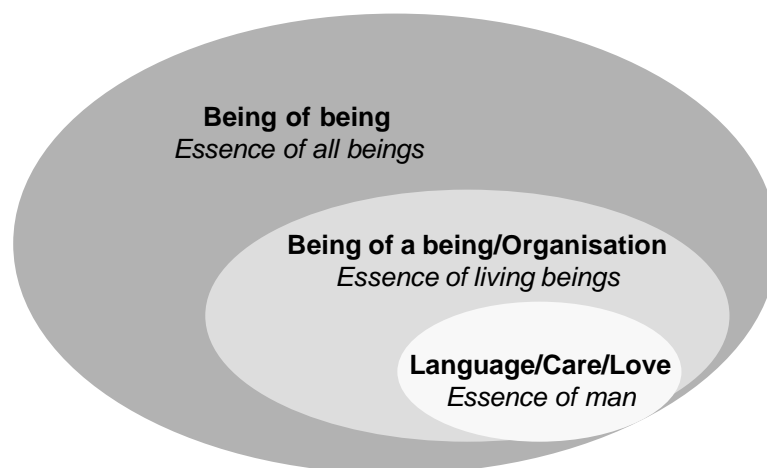
Although Maturana and Varela did not mention the application of the phenomenological method, their research approach relies strongly on a phenomenological perspective [89]. Autopoiesis is not based on new empirical work, but amounts to a substantial reconceptualisation that takes no conclusion for granted, and accepts no results other than those that stand up to a rigorous pursuit of consistency through logic and self-evidence— even though that "may lead to unconventional conclusions" (Mingers 1995:5). This is precisely the kind of approach Husserl intended for the phenomenological method, as referred in Chapter 2.[90]

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[89] Maturana and Varela use, to a lesser or greater extent, some of the key techniques of the phenomenological method of investigation as examined in Chapter 2: the *description* of the phenomenon—for the case the description of concepts, notions, and relations that identify the phenomenon of a living being (Phase 1 of the method); some etymological procedures (Phase 2), this time for creating the new word *autopoiesis*; a thorough analysis of the ways in which the phenomenon of living systems appears (Phases 1, 4 and 5); a strict addressing of the concept of essence, as that which is sufficient and necessary for a living being to be what it is (Phase 4); a critique of the relationships between elements and essences in the domain of living beings (Phases 4 and 5); a challenging search for deeper signification of what it does mean to be a living being (Phase 6).

[90] The word phenomenology is used only once in "Biology of Cognition", written in 1970 (in Maturana 1980), but the paper "Autopoiesis: The Organization of the Living", written three years later (in ibid.), uses it about twenty times. The word is applied mainly in a strict technical sense, which is different to the meaning the word has nowadays, as discussed in Chapter 2.

The study of the phenomena that pertain to living systems is what Maturana and Varela call the phenomenology of the living, or biological phenomenology (Maturana and Varela 1980:73 ff., 88 ff., 97, 112 ff., 114). This phenomenology is a theoretical development, which to a great extent has taken into account results of previous scientific research. In a manner that is consistent with the rigour of the phenomenological method of investigation, it rethinks and reconceptualises anew those findings. Autopoiesis is consistent with the phenomenological tradition, and shows up in a path of investigation where its significance is bounded by a phenomenological approach.[91]

The matchability of Heidegger's being-in-the-world and autopoiesis can also be verified by applying diverse methods or techniques to access ontological and epistemological consistency. For example, the *framework of paradigms* presented by Burrell and Morgan (1979) suits this intention by classifying scientific paradigms along two fundamental dimensions (see Figure C.4). According to this, on the one hand we have a *change/stability* continuum of the world. We interpret this axis as the ontological dimension, recalling the opposing ancient Greek theses of Heraclitus (*everything is forever changing*) and Parmenides (*nothing ever changes*), which we referred in Chapter 1. On the other hand, there is the *subjective/objective* continuum, the epistemological axis, which classifies paradigms on the basis of the nature they claim for knowledge itself.

Figure C.4 - **Framework of Paradigms**
(Adapted from Burrell and Morgan, 1979)
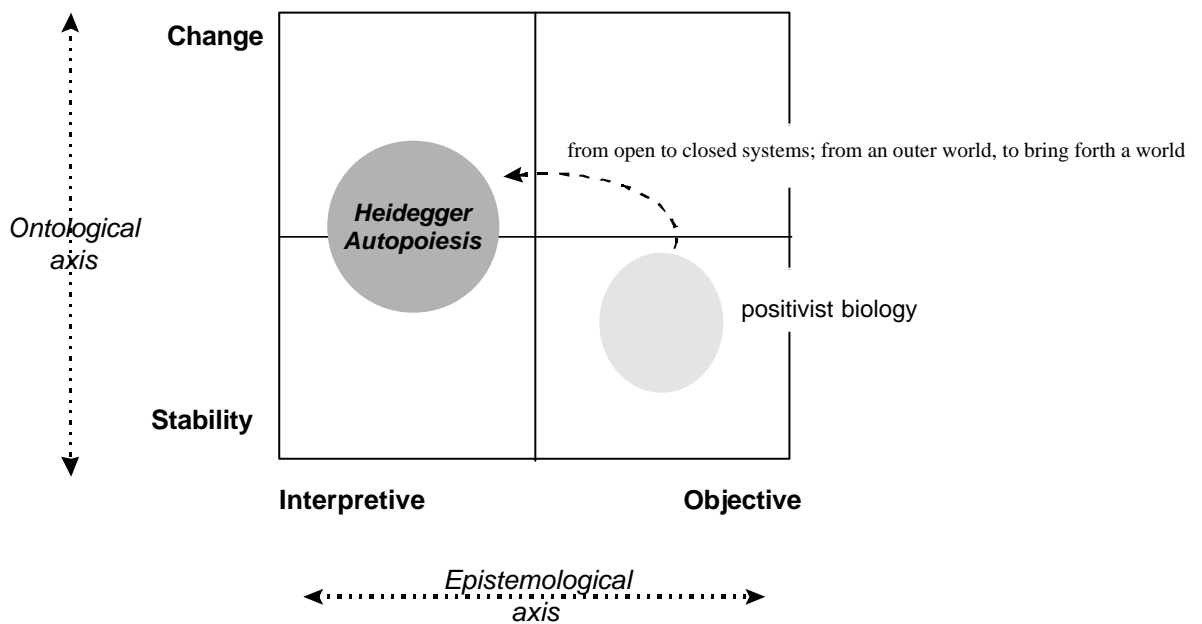
In Burrel and Morgan's framework, representationism is at the extreme right and solipsism at its extreme left. Representationism can take many forms, but all of them share a common denominator: "that knowledge is based on acquiring or picking up the relevant features of a pre-given world that can naturally be decomposed into significant fragments" (Maturana and Varela 1992: 253). According to solipsism, on the other hand, we cannot access any

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[91] Departing from autopoietical core ideas, Varela (1991) introduced further contributions and addressed schools of thought from non-Western philosophical tradition. He tried to put together a view of knowledge that captures the central autopoietical—and, we should say, Heideggerian—notion of *bringing forth a world*. Varela calls his approach *enaction*, contrasting it with the more classical proposals of cognitivism and connectionism. His use of Merleau-Ponty's phenomenology of embodiment as theoretical foundations of enaction helps to illuminate the connection between phenomenology and autopoiesis (Varela 1991:3-36).

external reality, nor can we know if there is an external reality. Autopoiesis takes a middle way—a "via media" (Maturana and Varela 1992): there is an external world, which we can access only on our own terms. We cannot get to know the world objectively, as the world, but only the world we bring forth. This kind of argumentation is in line with that of Heidegger, who added that the world always already experienced is that which is primary self-evidence for us. Yet, that we are in the world does not mean that we know 'objectively' this world.

Autopoiesis comes very close to this Heidegger's position, as Maturana and Varela intend "to understand the regularities of the world we are experiencing at every moment, but without any point of reference independent of ourselves that would give certainty to our descriptions and cognitive assertions" (ibid.:241). The fundamental autopoietic change over the theoretical apparatus of exact biology, is that cognition is not concerned with objects. "As we know how we know, we bring forth ourselves (ibid.:244). "We who are flesh-and-blood people are no strangers to the world in which we live and which we bring forth through out living" (ibid.:129):

> "Bring forth a world is the burning issue of knowledge. It is associated with the deepest roots of our cognitive being, however strong our experience may be. And because these roots go to the very biological base (…) this bringing forth of a world manifests itself in all our actions and all our being" (ibid.:27).

Cognition is thus effective action. The circularity or connection between action and experience, this inseparability between a particular way of being and how the world appears to us, tells us that every act of knowing brings forth a world. "All doing is knowing, and all knowing is doing" (ibid.:26).

Table C.1 - **An Illustration of Some Corresponding Notions in Heidegger and Autopoiesis**

Autopoiesis		Heidegger
Niche The whole in which a living system always and already finds itself immersed, as it is perceived by itself.	↔	**Whole** The whole of involvement and references in which one always and already finds herself/himself.
Organisation That which makes something to be part of a specific class. The relations that define a unity as a unity of a particular kind constitute its organisation.	↔	**Being of a being** That which makes a being to be what it is. The way in which a being unfolds as what it is. An ontological dimension of reality, a 'what-ness'—the 'is-ness' of a being.
Structure The components and relations that actually constitute a particular unity and make its organisation real. An 'actual-ness', a 'such-ness'.	↔	**A being** An ontic dimension of reality; a 'that-ness'. A concrete something as actual, as a 'here' or a 'there'.
Structural determination What the entity perceives in its environment triggers compensations, which are determined at each particular instant by the structure and history of the perturbed entity.	↔	**Throwness** The alreadyness of Dasein's being-in-the-world. Thrown into the world, always already with its past projecting towards the future.
Identity Organisation in a structure. The unity of interactions, as it is experienced—from its own perspective—is identity.	↔	**Mineness** *Be-ing* in the world as it is *mine*. Always and already in-the-world, *Dasein is* in *mineness* as it is what it is.
Distinction A perturbation that a living system distinguishes in its own niche, according to its own structure.	↔	**Difference** That which matters for *Dasein* as it is always already living its own life.

Heidegger employs different terms in stating the positions also adopted by autopoiesis (see Table C.1). For both theories, our grasping of the world is dependent on the historicity within which we approach the future. When Maturana and Varela (ibid.) say that we can only know a world we bring forth, they are arguing that we can only get to know a world in *our own terms.* These *own terms* are for autopoiesis the mediation of our own body, and structural coherency, and for Heidegger the mediation of our own throwness—that is, of our tradition, culture, and past from where we come, with which we move, always and already towards the future.

To conclude, Heidegger and autopoiesis travel diverse paths, while both addressing the issue of what it is to be human in very fundamentally similar manners.[92] We have argued in this Appendix that their ontological and epistemological positions are consistent with each other, that their method of investigation is phenomenology, and that the results they achieved are fundamentally similar and/or complementary. Chapter 3 explores and develops the matching of Heidegger's findings with autopoiesis in the realms of action, change, data, information, meaning, and knowledge.[93]

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[92] The results of the research on the human genome (IHGSC 2001 and Venter et al. 2001), relying on a different scientific paradigm, show the limits of the prevalent reductionist attitude when trying to capture that which a human being is. Those limits are explicitly recognised in the paper of Venter (ibid.), and implicitly admitted in the paper of the international IHGSC consortium. The way foresighted for the progress of the research, as it is proposed by Venter (ibid.), is one of moving away from the analysis of the single genes, towards trying to capture the interactions and relationships within the whole that a human being is. Venter (ibid.) recognise also that language might have an ontological role in human development.

[93] Late in 2001 Hilary Lawson (2001) published *Closure,* an interesting work that might well be used in future work for strengthening here and there the theoretical position underlined in this section.

Part II

DEVELOPMENT

Chapter 3

On Information and Action

Information is an answer.[94]

Ana, 6 (1998)

The study of the phenomenon of information, as such, began relatively recently. The 'information era' could be dated to just after the Second World War, with the publication of the article "The Mathematical Theory of Communication" (Shannon and Weaver 1949:3-91). The subsequent rise of the notion of information can be conceived of as "an answer to problems that were born at just about the time the word 'information' was" (Borgmann 1999:9). Those problems are deeply related to the rise of science and modern technology (Giddens 1999, Castells 2000, Beck 1992, Borgmann 1999, Walsham 2000).

Figure 3.1. - **Four Paradigms on Information**
(after Burrell and Morgan 1979)
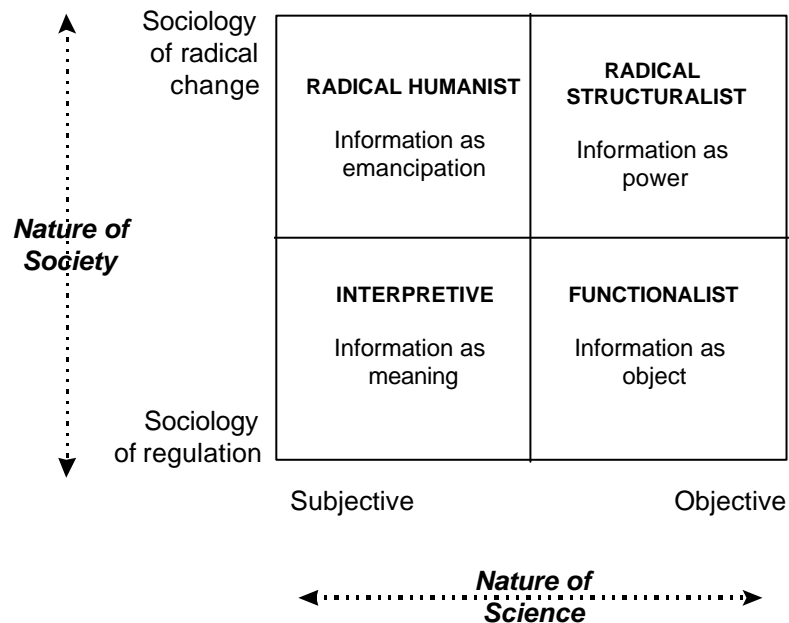
There is no universally accepted definition of information. This isn't because such a single definition is necessary, but because there is a need to uncover the underlying assumptions of every theoretical perspective within which the phenomenon of information is researched.

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[94] When my daughter Ana was six, I asked her what she thought information is. She replied (in Portuguese): "a informação é uma resposta".

As referred to in Appendix C, Burrell and Morgan (1979) suggest an arrangement of theoretical perspectives as a 'Framework of Paradigms' along two axes (see Figure 3.1): subjective/objective (epistemological) and change/stability (ontological). The nature of knowledge at the subjective extreme of the epistemological dimension represents the positions supporting the idea that it is not possibly to know whether there is or not an 'out there' world; at the opposite extreme are objectivist theories that assume there is an external world, independent of any subjective experience. Along the ontological axis, paradigms can embody either a sociology of regulation or a sociology of change. This framework identifies four fundamental positions within which the phenomemon of information can be studied: Interpretive, Radical Humanist, Radical Structuralist, and Functionalist.

Information emerges as a diverse notion, concept, or object as it is studied and developed within any of the theoretical paradigms in Figure 3.1. From Interpretive and Radical Humanist positions, the phenomenon of information is entangled with the phenomenon of meaning (Introna 1997). In the Interpretive paradigm, information is understood as meaning (Introna 1997, Boland 1983, 1991, 1993, Daft and Weick 1984). Information from this perspective is an interpretive and subject-dependent phenomenon, relying on the individual consciousness of the subject who experiences the world in all his historicity, and always from the context in which he already dwells—as Gadamer (1975) said, we are our prejudices.

The Radical Humanist paradigm shares the Interpretive notions of information and meaning, but embodies a sociology of change when analysing issues concerned with the nature of society (Burrel and Morgan 1979). Society is assumed to proceed on the basis of continuous change that, as such, embodies in itself structural conflict, contradiction, and modes of domination. On these premises, information becomes a way of emancipation (Feenberg 1999, Introna 1996, Hirschheim and Klein 1994). Its focus is the discourse on the process of communicative action (Habermas 1984, 1987). In the lifeworld (Husserl 1970), different subjects, groups, or communities—within their own contexts—face diverse interpretations, arguing and struggling over whose information is valid (Mathiassen and Andersen 1987, Markus and Bjorn-Andersen 1987, Markus and Pfeffer 1983, Bariff and Galbraith 1978, Bjorn-Andersen and Perdersen 1980, Kling and Iacono 1984).

These situated and context-related understandings of information suffer a considerable devaluation within the Radical Structuralist and the Functionalist paradigms. In both positions, information is 'objectified', i.e., it is understood as an object. In the Radical Structuralist paradigm, information is understood as being in the realms of power—information becomes power (Introna 1996a, Foucault and Sheridan 1979, Callon and Law 1982, Zuboff 1988). This Radical Structuralist position regards information as focusing on material relationships: the ones who dominate try to preserve the *status quo*, and those who are the dominated try to overthrow the ruling class. Information serves the play of power within whatever structure is in place (Introna 1997).

Shannon and Weaver's information theory was a milestone in the development and spread of the Functionalist approach to information. Its focus is representation and its process is the capturing and modelling of reality (Bell 1967, 1967a, 1976, 1980, Arrow 1984, Boisot 1995), as a way of making an effective intervention in the real world. Their theory addresses the structure of signs and codes, without considering what they might mean. Instead, it concentrates on the engineering problem of selecting the right message. Shannon and Weaver's core claim could be synthesised as arguing that *the information content of a sign is equal to the probability of selecting the correct message.* As this probability increases, so does the information content of the signal—thus, as information increases, uncertainty decreases. Borgmann refers to this issue as follows:

> "The theory [Shannon and Weaver's theory] suggested that the value of information lies in its contingency, its unpredictability. To be told that the sun will rise tomorrow is to receive no information. To learn that one has won the jackpot in the lottery is to have great news. The trite, the hackneyed, the ordinary yield little information. What is rare, unlikely, surprising makes for much information. What information theory seemed to provide is a way of saying precisely just how little "little" and how much "much" information is. The more surprising a message, the greater the amount of information it contains" (Borgmann 1999:133).

This principle—as information increases, uncertainty decreases—underlies many of the subsequent theoretical developments relating to the phenomenon of information, particularly those within the functionalist paradigm. This notion is widely preserved in mainstream information systems thinking, for instance: "Information can be defined in terms of its surprise value. It tells the recipient something he did not know" (Davis and Olsen 1985:30); information is "a tangible or intangible entity that reduces uncertainty about a state or an event" (Lucas 1990:513).

To conclude this review, we recall Bateson's (1979) maxim: Information is a difference that makes a difference. At stake are both the *first* distinction made—the spotting of the difference as such—and the *second* difference, which relates to the meanings and relationships that the first difference has within the referential whole in which each one of us always and already is involved. [95] Mainstream literature on information systems distinguishes the first difference as 'data' and the second one as 'information'. Meaning and context are what distinguish these two differences, as shown in the following illustrative definitions: [data is] "any representation such as characters or analog quantities to which meaning is, or might be, assigned" (ANSI 1990); [information is] "data that has been processed so that it is meaningful to a decision maker to use in a particular decision" (Hicks 1993:675).

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[95] According to Borgmann (1999:142-3), Charles Babbage was the first to realise the connection between difference and information technology. Babbage in 1882 built an experimental calculator he called a 'difference engine', which used a system of ten rather than two digits.

We will show that these kinds of classification are untenable because data is already meaningful. Such definitions hide *a priori* positions on the nature of information as such. These positions do not stand up to phenomenological scrutiny.

3.1. Action as Ground

In ancient Greece, one of the ways in which action was referred to was as *logos* (Crane 2000). In general, *logos* addresses the disclosure of the subject matter, *a priori* understood as decisive because of its ontological contours.[96] *Logos was* closely connected to the 'power of the word' (Bible 2001b, Greek Bible *Book of Genesis*). This *decisiveness* is what shows up when the Greek words *onta* and *logos* join in the contemporary word ontology. As such, ontology is fundamental, i.e., it is decisive in the domain of human experience. This means that *logos* is a *ground for action*, which is its exact translation in some passages of the Greek Bible (Bible 2001b)[97]; for example, "ei men oun dhmhtrios kai oi sun autw tecnitai ecousi pros tina logon agoraioi agontai kai anqupatoi eisin egkaleitwsan allhlois" (Bible 2001b, Act.Ap.19.38, Greek NT Nestle-Aland 26th; our underlining). The expression at stake – "to have a case, to have a ground for action against" (Crane 2001) – is translated in Webster's Bible (Bible 2001a) by "have a matter against", and in Young's Bible (Bible 2001c) by "any one have a matter". In translations of this passage in other languages we find ideas of this meaning of 'ground for action', e.g. "ont des *griefs* contre" in French[98], "hanno delle *ragionni* de far valere" in Italian[99], "tienen *negocio* con alguno" in Spanish[100]. In the Latin Bible (Bible 2001) *logos* in this quotation is *causam*[101], which means the cause, "person or thing producing effect or giving rise to something" (OPDT:107).

It is decisive to address *that which is*, because it reveals what always and already was assumed as *grounds for action*—as the grounds of a world revealed as unfolding action. This *grounds for action,* the essential unfolding of the very essence of ontology, is what primarily and decisively opens the possibilities of action itself—ontology can be grounds for action only because the action was primarily revealed as the grounding itself. Thus, as

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[96] Refer to Chapter 1.

[97] Entry *logos* in Crane (2001 – *Liddell-Scott-Jones Lexicon of Classical Greek*), meaning III. *explanation* "b. plea,case (…) to have a case, ground of action against".

[98] Literal translation of *griefs*: grief, grievance (WR 2001). Complete quotation: "Que si Démétrius et les artisans qui sont avec lui ont des griefs contre quelqu'un, il y a des audiences, il y a des proconsuls : qu'ils portent plainte" (Bible 2001d, French Bible Jerusalem Act.Ap.19.38).

[99] Literal translation of *ragioni* (WR 2001): reasons. Complete quotation: "Perciò se Demetrio e gli artigiani che sono con lui hanno delle ragioni da far valere contro qualcuno, ci sono per questo i tribunali e vi sono i proconsoli: si citino in giudizio l'un l'altro" (Bible 2001e, Italian Bible Act.Ap.19.38).

[100] Literal translation of *negocio*: business (WR 2001). Complete quotation: **"**Que si Demetrio y los oficiales que están con él tienen negocio con alguno, audiencias se hacen, y procónsules hay; acúsense los unos á los otros" (Bible 2001f, Spanish Reina Valera Bible Act.Ap.19.38).

[101] "Quod si Demetrius et qui cum eo sunt artifices habent adversus aliquem causam conventus forenses aguntur et pro consulibus sunt accusent invicem" (Latin Bible - Vulgate Version; Act.Ap.19.38; our underlining).

part of the structure of being-in-the-world, *action grounds itself ontology*—ontology is a ground for action because the world as such is previously and self-evidently revealed as action. Wittgenstein (1969:n.110, 17e) supported this reasoning when he said: "Giving grounds [must] come to an end sometime. But the end is not an ungrounded presupposition: it is an ungrounded way of acting."

A logical outcome of being-in-the-world as ontological grounds is, therefore, an assumption that action is primary; that it precedes reflection. This primacy of action, which has its oldest claims in Heraclitus' thesis of a forever changing reality, is what it means to reverse the Cartesian *cogito* (Heidegger 1962). Action is that which always and already is. We are always and already acting within our own history against the background of temporality: we are action in structural terms. Being-in-the-world—being as a verb, not a noun (which is the meaning of Heidegger's expression)—is essential to the *who* we are. In-the-world "our basic attitude is always a practical one of doing, of acting, of having some aim in mind" (Mingers 1995:79). Our being and doing are inseparable, and it is "our specific mode of organisation" (Maturana and Varela 1992:49).

The modes of being we encounter in the world—the ready-to-hand and the present-at-hand—are founded upon an always and already unfolding acting-in-the-world. We are always already being-alongside-the-world-the-others-the-objects-and-nature, involved, deciding, moving, choosing, going, standing, taking sides, fulfilling possibilities, happening; in short, we are *acting(being)-in-the-world*. It is important to note that *being-in* (Heidegger 1962) is formally indicated as a verb, and that a verb is the disclosure of an already in place action because it points to movement, a change, a deed, a result, an action.

A verb indicates what a person or a thing does. It can describe an action (e.g. run, hit), the occurrence of an event (e.g. raining, happening), a state (e.g., having something, appearing something), or a change (e.g. become, grow) (OPDT:860). A verb means an action that is occurring, or the results of an action that has happened. The verb 'to be' means to exist, to live, to continue, to occur, to happen, to take place, to keep going, to come about, to remain, to survive (ibid.:57). All of these meanings are captured in Heidegger's and autopoiesis' ontological positions on humanness, as presented in the Appendices.

Thus, action is pointed to by a verb. This uncovering of action by verbs is clear in *The Book of Genesis.* In the Latin version of the Bible (2001), the expression used to emphasise the power of the word is not *word* but *verb*. The Latin word *Verbum* signifies the *Word of God*: "In principio erat Verbum et Verbum erat apud Deum et Deus erat Verbum" (Bible 2001: Ev.John1.1-4). This points not only to the word as creative power, but to the *verb* as the kind of word, discourse, language, enunciation that means—and is linked to—events and actions in the world; for example: "And God said, Let there be light: and there was light" (Genesis 3.1 in Bible 2001a). The verb indicates, lets unfold, action. The verb is language, uncovering language's power as an opening up of the real—"What else is the word without meaning, without understanding, that is, without force?" (Feuerback 1994:89 fn; our

translation). Being-in, as a verb, is thus a formal indication of an always and already ongoing action-in-the-world.

The English word action comes from the Latin words *actio*, *actionis*, which meant "a putting in motion; a doing, performing, acting, action, act" (Crane 2000). Action means "a movement" and "something done" (CD). It also means energy and liveliness (OPDT:8). Therefore, this being-in signifies all these distinctions. It is an acting that is a living movement, thus action-in-the-world. To be in the world as man means to be always and already acting-in-the-world. This argument has important implications. It indicates that we, as the beings we are, are always acting without reflecting on what we are doing before, during, or after the action (Introna and Costea 2001). In many cases we do not reflect on what we should do, but on what we have done—trying to articulate reasons or motives to justify a course of actions (Introna 1997). Of course, in other cases we stop acting for a period of reflection only, when we think and analyse what decisions to make and then choose a particular path; to some extent, we therefore analyse and then act. Yet, in this latter case, the whole situation tends to change once action begins—we then detect new nuances, fresh opportunities, and some threats we did not see beforehand. We always continue to adapt the kind of decisions we make.

Having been thrown, we are always and already projecting ourselves into the future, taking a stand in the process of having been—"I take action" (Heidegger 1962:367). Absorbed in coping with day to day activities, immersed in 'the they' or in a moment of vision, for example, managers are always acting either appropriating possibilities for being or putting them aside. All the phenomena of data, information, meaning, and knowledge rely on these grounds. We are always already involved, acting; the manager as such is the *involved manager* (Introna 1997).

PCs, mobile phones, desks, cars, books, memos, and other devices—either ready-to-hand or present-at-hand—presuppose a context of action-in-the-world. A manager's dealings in the world constitute the background on which he himself distinguishes any entity. The modes of being of entities he encounters come from his own already acting; not from some specific action, but from himself as action. The manager is thus action as such, and it is from that perspective that one has to make sense of his acting. While the objects are unavailable or occurent, the manager analyses or stares at them—that is, it takes those specific kinds of action—while relying already in a context of *ready-to-hand* equipment.

The way the world is self-evident is first revealed *as we live in the world*—as we are already going on in our dealings in and with the world. World, firstly and primordially, reveals itself in the background practices in which we dwell. Being-there is an embodied understanding of the world in-the-world. The present-at-hand is founded on this primordial ready-to-hand that world as such already is. It is on the basis of a *withdrawn* world, a ready-to-hand background, that something present-at-hand can show itself. Either modes of being presuppose the unfolding of action.

Since we-already-are-in-the-world, the mode of being of ready-to-hand uncovers itself as a primordial access—which we could call *knowledge*—of the world in which we dwell. This means that dealing-with is fundamental to an essential knowing of what an item is. A manager, a consultant, a professor, a technician, or any other professional has always and already an understanding of the world. His *existence* is, in each case, the possible ways for him to be—to choose, to take, to fulfil, to disclose, or to pass over; this is precisely what it means to be acting. The professional has already fulfilled, and has lost, possibilities. In his throwness he is always what he has been, and as such he can never start anew.

3.2. Language as Action

Action is primary. It encompasses the being-in-the-world we are. Since man's essence is care and language, which are two sides of the same coin, action as primary must be logically found in man's essence: it is language. "Action happens in language" (Winograd 1995:123).

Living, as the living of myself, is structurally determined; we have been thrown into the world, always already with a past. This structural aspect of human beings is, in autopoietic terms, conditioned by human organisation, that is, by language as man's essence. It is in language, and through language, that humans experience the world. We do not first experience the world, then name and describe our experiences through language. Language is not an instrument of man. Rather, we experience a world already revealed and shaped in/through language.

> "We work out our lives in a mutual linguistic coupling, not because language permits us to reveal ourselves but because we are constituted in language in a continuous becoming that we bring forth with others" (Maturana and Varela 1992:235).

> "[Language] was never invented by anyone only to take in an outside world. Therefore, it cannot be used as a tool to reveal that world. Rather, it is by languaging that the act of knowing, in the behavioural coordination which is language, brings forth a world" (ibid.:234).

Ourselves, others, entities and nature—that is, all that we come to distinguish while beings-in-the-world—appear against a world revealed in language. Our thoughts and experiences are in language. Thus, it is in language that not only reflections and speech, but also our body movements, gain their meaning, and are what they are. Language "is our distinctive way of being human and being humanly active" (ibid.:26). Human is a *be-ing* that is action; language is the human action as such.

Human languaging should not be understood as merely speaking. Languaging is an aspect of the ever-present flow of actions, and is a mixture of words and mood. It is rooted in cooperative practical daily activity, and is always contextual, consensual, and arbitrary. Language arises out of the need for the social coordination of action (Maturana and Varela

1980, 1992). It is more than the correct use of arbitrary words; language is concerned with words spoken and not spoken, with context, timing, intentions, mood, and so forth.

In language we are already acting, doing and choosing. It is only after the event that are we capable of, or interested in, deciding whether or not to provide an explanation of what happened. Explanations are *post hoc* (Maturana and Varela1992); they are a particular kind of action, which in their structure presuppose a previous event to which they refer. Action, as such, is always already happening as it is, in speech, in body movements, in expressions, or in reflecting. Each particular kind of action is mainly related to itself: body movements to body movements, speech to speech, reflections to reflections. Each one of these kinds of actions affects the others in accordance with the structure, that is, the throwness, the moods, the attunement of the particular human being at a concrete instant. Nietzsche (1969:65) states this clearly: "But the thought is one thing, the deed another, and another yet is the image of the deed. The wheel of causality does not roll between them". All these kind of actions *are* the human being. To be man is the embodiment of action in all these dimensions.

Figure 3.2 - **Language as Ontogenic Communicative Behaviour**

ontogenic behaviour
specific to the history
of the individual

communicative behaviour
which occur in social
couplings

linguistic behaviour
which arise in an ontogenic
structural coupling between organisms
and that an observer can describe in semantic
terms

linguistic domain
of an organism is the domain of all its
linguistic behaviors.
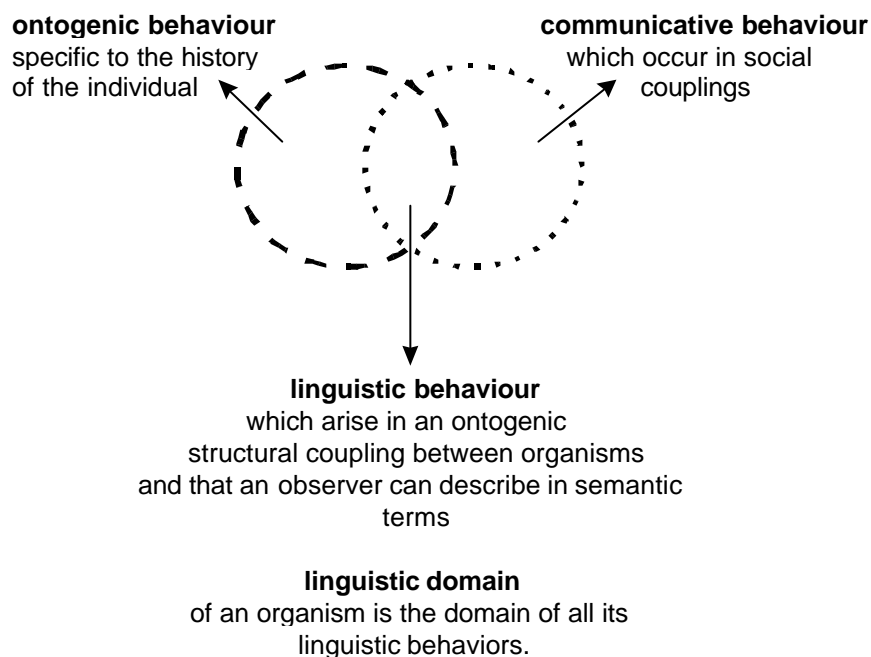
This language-based human action is mainly consummated in couplings generated by recurrent interactions between two or more persons (*social couplings*). Human beings have communicative behaviours that stand for something other then themselves; behaviours that constitute orientations for action, as illustrated in Figure 3.2.[102]

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[102] These behaviours are either inborn or acquired. Inborn communicative behaviour depends on structures "that arise in the development of the organism independently of its particular ontogeny", for instance the development of the neocortex and the larynges, which enable us to speak. Acquired communicative behaviours depend on the

The domain of language arises from the co-ontogenic coordination of actions of the members of a group. The co-ontogenic structural drift that occurs as members of a social system live together is essential to a linguistic domain. Such a domain constitutes the basis for language; it is a learned communicative behaviour. Different communicative behaviours arise in the ontogeny of the participant organisms, whose behaviours are contingent to their particular history of coexistence.

Any learned consensual behaviour, i.e., any linguistic behaviour, is the consensual coordination of action. "Language appears when the operations in a linguistic domain result in coordinations of actions about actions that pertain to the linguistic domain *itself*" (Maturana and Varela 1992:209/10). "[T]he object of our linguistic distinctions are elements of our linguistic domain" (ibid.:210). Thus, languaging occurs only when the linguistic behaviours themselves become an object of coordination. "Languaging is a recursion of this (linguistic behaviour), i.e., the consensual coordination of consensual coordinations of action." (Mingers 1995:78).

When we say the word computer, we are coordinating our actions relating to what we do while using a computer, such as writing, reflecting, and printing. In talking about the computer, we bring it forth in a particular context, mood, and form; that is, we make a distinction in order to coordinate actions in a particular way.

Any word—such as computer, table, book, or idea—is a distinction in language, through which we coordinate our actions and establish a consensual domain When saying "I see the book we are looking for", we are coordinating our coordination of actions, which is language in its essence. Every word is a linguistic distinction. Language is about making linguistic distinctions of linguistic distinctions. "Therefore, to operate in language is to operate in a domain of congruent, co-ontogenic structural coupling" (Maturana and Varela 1992:210).

Language makes possible new phenomena, as reflection and consciousness, because "language enables those who operate in it to describe themselves and their circumstances through the linguistic distinctions of linguistic distinctions" (ibid.). In this domain, we can move in infinite directions because the possible states of human neuronal activity are practically unlimited (Edelman 1998, Damásio 1994, 2000).

Recursive linguistic interactions between two or more human beings results in each one becoming a medium for the realisation of the autopoiesis of the other. This domain is one of interlocked behaviours, because behaviours reciprocally trigger complementary behaviours—and human actions become coordinated to contribute to the continued autopoiesis of each other. Moreover, the particular behaviours are divorced from what they connote; they are symbolic, and thus are not only structure determined, but also arbitrary

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"particular ontogeny of the organism and are contingent on its peculiar history of social interactions" (Maturana and Varela 1992:207), for instance a particular language as mother tongue.

and context dependent. They only work insofar as they reflect agreement; this is what Maturana means by the domain of consensual action. "They rely on consensuality (rather than explicit consensus) among those involved" (Harden quoted in Mingers 1995:78). Before humans can become involved in agreeing or disagreeing on a particular subject, they must previously share a *form of life* (Wittgenstein 1967). Language is a form of life; more rigorously, *each* language is a form of life.

Since the environment and other entities do not determine particular responses but can only trigger them, a successful message must assume some degree of correspondence in the domain of interaction between two living beings. Maturana identifies two types of interaction: (i) the interaction in which the behaviour of one organism leads directly to the behaviour of another, e.g., courtship and fight; and, (ii) the interaction in which the behaviour of the first organism *orients* a second organism, i.e., directs its attention for some other interaction that the two have in common. The first case is identified as *interaction* and the second as *communication*. Communication is fundamental to human nature because it is the basis of our linguistic behaviour (Maturana and Varela 1980:28). "The orienting behaviour stands for or represents something other than itself" (Mingers 1995:74), "it points to a feature of the environment that the second organism encounters in its niche" (Maturana and Varela 1980:28). Because behaviour stands for *something other than itself*, its success depends on the common cognitive domains of the organisms, i.e. on consensual domains and corresponding acts of communication.

An act of communication is an orientation with respect to a particular distinction within an already shared domain of interaction. "Linguistic behaviour is orienting behaviour" (ibid.:30). This orienting behaviour "is an action that is a description of the environment to an organism" (Mingers 1995:74). Thus, the relationships between linguistic distinctions constitute the meaning—"meaning arises as a relationship of linguistic distinctions" (Maturana and Varela 1992:210).

Meaning is something a person shapes for himself in language. It is individually generated, but can be shared by a group within communicative structural coupling. Meaning, therefore, grounds our actions because it shows how actions, as themselves—whether body movements, speech, or reflections—fit within linguistic behaviour. Meaning is thus part of our domain of conservation of adaptation (ibid.), becoming the general ground where human beings act and are structurally coupled. This was synthesised brilliantly by Merleau-Ponty (1962:184), when he wrote: "The spoken word is gesture, and its meaning a world". To conclude, the word is the meaning (Merleau-Ponty 1962:173-99).

3.3. Information as Difference

In-the-world, immersed and acting in its niche, a manager is already making distinctions. He dwells in the familiar and notes the different. Already-in-the-world, a manager is always

relying on a background of meaning against which he makes distinctions; that is, against which he spots differences. These are detected in accordance with the throwness and mood in which he is at each particular instant—the differences as such are appropriated on realms of structural determination.

As mentioned in the opening section of this chapter, current literature usually identifies data as entities *decontextualised* from appropriation by a particular person. So, typical instances of data would include signs on a screen, a list of numbers in a report, or a memo about performance. We believe this kind of definition cannot withstand a rigorous phenomenological scrutiny. We claim, and will show below, that there is no meaningless data, submitting that such an example cannot be provided. Data has meaning just as information does. As long as there is a perturbation of the autopoietic system that is a human being, any kind of data whatsoever has an *informing* character. The way in which data already has a sense, since it was distinguished—that is, differentiated as something in the environment—is structural determined. The sense that any data has as a distinction is dependent on the manager himself, on his own structures and throwness at that particular instant, not on the perspective or point of view of any external observer.

Some examples can help us to stress the relevance of this point. Our familiarity with a new entity—whether or not it is physical—results from experiencing it, in the phenomenological sense, many times. An unconscious induction is performed throughout this process (Schmitt 1996:141). It is our acting and involvement in the world, our lifeworld in Husserl's terms, that familiarise us with objects, events, ideas, concepts, and so forth. This familiarisation happens on our terms, that is, in accordance with the person who is experiencing.

Sacks (1995:127) describes the case of a 50-year old person whose sight was surgically restored after being blind since early childhood: "On the day he returned home after the bandages were removed, his house and its contents were unintelligible to him, and he had to be led up the garden path, led through the house, led into each room, and introduced to each chair…" Who he was, that is, the structures of his *having been,* did not include visual perception, thus he could not make sense of what he saw.

This same argument is also valid for less unusual and dramatic examples. "As newborns we may look at a cat, but we do not perceive 'catness'. In fact, as infants, we do not see a cat at all, but a confusion of shapes and colors, of light and dark (…) From that point on, (…) [we] begin to work overtime, making connections between one thing and another until a coherent picture begins to emerge. One set of movements, patterns, shapes, smells, and tactile sensations slowly evolves into Mom. Another set becomes the cat (…)" (Whitehouse 1999:108).

This relevance of what we have experienced, and how we have done that in relation to our possibility of new experiences, is something we continue to testify all our life. Take a

relatively trivial example: sometimes when we meet someone we know reasonably well mainly from encounters in a particular context—the office or the neighbourhood, for example—we might not initially make sense of who he or she is when we meet in a completely different context. This occurs because the references we pick up in that context omit the ones we intuitively use to identify the person in question. Similarly, when we do not know a person well we just cannot recall who he or she is when we meet in a different context; often we will not recall who that person is until we see her or him again in the initial context in which we met.[103]

Heidegger (1962), Maturana and Varela (1980, 1992), and others (e.g., Palmer 1969, Introna 1997, Gadamer 1975, Hoy 1978, Polanyi 1973) show that there is no position outside history from which one can make sense of our own engagement in the world. In order to show how meaning arises from its historical context, we introduce a technique of interpretation—the *hermeneutic circle* [104]—which is explicitly or implicitly used by Heidegger (1962, 1978), and is consistent with phenomenology and autopoiesis. The hermeneutic circle reveals how meaning arises from new distinctions, as well as from the involvement whole in which we are always already in. This is evident in the above examples.

Hermeneutics is the science, or art, that aims to answer the question: What is interpretation? Autopoiesis, as we showed in Appendix B, is concerned with a different question: What is a living system? A significant degree of overlap is encountered when trying to answer these two questions. A living system is an autonomous self-interpretative being. Interpretation is a bringing-forth, which is what life is about. The human being is thus a self-interpretative being, a bringing forth on its own, which has a hermeneutic nature (Heidegger 1962).

The Greek word *hermeneuein* meant the laying-open of something which brings a message (Palmer 1969). This Greek expression suggests the bringing to an understanding, an overcoming of the barriers that make it impossible or difficult to comprehend something. A correct understanding has to overcome the barriers of time, space, language, history, and others—"something foreign, strange, separated in time, space, or experience is made familiar, present, comprehensible" (ibid.:14).

Our "invariant configuration" (Maturana and Varela 1980:xxi)—the limitedness of our own organisation—and the structure we are as a result of our throwness set the barriers that limit a first sense of a perturbation (in autopoietic terms), or of the new text (in hermeneutics

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[103] These cases can be very perplexing, as many of us have experienced when entering a conversation with someone we know, but cannot not remember who he or she is…

[104] The word hermeneutic has its origins in the ancient Greek. Hermes was the wing-footed messenger God who brought a message *beyond human understanding*, in a form that human intelligence can grasp. The Greeks credited Hermes with the discover of language, which they interpreted as the medium par excellence of the process of understanding. The ancient Greek language had several of words based on Hermes' name, all related to interpretation and understanding: *hermëneuein* (to interpret), *hermëneia* (interpretation), *hermeios* (priest of the Delphi oracle).

terms). The message, the new text as something distinguished, is firstly accessed as something separated, part of an environment against which it was distinguished.

Figure 3.3. - **Input-Output System and Environment**
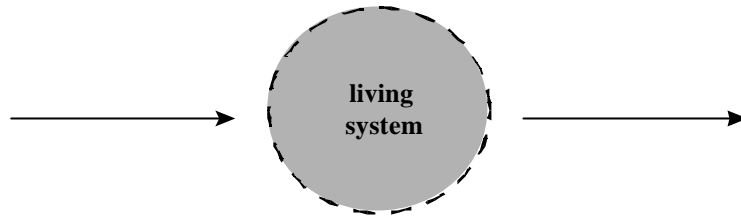
Figure 3.4. - **Autopoietic System and Environment From an Observer's Perspective**
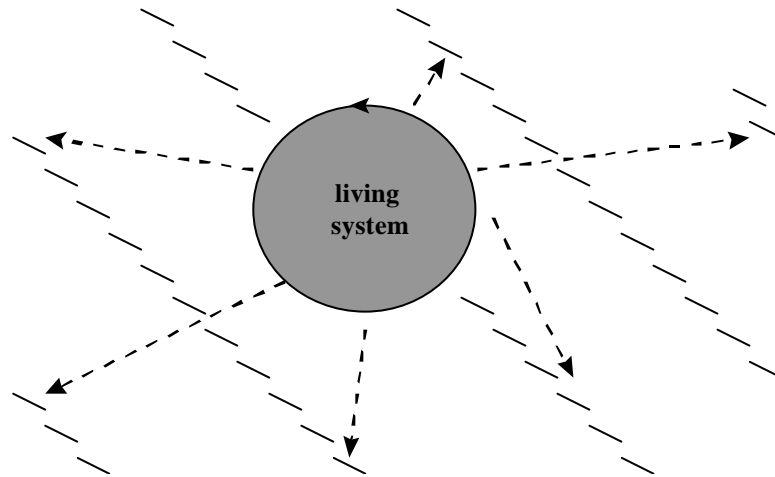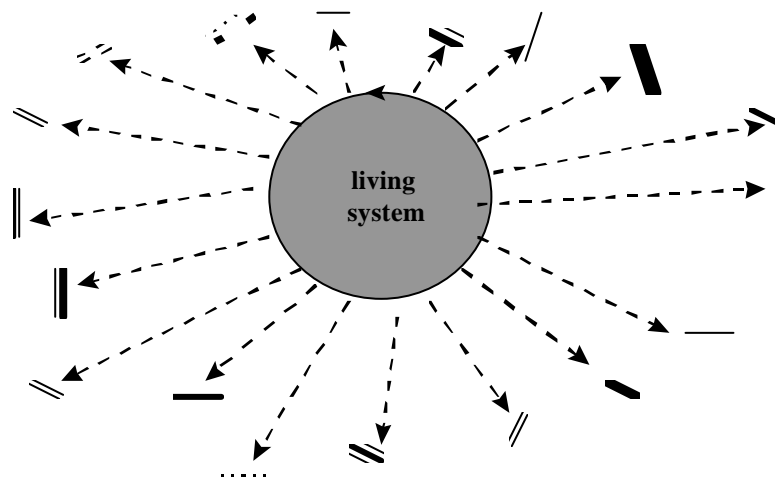
Figure 3.5 – **An Autopoietic System and Environment From the System's Own Perspective**

As an organisationally closed and autonomous system, a person selects, interprets, and reacts in relation to whatever it distinguishes in the environment, according to its own *identity* (its *organisation* in its specific *structure* in its environment at that instant).

A human being does not receive 'objective' data from the environment or from other human beings. We access what we come across in the world in accordance with what we essentially are (*organisation*), and in relation to that which we actually are (*structure*)—that is, in *our own terms* (Heidegger 1962). Figure 3.5 above employs unique new graphical signs to illustrate the nature of the fundamental idiosyncrasy of a being's own identity—of *mineness*.

The hermeneutic interpretative process concedes that there are limits to our ability to make sense of all elements in the environment; however, it strives to overcome these limitations to some extent.[105] The text, that is, a new distinction, is something that needs to be brought forth. Its meaning is not something given and 'out there', forever standing still. Meaning is something that one must find in a human *work*, as such.[106] The human imprinting on a work, is it is meaning. The "'deciphering' process, this 'understanding' the meaning of a work, is the focus of hermeneutics" (Palmer 1969:7-8).

Hermeneutics attempts to examine human works *as such*. It tries to take into account the contexts where the message comes from and which the interpreter inhabits. The meaning of a new distinction gets its first sense from the context in which we are already immersed. There must be some level of pre-understanding (ibid.:25), some fore-conception (Heidegger 1962), to grasp any sense of the new data. Thus, to some extent, the condition for understanding new data is to have already partially understood it.

"[S]omehow, by a dialectical process, a partial understanding is used to understand still further, like using pieces of a puzzle to figure out what is missing" (Palmer 1969:25). The actual context and our history does not need to provide a full explanation of the new data, but rather to enable a first linkage between the context and the new element. This first sense is not yet an explanation of the new. The first grasping is the capacity to make some sense of it. This some sense is taken into account to re-interpret the context, which opens up new possibilities. From this re-interpreted context, further understanding of the new element can again be gained. This circular movement is called the hermeneutic circle, and it has neither a clear beginning nor a clear ending.

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[105] Initially, hermeneutics was a process focused on the interpretation of religious texts. Its aim was to search for the *true* meaning of the text, within its original context.

[106] Natural sciences have developed methods to understand natural objects. When those methods are applied to understanding human works, what arises can only be an understanding of works *as* objects—as silent, natural objects. For exact sciences, interpretation is regarded as the analysis of a given set of data. Nevertheless, it would also be correct to identify as interpretation the seeing and selection of the data. Aristotle (1998) situated interpretation earlier than logical analysis. Logical analysis is interpretation, but a prior and foundational interpretation is indeed that judgement on which a search for something bases itself. This is so because no method can escape itself: "Method and object cannot be separated: method has already delimited what we shall see. It has told us what the object is *as* object. For this reason all method is already interpretation, and the object seen with a different method will be a different object. (…) Explanation will, certainly rely on the tools of objective analysis, but the selection of the relevant tools is already an interpretation of the task of understanding. Analysis is interpretation; feeling the need for analysis is also an interpretation. Thus analysis is really not the primary interpretation but a derivative form" (Palmer 1969:22-3).

As our understanding progresses, context becomes the text, and vice versa. "Hermeneutic circle refers to the fact that in interpreting a text one must move back and forth between an overall interpretation and the details that a given reading lets stand out as significant. Since the new details can modify the overall interpretation, which can in turn reveal new details as significant, the circle is supposed to lead to a richer and richer understanding of the text" (Dreyfus 1991:36). From an autopoietic standpoint, this evolving understanding cannot be said to be 'richer and richer', but just different. Only on the grounds of its relevance to the survival of the being can one *a posteriori* draw a conclusion about the usefulness, or otherwise, of a given understanding. This is similar to Nietzsche's (1974:169, n.110) observation: "(…) the strength of knowledge does not depend on its degree of truth but on its age, on the degree to which it has been incorporated, on its character as a condition of life".

Figure 3.6 - **The Hermeneutic Circle**
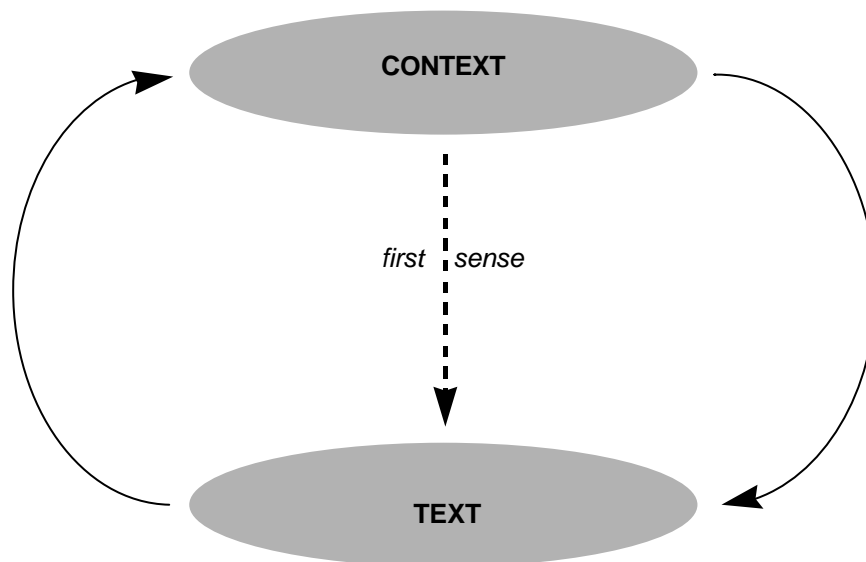
The hermeneutic circle explains how the Heideggerian referential whole (context) provides meaning to the autopoietical perturbation (text), and how the perturbation changes the whole in an ongoing movement. Any new element must enter the horizon of the subject on his' *own terms*, that is, in accordance with its identity and throwness—which is the signification of the 'in' of the word *in*formation, as we will show below.

Autopoiesis can clarify some relevant aspects that are in question here. For instance, consider the paradigmatic autopoietic example of the cell: "If a cell interacts with molecule x and incorporates it in its processes, what takes place as a result of this interaction is determined not by the properties of molecule x but by the way in which that molecule is 'seen' or taken by the cell" (Maturana and Varela 1992:52). The autopoietic system incorporates the new element, or the higher-order autopoietic system incorporates the lower-order autopoietic system, in accordance with its own dynamics (those of the higher

order system). "The changes that occur therein as a result of this interaction will be those changes caused by the cell's [or higher order unity] own structure as a unity" (ibid.).

The system that includes the recently incorporated element acts as a unity to determine what changes would take place in that system. Every new element that is captured by an autopoietic system is, or might be, incorporated not as 'what it is', but as 'what the organisation sees it is'. This means the sense that a perturbation has for a person, in order for that perturbation to be the perturbation it is for that person, depends on the person who distinguishes the perturbation, thereby establishing a difference. In hermeneutic terms, the sense of the new text is dependent on the context.

As soon as the new element has been incorporated into the whole, it gains a relevance within that same whole, which determines the function of the new element in the autopoietic system. The entity, as it was itself before the perturbation was captured, re-accesses itself within the context of the perturbation; the text becomes the context and vice-versa.

A new whole emerges in this way, taking into account the consequences, vast or small, triggered by the detection of the perturbation. The kind of difference made by a perturbation is revealed by the kind of behaviour the being takes from then on. As an example, we would say that hearing some music might change a human being's preferences in music; or it might change or open diverse and, from an observer's perspective, unexpected actions—for instance about politics and the economic system.[107]

Perception does not consist of our grasping, or representing, an objective external world, but it involves the operations of a closed system "which has developed a particular structure of sensory/effector correlation through a history of structural coupling" (Mingers 1995:76-7). "What we take as a simple apprehension of something (such as space or colour) has the indelible mark of our own structure" (Maturana and Varela 1992:22). As human beings, we are always specifying the world we are experiencing:

> "(…) structure-determined coupling shows that all interactions that we have as human beings, as autopoietic systems, are determined by our own structure. Things in our environment can be triggers for the nervous system only if the nervous system can react to them, and the reaction they get depends on the state of the nervous system. We cannot, therefore, have interactions with anybody or anything that are in some sense pure—they are all generated by our own nervous system" (Mingers 1995:36).

An example from *The Tree of Knowledge* (Maturana and Varela 1992) clarifies this aspect. Contemporary exact science provides sound empirical evidence on the experience of seeing colours. There is no correlation between our naming of colours and the wavelengths our instruments identify—"we can correlate our naming of colours with states of neuronal activity but not with wavelengths" (ibid.:22) (Figure 3.7).

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[107] In Chapter 4, we will return to this through the examination of a specific example.

Hence, no information is ready-made out there in the environment, waiting to be accessed by us. The world we bring forth, the one in which we always and already find ourselves, is structured determined, according to who we are as a having been. This is clear in the celebrated episode of Newton's discovery of the law of gravity. Isaac Newton was in the shadow of a tree when an apple fall on his head. This, we are told, led him to discover the law of gravity. This story is often used to sugest that luck has an important role in scientific discovery. But, just consider, how many people before Newton had apples and other objects falling on their heads, never leading them to such discoveries as that. It took a man like Netwon, who was a *having been* of many years of scientific preparation, for that event— that perturbation—to trigger the kind of compensation that led to the discovery of the law of gravity (Rebelo 2001). A simple fact, the falling of an apple, thus can indeed have very different meanings and consequences on grounds of who is perturbed by that fact.

Figure 3.7 - **Experiencing Colours**
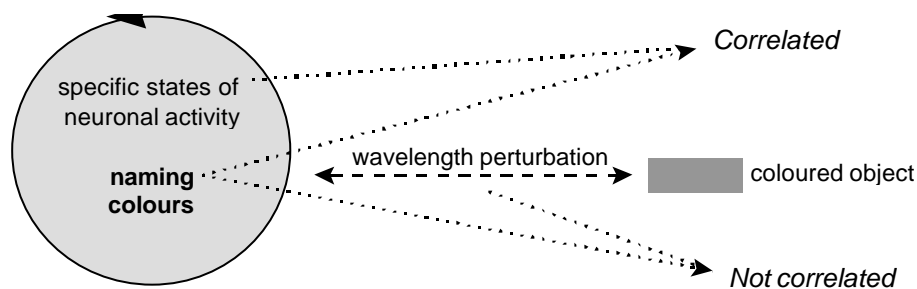
This autopoietical and Heideggerian based thesis on the nature of knowledge is supported also by Werner Heisenberg's (in *Das Naturbild her heutigen Physik*) dictum in that, nowdays, namely within the domain of quatum physics, "man encounters only himself". Heisenberg's argument is directed in particular to highly technological based sciences, yet within the context of this chapter, its pertinence to the human experience as such, pointed to by Heidegger (1977:23, 27), hopefully is made obvious. Quantum physics, the branch of science on which are based much of the recent developments on IT, studies the properties of the smallest materials, the particles.[108] Particles as such cannot be studied without taking into account the way in which they are observed – the observation is a disturbance. The epistemological consequence of this is that the laws of nature, mathematically formulated in quantum physics, do not apply to particles, as particles, but to our knowledge of particles (Tijmes 1995).

This conclusion makes the representation of objective reality to evaporate—"we can only objectify our knowledge of these particles" (ibid.240). Man is not only an observer of a

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[108] Particles or waves. What is found, either particles or waves, is what the scientist was previously looking for.

world but an author of it as well (ibid.). Thus, in bringing forth a world, "man encounters only himself". Nietzsche (1968:272, n.495) pointed also to this phenomenon: "We can comprehend only a world that we ourselves have made". Heisenberg's conclusion was triggered by the way in which quantum physics is essentially dependent of the technological apparatus. This aspect, which is emphasised as well by Hannah Arendt (1958:261)—"(…) whose qualities [of the world] we know no more than the way they affect our measuring instruments"—makes the argument particularly compelling for our addressing of the phenomena of information and IT.

We return now to Bateson's (1979) maxim: information is a difference that makes a difference. The *first* difference is thus the autopoietic perturbation, the Heideggerian difference between something that is captured and nothing. The *second* difference is the meaning of the perturbation as it is distinguished, that is, the kind of relationships in which the new distinction gains its references. This *second* difference emerges within our historicity, our structural determination, our throwness. Information, as such, belongs to bringing forth a world. It is enmeshed with the primacy of action.

Information can be formally indicated as the reflexive appropriation of distinctions—of data—by a particular person when involved in activities using that data, *making it present*, in-order-to achieve some result or to perform some activity. Information is an inward and individual process of making distinctions relevant to the course of actions within our involvement. Once a person has made an initial distinction, he gains further meanings as he relates it to other distinctions—such as objects, ideas, concepts, issues, and so on. This meaningfulness keeps on evolving as, for instance, a manager gets involved in a *situation* in which that distinction is *made present*. The more this initial distinction—what we would call data—gets into the involvement whole of the manager, the more can it be identified as *information* because it informs the actions the manager takes.

The notions of data, meaning, and information are only different modes of accessing a unique phenomenon, which is referred to as difference in Heidegger's terminology and distinction or perturbation in Maturana and Varela's words. Our kind of analysis, therefore, intends to be no more than a formal indication of a phenomenon that should be seen primarily as a whole.

Section 3.3.1 presents a phenomenological analysis of the etymology of the words information and data to support the claims made above regarding our theoretical development.

3.3.1. Etymologies of Information and Data

The current meaning of information can be synthesised as: "what is told; news" (OPDT:388). The English word information, a noun, was coined in the 14th century (MW) and has come to have two connected meanings. One refers to the communication of

something, for instance an event, a fact, a story—"the communication or reception of knowledge or intelligence" (ibid.). The other meaning points to the gathering of data—"knowledge obtained from investigation, study, or instruction: intelligence, news, facts, data" or "a signal or character (as in a communication system or computer) representing data" (ibid.)

The essence of the phenomenon of information, according to Boland, is revealed to us in the word itself—"The essence of information is revealed to us in its name. Information is an inward-forming" (Boland 1983:363). This *inward-forming* is suggested in the above definitions, for example in expressions such as knowledge, intelligence, investigation, or study. The meaning of inward-forming comes from the Latin origins of the word information—*in-formo* (Crane 2000; Cunha 1982:436, 364, 429).

According to Crane (2001), the Latin verb *in-formo*, which joins the expressions *in* and *forma*, means "to give form to a thing, to shape, form, mould, fashion (…) To form an idea of a thing, to represent, sketch, delineate (…) To inform, instruct, educate". The verb *formo*, to which the noun *forma* is related, means to shape, to fashion, to form, to adjust, to regulate, to dispose, to direct, to prepare, to compose. *Forma*, a feminine noun, means "form, in the most comprehensive sense of the word, contour, figure, shape, appearance". In general, it means shape, form, nature, manner, or kind.

Form has been an English word since the 13th century. It has its origins in the Middle English *forme*, which in its turn has its roots in that Latin word *forma*. Form has nowadays a plurality of meanings. Amongst the most used and relevant for our purpose, are the following: "the shape and structure of something as distinguished from its material"; "a prescribed and set order of words", "a manner or style of performing or accomplishing according to recognized standards of technique", "an orderly method of arrangement (as in the presentation of ideas)", "a manner of coordinating elements". In its transitive sense, 'to form' means "to give a particular shape to", "to model by instruction and discipline", "to arrange in order". The intransitive sense 'to take form' means to "come into existence" (MW).

This tracing back of some original meanings of the word information discloses the notion of a thing, or idea, that receives a form, a shaping, or a contour. The Latin word *informare*, from the verb *in-formo* (Crane 2001), "as Cicero (106-43 BC) used it, meant to impose a form on some thing, particularly on the mind, in order to instruct and improve it" (Borgmann 1999:9). All these notions point to the idea of a certain arrangement or order.

At this point, we need to raise the question of how, and by whom, this *form* is achieved. The answer lies in the way the Latin word *informare* includes the Latin *in*. *In* is a Latin preposition akin to the Sanskrit *an* and Greek *en*—used above in the expression *en heautoi* as part of our discussion of the origins of the word autopoiesis (Heidegger's 1977:10-1 in Appendix B). *In* means "within, on, upon, among, at, into, to, towards". It "denotes either

rest or motion within or into a place or thing" (Crane 2001). The English preposition 'in' comes from this Latin root and is used "as a function word to indicate inclusion, location, or position within limits" (MW).

The *in* of information thus means that a form, a shaping, a contour, is imposed on a thing or an idea. In a more general sense, a form or contour is imposed on a difference. This difference, distinguished from the environment, is brought in/into that which imposes those same contours or that form; the being who captures the difference is the entity that is the *in*. It is the human being who, while perturbed by a distinction, brings the new element that was distinguished "within [the] limits" (ibid.) he himself is—that is, within his organisation and structure. A form derived from within is therefore imposed on a distinction. These limits are thus bounded by throwness. Information is the bringing forth of the sense of a distinction, through a process that is, strictly speaking, organisationally dependent and structural determined. From a hermeneutic standpoint, the limits are the context on the grounds of which a new element comes to be distinguished and gets a first sense.

To grasp this phenomenon fully, we now examine the etymology of the word data. It has been part of the English language since the 17th century. It comes from the Latin, where it was the plural of *datum* (MW), which means what is given: "to give, offer, convey, offer, donate, furnish" (LEDH 2001).

The Portuguese language still preserves this characteristic of something *given* in the word data. The word data is translated in Portuguese as *dados*, which is also a form of the verb *dar*—meaning to give. Data is not only something given, but it is *essentially* given. It is something we access, obtain, get without effort; data comes to us, as something given: "*data* is plentiful and easily available" (H. A. Gleason, Jr., quoted in MW). Data is the difference a being distinguishes from its environment as such. This notion of data, at its fundamental level, is equivalent to the idea of being. The ontology on which this investigation is based assumes being (to be) as the difference, either in present actuality, in the past or in the future. Data is given, comes to us, much in the sense that Heidegger referred to the way that "being gets to me" (in Dreyfus 1991:239).

Nowadays, with the worldwide spread of IT devices, this given-ness of data supports its utilisation as "factual information (as measurements or statistics) used as a basis for reasoning, discussion, or calculation" (MV). This factual information, "information in numerical form that can be digitally transmitted or processed" (ibid.), is thus that which is given. As such, data is part of our dealingness in-the-world.

This analysis raises a question about whether it points to a recognition that the notions, the distinctions, of data and information are synonymous. The answer is both yes and no. We recall that a distinction is always a distinction for someone already immersed in a whole of references (Heidegger 1962), engaged in his own life, involved in-the-world, aiming at something (ibid.). Always-and-already in the world, anything a person can distinguish from

a background already has some sense. Thus, from the perspective of the living being as it lives its life, both data and information are always an inward-forming.

In fundamental terms, there is no difference between data and information, as both are meaningful because they were distinguished from their backgrounds. However, we have identified differences between them because they were revealed in their differenceness, and they were inwardly formed by the being's own access to them. So, from a theoretical perspective, keeping in mind the unity of the phenomenon, it might be useful to distinguish these notions.

A subtle distinction should be highlighted here. Human beings are self-observers. As such, we observe the behaviour of ourselves performing the kinds of reactions triggered while we act immersed in an always and already capturing of differences. Thus, from an observer's standpoint—even if the observation is a self-observation—a more strict signification of the inward-forming is its relevance to a particular course of action. The being itself relates its behaviour to the particular form, shape, or contours of some specific distinction he has made; the captured difference stresses its inward nature as it is a forming, a specific intentional involvement that the being takes as relevant to his own life. From this perspective, the difference is appropriately called information.

Data is the kind of difference whose fundamental meaning relies on its given-ness. It is the difference that is given as such. Analysed from this perspective, data does not necessarily affect the current behaviour of a living being, from the point of view of an observer or self-observer. Data is strictly that which is given. Taking into account the above description of information, data thus can be said to be decontextualised information.

On the other hand, information is the kind of difference whose fundamental meaning relies on its *forming* nature. It is the difference formed inwardly in a meaningful manner that affects the current behaviour of the living being as testified from the perspective of an observer or self-observer. Information is thus mainly that which is formed. So, from an *ex post* perspective, data is fundamentally *given* and information is fundamentally *formed*. These notions arise against the grounding criterion of action. The difference is formally indicated as information or as data in terms of the course of action in which a manager, for example, is involved.

With these distinctions in mind, we will conclude this etymological discussion by clarifying the notion of meaning already touched upon in the above argument. In our always and already involvement in the world, entities show up to us already referring one to another. Their showing up is essentially their referentiality. Differences are the showing up of something *as* something (ibid.). An entity is its relationships with other entities. A difference must have a sense that enables it to be the difference it is. This first sense of the new hermeneutic text or element—or the first grasping of an autopoietic perturbation—is the meaning of the difference.

That something has meaning indicates a relationship between it and another something. This relationship is disclosed in terms of our involvement whole. It is our involvement whole, the world of references and involvements that we are, that gives meaning to what we distinguish. For a distinction to be a distinction, therefore, it must already have meaning. Data as it is distinguished already is meaningful. Its meaningfulness, that is, its sense, is precisely that which enables the operation of distinction.

Meaning is the references and assignments of a distinction. Meaning is the sense that a distinction has to have in order to be a distinction. Meaning is already there, in-the-world, and we cannot decide on what such and such means or does not mean to us. "Meaning is that wherein the understandability of something maintains itself—even of something which does not come into view explicitly and thematically" (ibid.:370-1). So, there is no meaningless data, as Introna (1997:3-5) also argues. "Just as we do not see pure meaningless sense data which then must be interpreted, so we do not hear pure meaningless sounds" (Dreyfus 1991:218). "We hear the door shut in the house and never hear acoustical sensations or even mere sounds" (Heidegger 1971:26). "What we 'first' hear is never noises or complexes sounds, but the creaking wagon, the motorcycle… It requires a very artificial and complicated frame of mind to 'hear' a 'pure noise'" (Heidegger 1962:207). In-the-world, the things themselves, in their meaningfulness, are much closer to us than all sensations (Heidegger 1971:26).

"Everything has meaning" (Merleau-Ponty 1962:xx), because to be distinguished is precisely to enter the grounds of meaning. Logically, an example of meaningless data cannot be provided. When managers refer to 'meaningless data', they are just stating that what they were given is not what they are seeking, in terms of the kind of behaviour in which they are engaged; *a contrario*, this analysis highlights that information reveals itself as the *right* data for the course of action foresighted in advance. The inward formation of information is thus driven by action. The appropriation of data in its usefulness, in our engagement in *the situation*, informs us about specific courses of action or decisions which could be taken.

The unfolding of action happens in two ways: either while the manager is fully absorbed in his activities when he is dealing with available information; or while he first thinks about, and analyses ocurrent data before deciding what specific action he will take. The meaning of information, that is, its relevance in terms of action, is embodied by the manager as he relies on it within a background of intelligibility to act and perform in-order-to achieve some result for-the-sake-of being a good manager, or of getting a good evaluation from his superior.

In-the-world, information is thus the realisation of the meaningfulness of data in *the situation*. It is an action-based *making present* of the sense of the distinctions within the referential whole in which we dwell. By making present data, a manager-in-the-world, in a situation, within a projection he himself is, opens possibilities that makes sense for who he

is, as a *having-been*. As he uses data to perform some activity, he gets into an in-order-to and data *informs* his actions; as this data is relied on in action, it can be referred to as information. The making present of data—what information is—receives its meaning from the taking up of a possibility for being. Data shows up as the right data for the relevant course of action; for the course of action that is meaningful for the manager as he lives his life. Information thus receives its meaning from the primordial understanding of Being that Dasein itself is: a ceaseless chooser, on accounts of what he has been and what he is projecting himself to be, taking informed action.

This analysis is supported by a further twist in the etymology of the word information. To the Latin words *in* and *forma*, the English word information joined the suffix *-ation,* which has its origins in the Middle English *–acioun*. This comes from the Old French *-ation*, which in its turn comes from the Latin *-ation*, *-atio*. These Latin expression meant action or process (MW). *Actio, actiônis* meant "a doing, performing, acting, action, act" (Crane 2000). Thus, action is the meaning pointed to by joining the suffix *-ation* to the expressions *in* and *form*; this *in-form-ation* indicates an action that informs. This action that informs has its ontological meaning in that action as such in the ground on the basis of which data informs. Data informs because action is the ground. Thus, information gets its meaning from and is directed to action. Action is therefore the initial criterion for a distinction to be distinguished. It provides the grounding that makes it possible to distinguish something *as* something—that is, action as such is the ground, the *onta logos.*

To conclude, information can be formally indicated as data grasped from the action nature of the situation. It is the action*ation* of data.

3.4. Knowledge as Instinct

Already acting, we always make sense of a world that matters to us. We do not come to understand the world by reflecting on it, but rather we already understand it in our already ongoing action, in-order-to, for-the-sake-of-which. Our understanding of the world, that is, our *knowing how* to be in the world, is that which distinguishes us in our essential way of being—"In ordinary language we… say 'He understands how to handle men', 'He know how to talk'. Understanding here means 'knowing how', 'being capable of'" (Heidegger 1985:298).

This knowing how is our ability to cope in the world—it is not a knowing that, a capacity to explain this or that. To understand something has the meaning of 'being able to manage something', 'being a match for it', 'being competent to do something' (Heidegger 1962:183). Since action is where it is grounded, understanding means understanding-how-in-action. Thus, understanding reveals the world as the primary ready-to-hand entity; as such, this primary readiness-to-hand is embodied knowledge.

The ontological status of understanding needs to be clarified by contrasting the two different meanings of the verb to know: *knowing how* and *knowing that*. To know that is to be able to put what is understood into words, to describe it or to explain it (in the common meaning of the words describe or explain). For example, I can explain how a F1 car functions—each item that constitutes it, how the items relate to each other, what the machine can do—although I might not be able to drive it properly. Yet I might be able to drive the F1 car properly even if I might not be able to give a description of the machine and of its usage. In the former situation, I *know that* despite having a poor *knowing how*; in the latter case, I know *how*, although I perform worse in *knowing that*.

This knowing how is previous to articulation and to reflection. "We are always already experiencing and acting in the world before we ever question or explain an experience" (Mingers 1995:94). Only because we already understand the world can we make assertions about it. As Polt (1999:68) notes: "propositions are not a good clue to the essence of understanding, because we must already understand things *before* we formulate propositions about them (…) More fundamental than any assertion we may make is our ability to *do things* in the world in the first place." Thus, in-the-world, already acting, we accept explanations according to criteria that fit our *praxis* of living.

We always have a knowing how of being-in-the-world. As we find PCs, mobile phones, TVs, cars, and other entities in the mode of ready-to-hand, we enter a knowing how of these entities, that is, we understand them—"understanding a [computer] at its most primordial means *knowing how* to [compute] " (Dreyfus 1991:184). IT devices—hardware, software, or even concepts—are things to be used, as "(…) things are objects to be treated, used, acted upon and with, enjoyed and endured, even more than things to be known. They are things had before they are things cognized" (Dewey 1929:21). To have something, while acting with it, using it, or engaging ourselves with it, means to know it; the contemporary meaning of the verb 'to have' includes this 'to know' (OPDT:342). As we experience the world, we *know* the world. Whenever we reflect upon something, we always assume another something in which we base ourselves, in which we dwell. Knowing that is based on a knowing how, in the sense that "knowing presupposes dwelling" (Polt 1999:48).

Our beliefs and explanations are judged valid if they satisfy us according to criteria we assume are appropriate and pragmatic, "rather than by virtue of being true or false" (Mingers 1995:93). Validity, and to some extent the whole idea of truth, depends on ongoing structural coupling, as Nietzsche suggested a century earlier: "The falseness of a judgement is to us not necessarily an objection to a judgement (…) The question is to what extent it is life-advancing, life-preserving, species-preserving, perhaps even species-breeding" (Nietzsche 1990:35, n.4). Explanations are secondary to the actual praxis of living; they occur within it and they feed back into ongoing behaviour.

The cognitive experience—knowing how and knowing that—involves the knower "in a personal way, rooted in his biological structure" (Maturana and Varela 1992:18). Different

states of neuronal activity are triggered in each human being by his singular structure at each instant, being their sources either 'external' or internal—"perception should not be viewed as a grasping of an external reality, but rather as the specification of one" (Maturana and Varela 1980:xv). The interactions which a manager or organisation undergoes are not determined by some kind of linear process. Instead, the interactions are reciprocal perturbations between the entity and its environment. The others, things, descriptions, nature, involvements, and references only trigger actions by the manager or by the organisation; they do not specify the actions.

In our ongoing structural coupling with the environment, there are no 'causal relations'—this notion refers to the domain of descriptions, not to the domain of acting. As structural coupling goes on—as the manager keeps on managing, and as the organisation keeps on performing—we adapt to the environment rather than *know* the environment, in the common sense of the verb to know. This adaptation in action is the *knowing how* to live; it is to live as to know—"all doing is knowing, and all knowing is doing" (Maturana and Varela 1992:26), that is, knowledge is action (Maturana and Varela 1980:xxii, 119; 1992:29-30, 244, 248). Since action is the ground, to know is to live, and to live is to know.

We survive only as long as our living is congruent with our environment; it is in this way that we know how to live. It is this congruency that allows the recurrent interactions to persist, because they are meaningful to the entity. The relevance of a given conduct or a particular behaviour in which the living being engages is always based on the past—"the present state is always specified from the previous state" (ibid.:27). A living being keeps itself alive *in knowing what works*—"it functions always in a predicative manner: what happened once will occur again. Its organization (genetic and otherwise) is conservative and repeats only that which works" (Maturana and Varela 1980:27). Human beings are continuously immersed in a network of interactions, the results of which depend on their history of what has worked or not. Human beings are embodied historical systems, in which effective action leads to effective action. It is this circle of acting and knowing that characterises "our becoming, as an expression of our manner of being autonomous living systems" (Maturana and Varela 1992:241). What has worked is thus repeated without notice because it is the way *things should be.*

Every distinction, every meaning we encounter in our everyday coping in the world, is based on a background of intelligibility revealed in our social history. In-the-world, we are firstly attuned by our own pre-rational familiarity with the world and the millennia of our cultural and philosophical tradition (Polt 1999:67), which we embody and take for granted. "That whole kit bag of regularities proper to the coupling of a social group is its biological and cultural tradition. Tradition is not only a way to see and act, but also a way to conceal. Tradition consists of all those behaviours that in the history of a social system have become obvious, regular, and acceptable. Since they do not require reflection to be generated, they are invisible unless they fail" (Maturana and Varela 1992:246).

We recall Sacks' (1995:127) account of Virgil's recovery of sight: "As Virgil explored the rooms of his house, investigating, so to speak, the visual construction of his world, I was reminded of an infant moving his hand to and fro before his eyes, waggling his head, turning it this way and that, in his primal construction of the world". This is a strong example that helps to uncover the ways in which tradition—that is, behaviour, practices, and meanings—gets established by developing an embodied meaning of the world. Our background of intelligibility, embodied as we become Dasein, is the initial reference, the historicity that grounds the meaning we find in things in our daily coping in the world. We do not decide the meaning of the world we have already found, but rather the world is found because it shows up meaningfully.

The circularity of our way of being is thus an inductive system, in which whatever has worked leads the action. Involved, coping with entities in-the-world, we respond in the situation on the basis of the readiness of the world. "One responds on the basis of a vast past experience of what has happened in previous situations, or more exactly, one's comportment manifests dispositions that have been shaped by a vast amount of previous dealings, so that in most cases when we exercise these dispositions everything works the way it should" (Dreyfus 1991:68).

One responds by making present information on the basis of the readiness-to-hand of the world, as revealed in our involvement whole. Information grounds its essence in action in that actions transparently follow actions informed by the readiness-to-hand of the vast past experience of what works, which we ourselves embody (Maturana and Varela 1992, Varela et. al. 1991). This insight clarifies this chapter's opening quotation from my daughter Ana, in that 'information is an answer'. It is an answer to our always ongoing non-thematic coping in-the-world; it is how one responds to the non-thematic, embodied, and ever-present question of *what to do next?* This analysis is strengthened by Ana's responses when I asked her: 'To what question is information an answer?' She has always started her clarifications by appealing to concrete examples of human action. Information is instinctively disclosed in its readiness-to-hand when a person acts non-thematically according to what has worked, that is, not reflecting on the action—not so much of being aware of the self, but just of the situation. This instinctive disclosure of information's readiness-to-hand is knowledge.

Knowledge is a direct, non-mediated, access to the world. To know is "to perceive directly: to have direct cognition" (MW). Knowledge is immediate, not dependent on any other activity or operation; knowledge is the way we work, relying on the congruency between our structures and environment. Knowledge is, to some extent, the making present of data that information is without the *'making'* because it is information already there, embodied. Knowledge is the *presencing* of information in us, as already acting beings. In its readiness-to-hand, knowledge—as a knowing how revealed in action—belongs in the background. Knowledge is that on the basis of which a distinction gains its meaning; it is what we rely

on to perform some activity, or to distinguish a new element. In hermeneutic terms, knowledge is the context. From an autopoietic standpoint, knowledge is the living being itself, as it is, alive.[109]

Our claims regarding the frequently used notions of data, information, meaning and knowledge are summarised in Table 3.1.

Table 3.1 - **Data, Meaning, Information, and Knowledge**

+ FOREGROUND	**Data**	A distinction from a background. A perturbation of the living being.	+ REFLECTION
↑	**Meaning**	The references that enable a distinction to be distinguished; its sense.	↑
↓	**Information**	The making present of data. The appropriation of data by action.	↓
+ BACKGROUND	**Knowledge**	Ready-to-hand information. Embodied *presencing* of information.	+ ACTION

Here, we should recall that the phenomena of living and knowledge—as they are what they are in the world—are united. The notions of data, information, meaning, and knowledge serve only as ways into the whole that is this phenomenon. When specifying these notions, our intention is to provide a formal indication of particular kinds of experiences and, as such, to try to gain fresh insights into the richness of references that constitute the phenomenon of human action.

In trying to uncover how these notions relate to each other, one might start by asking how does data become knowledge. The answer is that in-the-world knowledge comes first. Any distinction can be grasped—established within an horizon of meaning—only because the living being already knows how to relate/distinguish the distinction. The person who identifies data is already in knowledge. Data appears only against a background of knowledge. The kind of data that might appear is dependent on the type of knowledge that constitutes the background; that is, what we know constrains what we might detect anew. Those distinctions we could possibly come to spot are limited by what we know, as we are, at each moment. Thus, what we distinguish is dependent on what we have distinguished. The way in which this dependency works is exhibited through the notion of information.

As a manager counts on data to perform some activity, we can say that data informs his actions. Information is the *right* data for the course of action undertaken. Action is an appropriation of data, whether it is body movements, speaking, reflecting, or deciding. The relevancy of data for a manager's actions, that is, for the meaningfulness of his behaviour

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[109] Besides Heidegger (1962) and autopoiesis, this position finds fundamental support in others texts such as Polanyi (1973), Wittgenstein (1967), and in the Oriental tradition of the Oneness between the self and world (Nonaka 1995:27-32; Buddhist Scriptures 1959).

for himself, is incorporated into the vast experience that he is at each moment. The way data is non-thematically perceived by the manager to have worked could confirm his intended behaviour; or, it could raise doubts, more or less radically, about that same behaviour. When doubts arise, a manager's structure changes in autopoietic terms; the manager learns, and the meaning of the data that triggered that changing/learning behaviour opens new possibilities for him to act. From then on, relying on information that changed him, the manager is able to distinguish what previously he was unable to, because he did not have the structures to spot new kinds of differences.

Let us consider a manager trying to decide whether or not to launch a new fast-food product. From the data he has, he knows that the chances of succeeding are 50/50. He decides to try to improve these chances by digging deeper into the data, trying to get new relations, new connections. Suddenly, he noticed that his main competitor had launched successful products only when the temperature was rising. So, he re-analyses his data and discovers a 90 per cent rate of success for all the company's new product launches during periods of good weather when the temperature was high. He is now informed about what to do, and has learned something that will affect his actions from then on. This new difference enables him to act in a different manner. When he next analyses similar situations, he will probably recall this distinction. And when he has done that enough times, his actions will take into account that difference without even recalling it explicitly. In this way, information has become instinctive; it has become knowledge, and is now part of the manager's vast past experience of what works. As such, knowledge works without requiring reflection.

Figure 3.8 depicts a continuum of the relationships we have presented so far in this section, from our beingness in language to the environment.

Figure 3.8 - **Action/Knowledge In-the-World**
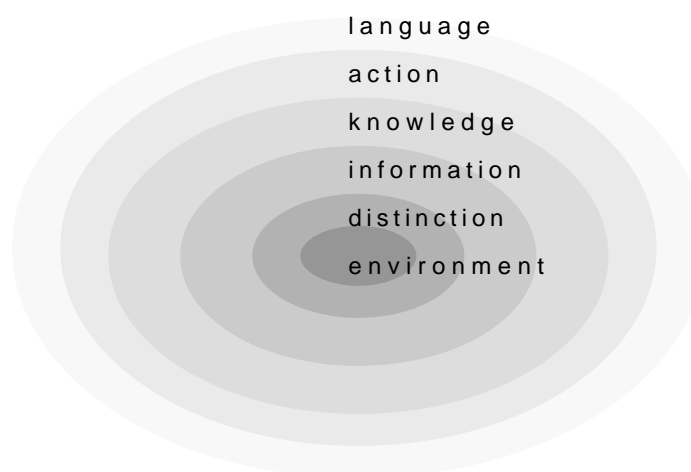
In-the-world we are experts in acting. Intuitively, we repeat what worked—this is what we *know* best. "We are not databases stocked with trillions of propositions that orient us in life. Oriented living comes first" (Polt 1999:69). Understanding the world, some actions

immediately show up as doable, as making sense, and others as not. Whatever doesn't seem to work, either because it did not work before or because it counters what has worked, shows up as non-feasible ways of acting (Dreyfus 1991:185). On the other had, anything which has worked has shaped our structures, moulded our disposition, affected our attunement—as such, it has opened specific possibilities for us to act in the future. The structural congruence that leads the manager to repeat what has worked is the instinctive behaviour to maintain himself as what he is for himself: projecting and articulating possibilities into the future. This aspect is crucial, as it shows that knowledge gets it primordial meaning from the future. In short knowledge is grounded on the need of the living being to keep itself alive as what it is—maintaining its identity.

"Dasein has, as Dasein, already projected itself; and as long as it is, it is projecting" (Heidegger 1962:185). The manager is an issue for himself, he has to be what its possibilities open up for him. He is always involved in something in which he takes a stand, he chooses, he goes along with the others, he withdraws, he goes this or that way. He always and already understands himself in terms of possible ways to be. "I'm a manager" means that this is a way in which I am meaningfully in the world. The possibility of being a manager is something important I took on for myself. The person who is a manager understands himself and world, to a greater or lesser degree, in terms of that seized-upon possibility. He approaches things, for the most part, as a manager—as someone who *knows how* to manage. This is much more of a determinant of future outcomes than any plans (Polt 1999). Intentions and plans are a derivative understanding of who he is, always formed on the background of being a manager.

Action, data, information, and knowledge are entangled in the ways referred to above. These notions are devised to help us to grasp the essential circularity of action and knowledge. "[T]his connection between action and experience, this inseparability between a particular way of being and how the world appears to us, tells us that every act of knowing brings forth a world" (Maturana and Varela 1992:26)—"[t]o know is to be able to operate adequately in an individual cooperative situation" (Maturana and Varela 1980:57). Knowledge is thus our instinctive embodied disposition, tendency, pattern of behaviour, grounded in our vast experience of what has worked, and directed towards a successful adaptation to our environment. In its essence knowledge is instinct. This claim, corollary of our argument in this section, is supported by Nietzsche's (1974:85) insight in that "[t]o this day the task of *incorporating* knowledge and making it instinctive is only beginning to dawn on the human eye" (italics from the original).

3.5. Recapitulation

In Chapter 1 we identified and established the contours of the guiding question of this investigation: *How does IT affect strategy?* We claimed also the need to make explicit the

ontological and epistemological assumptions of the investigation. This opened up a way for a phenomenological account of IT and strategy against an ontological background based on Heidegger's (1962) findings and on the theory of autopoiesis, which were thoroughly reviewed and matched in the Appendices of Part I of the dissertation.

In Chapter 2 we introduced phenomenology, characterised its key concepts, and presented the method of investigation to be applied in Chapter 4 to IT, in Chapter 5 to strategy, and in Chapter 6 to the relationships between IT and strategy.

In this chapter we match and develop the theoretical foundations of this investigation, Heidegger's (1962) findings and the theory of autopoiesis (Maturana and Varela 1980, 1992), in respect to issues particularly relevant to this investigation, namely action, meaning, data, information, and knowledge.

We show that action is the primary ground. Because ontology is revealed as *grounds for action*, action as such comes to be revealed as the grounding itself. The world as such is previously and self-evidently revealed as action. This primacy of action encompasses the being-in-the-world we are, and therefore it precedes reflection. The way the world is self-evident for us is first revealed as we are already going on in our dealings in and with the world. Action is that which always and already is.

This world of action firstly reveals itself in the background practices in which we dwell. The modes of being we encounter—the ready-to-hand and the present-at-hand—are founded upon this always and already acting-in-the-world. We are always already involved, choosing, going, standing, taking sides, and fulfilling possibilities.

Since man's essence is care and language (Heidegger 1962), which are two sides of the same coin, action as primary is logically found in man's essence. Living, as the living of myself, is a have been thrown into the world. This structural aspect of human beings is, in autopoietic terms, conditioned by human organisation, that is, by language as man's essence.

In language we are in-a-world that is meaningful for us, because meaning itself is something we shape for ourselves in language. Meaning grounds our actions because it shows how actions fit within linguistic behaviour. Information belongs to this bringing forth of a world in language. It is enmeshed with the primacy of action. It is the difference that makes a difference (Bateson 1979). The autopoietic perturbation or the Heideggerian difference gains its meaning as it is distinguished by reference to the relationships it holds to other differences.

Information is formally indicated as the reflexive appropriation of differences, of data, they make a difference to us while involved in activities and using that data in-order-to achieve some result. In-the-world, information is thus the realisation of the meaningfulness of data. Data *informs* actions. Information is an action-based *making present* of the sense of the distinctions within the referential whole in which we dwell. In information a manager-in-

the-world opens possibilities that make sense for who he is. Information thus is grounded on the primordial understanding of Being that Dasein itself is: a ceaseless chooser.

Human beings are embodied historical systems, in which effective action leads to effective action. It is this circle of acting and knowing that characterises us. What has worked is repeated without notice because it is the way *things should be*. In-the-world we are experts in acting. Intuitively, we repeat what we *know* best. Understanding the world, some actions immediately show up as doable, as making sense, and others as not.

When we act non-thematically according to what has worked, information is instinctively disclosed in its readiness-to-hand, and it can be indicated as knowledge. Knowledge is the way we work, relying on the congruency between our structures and environment. It is a direct, non-mediated, access to the world. Knowledge is grounded on the need of the living being to keep itself alive as what it is—maintaining its identity. Knowledge is thus our instinctive and embodied disposition, grounded in our vast experience of what has worked and directed towards our successful adaptation in and to the world. In its essence, knowledge, that is, ready-to-hand information, is instinct.

Chapter 4
On Information Technology

I am a technician, but I only have technique within technique.
Apart from this I am crazy.[110]

Fernando Pessoa (1888-1935)

A major part of our lives is entangled with IT devices. It is evident that both industrial and information technologies are now a fundamental part of our lives. "For all of us, the arrangements, devices, and machinery of technology are to a greater or lesser extent indispensable" (Heidegger 1966:53). This indispensability has increased enormously in the last decade. This investigation aims at a fundamental addressing of the nature of IT, as a phenomenon that is deeply penetrating organisations, people's daily lives, and societies at large. We claim that this phenomenological analysis will provide some insights into this issue.

When investigating IT phenomenologically, what we intend to think of is not the kind of data we work with while facing a PC, or the content of television as such, but rather the whole phenomenon of IT, in its *ITness*. It is IT as a content of a specific understanding of the world, and as a part, an enabler, or an element, of a concrete way of relating ourselves to and in the world that is the focus of this investigation.

In-the-world, we recognise IT as IT. What is it that enables us to recognise a TV, a PC, a mobile phone, a fibre cable, a software program, and so on, as IT? Heidegger (1962) and autopoiesis discard the 'list approach' to answer this kind of question (refer to the Appendices). We do not intend to focus on any IT device in particular, nor all of them in general. Our focus is that which is essentially common, thus decisive and vital to all of the actual and future devices that show or will show up as IT. We should stress that IT is not equivalent to the essence of IT:

> "Technology is not equivalent to the essence of technology. When we are seeking the essence of "tree", we have to become aware that That which pervades every tree, as tree, is not itself a tree that can be encountered among all the other trees. Likewise, the essence of technology is by no means anything technological" (Heidegger 1977:4).

We should remain open to the essence of IT that might be nothing of the deviceness of IT. This openness, this presuppotionless way, is one achieved by a full application of the phenomenological method of investigation. By applying the method we 'gather the data', to use a typical expression of academic research. A full and rigorous application of this

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[110] Our translation from the original in Portuguese: "Sou um técnico, mas tenho técnica só dentro da técnica. Fora disso sou doido", in *Poesias de Álvaro de Campos*, Pessoa (1980:248).

method leads to the collection of vast amounts of data. By necessity there will be some repetition—the same ideas, clues, and notions might show up at several of the phases of the method. To some extent this repetition cannot and should not be avoided because it is a central feature of the method itself. When a repetiton comes about one should verify if it brings new perspectives, new variations, or new meanings in diverse contexts. The flow of the analysis, in its several phases, might also lead to some results of little or no interest, which should be left behind as the investigation moves towards the essence of the phenomenon.

The diverse phases of the method are just a path into the phenomenon, which, as itself is, does not show up in the phases. The unity of the phenomenon, the extensive length of a full phenomenological investigation, the repetiton of findings, and the outcomes of little or no interest, seem to us a sufficient motive for phenomenological investigations usually to present their findings focused on the results of the method, and not on the flow of the method itself.[111]

We pay attention to these arguments when presenting the phenomenological analysis of strategy in Chapter 5. Yet as far as it concerns IT we decided to follow the six phases of the method formally, as presented in Chapter 2. We believe the disadvantages of this option are minor when considering some of the benefits that might arise on account of the infrequent use of phenomenology in information systems research. By splitting the six phases of the phenomenological method we are applying, we attempt to illustrate something that is indeed difficult to find in the literature: a concrete working of the phenomenological method.[112] We intend to illustrate the flowing of the method, letting each of its phases make manifest the ways in which it contributes to the coherence and strength of the unity of the method.[113] The objectives of each of the six phases of the method we apply in this chapter are as follows:

> **I - *Describing the Phenomenon IT:*** This phase aims at returning to IT as primarily and directly experienced, setting up the horizon of the phenomenon as

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[111] Heidegger (1962, 1977, 1978) does not give an account of his phenomenological method. Nonetheless his findings are only possible by a full and rigorous application of the phenomenological method, which he states he is following (1962:50). In *Being and Time* we can identify aspects of the description in Division One, I, II, III, IV, and V. The etymological analysis is often used by him: Introduction; Division One, I, and VI. The key Heidegger's ontological notion of being-in-the-world, as Merleau-Ponty (1962:xiv) notes, "can only appear against the background of the reduction". Division One, VI addresses directly the essence of man—its structural constitution and its key elements. Division Two is a presentation of the last phase of the method we are following—*Interpreting Concealed Meanings*—a phase which Heidegger himself introduced in the phenomenological method.

[112] To our knowledge there is only one occasion in the information systems research field where the application of the phenomenological method was presented by strictly following its several phases: "The Screen and The World: A Phenomenological Investigation into Screens and Our Engagement in the World" (Introna and Ilharco 2000).

[113] We hope that this presentation of a specific application of the method, although necessarily entering some repetition and addressing of marginal features, to some extent will answer the somehow recurrent question among Ph.D. students of 'What is phenomenology?' We hope to bring more colleagues in the information systems field to apply phenomenology.

free as possible from presuppositions, and as intuitively as possible. We are not looking for data in order to explain some preliminary hypothesis, nor trying to make sense of some previous intellectual construction about IT. Our central aim is not to explain but to describe IT.

II - *Analysing the Etymology of* **Information** *and* **Technology:** We shall trace back the origins of the words *information* (done in Chapter 3) and *technology*. This analysis is not destined to bring back the meaning of these words *per se*, but rather to bring forth the meaning of the *thing* itself, i.e., of IT, in the ante-predicative life of consciousness.

III - *Performing the Phenomenological Reduction Upon IT:* In this phase we perform the phenomenological reduction upon the consolidation of the findings of the first two phases, *bracketing out* the features concerning the actuality of IT; that is, the particular presence in time and space of particular IT devices.

IV - *Investigating the Essence of IT:* This phase aims at reaching the elements strictly necessary for the phenomenon IT to be what it is. This phase departs from the reduced phenomenon of IT, proceeding by stripping it of those elements that in spite of being common to all appearances of IT are not necessary, thus, leaving us the essence of IT. Through *a priori* insight based on logic operations, we will attempt to refine the essence of IT contrasting it with closely related phenomena.

V - *Watching Modes in Which the Essence of IT appears:* Having identified the essence of IT, thus gaining a new relation to the phenomenon, IT is now to be addressed concerning its essential appearances—the ways in which IT *essences*. The essence of IT might hide to a lesser or greater extent behind different appearances more or less intuitively connected. Our task is to pay attention to the ways in which the essence unfolds: its appearances, aspects, perspectives, contexts, and modes in which it indirectly shows itself. The ontological position on which this investigation relies, which began to emerge in the previous phases, and are to be fully used in the next phase, will decisively enter our analysis in this fifth phase of the method.

VI - *Interpreting Possible Concealed Meanings of IT:* This last phase of the phenomenological method is provided to give access to phenomena whose essence, whose meaning, have in themselves concealment. We will show it to be particularly relevant for the case of IT. This phase involves directly the ontological claims laid open in chapters 1 and reviewed in the Appendices, and

the theoretical development on information and action of Chapter 3. In this last phase that which is given, i.e., IT as it was opened by the application of the method, is taken into account in the analysis of that which, of *who*, is doing that same analysis, we, the being-in-the-world we ourselves are.

The analysis will carefully proceed by following the phases outlined above. Because the flowing of the analysis is a way into IT, and an argumentation (Heidegger 1977, Husserl 1995, Merleau-Ponty 1962), as we proceed phase by phase we found, in order to advance, some articulations as they show themselves pertinent at particular moments of our thesis. In this manner we aim at diminishing repetition, and improving the effectiveness of the argumentation. Although the nature of the phenomenological method always leads to some repetition of formulations and to reconsideration of statements and positions previously taken, we found this option to suit best the need to keep the presentation of the investigation within a sensible mass of text.

We recall that our aim is to "To let that which shows itself be seen from itself in the very way in which it shows itself from itself" (Heidegger 1962:58). In this important formulation 'that which shows itself' is IT, as the object meant, the idea thought, or the notion conceived; the expression 'be seen' means that IT has to be fully experienced in consciousness as it is primarily accessed; 'from itself' has the significance of making IT manifest, making it accessible in its togetherness, as the united phenomenon that IT is; and, finally the expression 'in the very way in which it shows itself from itself' means an understanding of IT in its own terms, i.e., as free as possible from presuppositions, pre-given contexts, and *a priori* explanations. Having this mind we now turn to a full application of the phenomenological method of investigation to the phenomenon of IT.

4.1. Describing the Phenomenon of IT

IT is now almost everywhere we look (Castells 2000, Giddens 1999, Feenberg 1999, Borgmann 1999, Beck 1997). It is at hand and it is in sight. We use it, we see it, we think it, we rely on it for many of our daily activities. Yet, what is the 'it' that is in sight and at hand? Devices, especially computers.

The first intuitive answer to the question of 'What is IT?' is *computers*. "Today IT is the computer" (Borgmann 1999:166). In order to capture the common and most acceptable contemporary meaning of the word IT, we will rely on a sample of widely accepted definitions, particularly in respected dictionaries. For example, IT is said to be the technology involved in the recording, storage, processing, communicating and dissemination of information, using computers, microelectronics, and telecommunications (OERD 1996, ME 2001) and the study or use of processes, computers and other electronic means for storing, retrieving and sending information (OPDT:388). In general, IT is the "practical applications of computer systems" (OPE 1998).

As we open ourselves to the flow of entities we call IT, many items either devices or services keep on appearing: television, video, DVD, high-definition TV, VHS devices, videotext, Internet, electronic mail, servers, mainframes, desktop, labtop and palmtop computers, disks, phones and mobile phones, mobile data, text, sound, and video, paging, video conference, fax, electronic communications gear, copying and printing machines, photo apparatus, hardware infrastructures, software applications and peripherals for all of these devices. In short, IT is described as the kind of technology that acts on information (Borgmann 1999, Castells 2000) through devices which capture, store, process, and distribute text, numbers, sounds, images, and any combination of these.

These initial lines have touched on an obvious feature of the phenomenon under investigation: IT is not an object, but many objects. IT always appears as *IT-and-something-else*: experiencing a computer, we experience IT; when watching TV, we have a feeling of what IT is; in using a mobile phone, we use IT, and so forth. These devices, and many more that belong to IT, appear within a realm previously opened by that which IT itself is. We are not talking about a table, as it were. We are addressing a phenomenon, which in its very appearances already is a notion in consciousness. IT devices are *appearances* of the phenomenon of IT that, as such, shows itself only unthematically (Heidegger 1962, Husserl 1995, 1964). The role of this phenomenological analysis is thematically to bring IT to show itself as what itself is.

In spite of being a notion in consciousness, an initial addressing of IT delivers us over immediately to that which appears by empirical intuition. What primarily appears as IT is the empirical intuition of a computer. Our claim, to be verified by the personal experience of each one of us, is that as we decide to begin a phenomenological description of IT the computer already is gathering the theme. In this theme, within IT, devices refer one to another. For example: the computer refers to office, software, work, Internet, and so forth. Internet refers to work, software, entertainment, house, office, and so forth. The house and the office both refer to phones and mobile phones. Phones refer to information, to communication, to coordinating action, which in turn refers to television, to computers, to many other devices and services. All the IT devices are within a referential whole in which each of them refers to the others. They all refer to a world, a world in which they are what they are. These devices, in their ITness, are the way in which the phenomenon of IT first shows up. This initial showing up is not the phenomenon of IT, but rather it is an *appearance* of it. A computer is an appearance of that which IT is; yet a computer, itself, is not the phenomenon of IT in its wholeness.

Why are all of these devices technologies *of* information? Apparently because they all are technologies that relate to information; because information characterises the kind of

technology they are.[114] Thus, from a purely descriptive perspective IT means *informational* technologies—a technology that has an *informational* character. [andre][115] IT is the kind of technology that acts on information (Castells 2000:70). IT devices *act* on information, capturing, processing, storing, transforming, and distributing text, numbers, sounds, images, and any combination of these. Actions on information direct themselves to, and are apprehended by, the human senses, mainly hearing and vision. [116] This kind of information—data on which IT acts—reveals itself much more complex than other, so to say, types of information.

Technological information (Borgmann 1999) has differences from other types of information. Information pertains to reality, either as information *about* reality, information *for* reality, or information *as* reality (ibid.). In the first case, information about reality displays its pure condition in a natural environment: dark clouds in the sky tell us it might be about to rain.[117] In the second case, information for reality has an unnatural prominence and stability. Information then stands out from nature; it is detached from its environment and rendered mobile, such as mail or maps (ibid.); it provides the grounds for a reordering of reality.[118] The third case, technological information reorders reality as such (ibid.). It adds to information *about* and *for* reality, information *as* reality. Its key characteristic is *recording*, contrasting with the *recipe* of information *for* reality, and the *report* of information *about* reality (ibid.). "The technological information on a compact disc is so detailed and controlled that it addresses us virtually *as* reality. What comes from a recording of a Bach cantata on a CD is not a report about the cantata nor a recipe—the score—for performing the cantata, it is in the common understanding music itself" (ibid.:2), the cantata itself. At this level, information steps forward as a rival to reality (ibid.).

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[114] In this descriptive phase we use the word information relying on its common accepted meaning, as prescribed by the phenomenological method of investigation. Information thus means text, numbers, audio, video, or any combination of these (DS 1999). In this sense the words information and data are equivalent.

[115] My son André wrote his name in here (May 2001). He likes to key in his name as he notices an open document on a PC with no one nearby… I think this action of his is elucidative of some aspects that are emerging: the pervasiveness of IT, and the way in which IT devices are used in realms of human structural coupling (refer to Chapter 3 and to the Appendices).

[116] It would be correct as well to refer to some extent to the relevance of the sense of touch concerning the way in which humans appropriate IT. The physical presence of IT devices is evidently relevant and participant in our *knowing* of IT. As we manipulate those objects, in our bodily presence, we get accustomed and experience new or different aspects of the devices. Meanwhile the human senses of tasting and smelling continues timidly to be targeted by the development of new IT devices and applications; as an example, we refer to the recent Indian effort to patent the invention of a television with smell.

[117] "An expanse of smooth gravel is a sign that you are close to a river. Cottonwoods tell you where the river bank is" (Borgmann 1999:1). In the natural setting of signs each thing refers to another, informing about reality "in a settled order of reference and presence" (ibid.). Natural signs emerge from environment as they themselves are natural environment: the sign is the thing. Besides this original natural information, other types of signs constitute information *about* reality as well. A purely descriptive report, stating what is where in a particular setting, is an example of this kind of information about reality (ibid.).

[118] "Signs came to stand apart from things and at their origin of entirely new things" (Borgmann 1999:2). Covenants helped tribes to become nations, plans guided the construction of cathedrals, and scores enabled musicians to perform cantatas (ibid.). "An economy of cultural signs came to enrich the realm of natural signs" (ibid.).

These distinct types of information are entangled together. The succeeding kinds of information heighten the function of their predecessors and introduce a new type of function. "Cultural information through records, reports, maps, and charts discloses reality much more widely and incisively than natural signs ever could have done" (ibid.). Technological information lifts "both the illumination and the transformation of reality to another level of lucidity and power" (ibid.:2). It can be said that IT devices, as extensions of the human senses (McLuhan 1994), amplify man's capacity to disclose, to interfere, and even to rival or replace reality.

Summing up, *noematically* describing IT we observe that it mainly shows up as a multitude of physical devices. IT devices show up as material objects, mostly made of metal and plastic. Inside their surfaces, where buttons and a diverse set of commands show up in order for us to push them as appropriate, there lie complex pieces of electronic engineering, which powered by electricity make the machines run. *Noetically*, each IT device belongs to its *own* place, which is in accordance with the referential whole. Within the referential whole the device gains its meaning, *as something*. Bearing this in mind, we now refer to key aspects of descriptions of three of the most used IT devices: the PC, the television set, and the mobile phone.

The PC is a physical device, a machine, an *allopoietic* being (Maturana and Varela 1980). It looks like a box and attracts our attention to one of its aspects: the screen. To some extent, all the parts of the PC seem to be *dispensable* except the screen.[119] The PC discloses its mode of being, and the purpose of particular spaces and comportment, when supporting our activities at work or home. The PC is a machine for doing specific kinds of tasks. Everyone knows how a PC should be dealt with. No one uses a PC to sit on. The PC has its mode of being dealt with, in order to perform particular activities, and not any others. As such it supports our activities either at the office, writing a document or drawing a chart, or at home, reading the news or surfing the Internet. The specific ways in which the correct tasks are to be performed, in spite of the currently accepted discourse on PC's user friendliness, are strictly defined by manufacturers and it is not something the user can change.

A PC on a desk identifies the kind of activity performed by the person who sits there. When the PC is switched on, it indicates that the person who is using it is in a specific involvement. The person is relying on the readiness-to-hand of the computer to focus on the issue at stake, whether it is working, reading the news, playing a game, drawing, listening to music, or anything else which can be enacted by using the computer. When we push the *on* button, the PC engulfs our concerns. We quit other activities we may have been doing;

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[119] All the other sides of the PC—the PC monitor—seem to hide behind the screen. This description makes manifest that we intuitively focus the presencing of the PC on its monitor, relegating the other components of the machine to a secondary plan. The keyboard, the mouse, the CPU, the cables, seem not to seen as so fundamental parts of the PC as the monitor. As far as the cables are concerned we can even notice a tendency physically to hide them. This view of the intuitive appearance of the PC seems to be supported by the continuous shrinkage of a PC's dimensions, and the pursuance of new kinds of machines, such as the "NetPC" (a PC without CPU), and new forms of interfaces (such as voice and speech recognition).

while watching the screen, we get on with whatever specific activities are relevant to us at that particular moment. A PC forces users to face its screen, and to act through the keyboard and mouse. Often, the PC is the point of convergence of our concerns at office or at home.

The particular situation to which a PC belongs, and indeed helps to reveal, as pointed out above, is also shaped by the software that each particular PC runs. For example, executive information systems (EIS), *per se,* indicate to some extent the kind of activities, interests, and responsibilities of the person who uses the PC that runs that application. Yet, contrary to what one would expect this argument to lead to, the standardisation of the software is a feature that deserves to be taken into account while describing the PC.

There is some commonality between our description of a PC and that of a television set. Both have the screen as their central point, and both present data. However, the data on a TV is not produced, stored, or recovered by the user, as is the case for the PC. A PC is a mechanism that creates data. The PC immediately suggests the office and work; the TV points to the house, the living room, and to leisure. These situations are not the only ones we have found in using either of these two IT devices, but they seem to be the typical ones.[120] Like a PC, the TV presents itself as a user-friendly device. However, the user friendliness of computers, and to a lesser extent of TVs, are manifest only for those who are already *friends* of computers and TVs. As such, the TV and the PC engage and involve us as long as we do what we are supposed to do when using these devices.[121]

PCs and TVs exhibit what was previously captured, processed, organised, structured, and finally presented on the screen. These devices exhibit what is supposed to be relevant data in each context, be it a movie while watching TV, a spreadsheet while working at office, or a travel schedule while waiting in an airport. PCs and TVs, as they are in-the-world, always find themselves at the centre of the activity: what they show on their screens attract our attention and our physical presence, which locates where we carry out our activities. Actions of these users are shaped by the presence of a PC or TV which has been turned on, and by the kind of data presented on the screen and the user's implicit understanding of that data in his surrounding social context. This generates particular behaviour and attitudes. Although it is obvious that a PC is a PC and a TV is a TV, there are, as shown, many common features on these devices. This commonness grounds ITness as such.[122]

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[120] There are professional environments in which the TV is essential for the work to be performed, such as Stock Exchange trading rooms. Yet, although the professionals constantly keep their eyes on the TV, it is on the computer nearby that they perform their activities: buying and selling stocks, advising on financial strategies, and so forth.

[121] As televisions include more and more features and become more and more complex, this aspect is more easily grasped.

[122] Silver coloured TVs are being introduced in huge numbers in the markets. The appeal of this colour is a metallic one, of something hard, artificial, produced, sophisticated, powerful, i.e., its appeal is a technological one. The metallic colour of many TV sets, particularly of the more recent and sophisticated lines, is a manifestation of the ITness that TVs embody, and of the growing convergence of IT devices, such as the PC, the Internet, and the TV.

We have seen how ITness is entangled within places to which IT devices belong. Yet, this belonging to a place of each IT device is primarily and fundamentally a belonging to a *situation*: to work, leisure, travel, and so forth. This explains why the portability of IT devices is a trend on the move. IT devices are becoming small and smaller. The mobile phone is an example of this trend. In looking at experiences of using the mobile phone, it becomes clear that the *belonging to a place* of IT devices is primarily and fundamentally a belonging to a situation. The situation shapes, and is shaped by the device. This is why the computer, TV, and many IT devices are becoming mobile.

As the mobile phone is portable, it can be said to be located with our body. More rigorously, its *place* is our experiencing of the world. Close to our body, *within* our 'bodily experiencing of the world' (Merleau-Ponty 1962, Varela et. al. 1991, Borgmann 1999, McLuhan 1994), the mobile phone is coupled to us and it pertains to our structural coupling in the world.

A mobile phone is light and small; we usually carry it without noticing it either when using it or not. Our primary contact with the mobile phone is one of holding it, carrying it, speaking, and hearing through it. This contrasts with the experiencing of TV, which is one of seeing and hearing, and with the working with a PC, which is an experiencing of seeing, reading, and keying. Yet, as IT, all of these devices extend our senses (McLuhan 1994).

We use the mobile phone for speaking to people who are out of sight, who we do not need to know where they are. This is a key difference to the traditional telephone, which belongs to a physical place—not to a person. When we dial the number of a fixed phone we need to assume that the person we want to reach is at a particular time in a particular place. Because it is evident that, when dialling a fixed phone, we always want to talk to a person, most of the times to a particular person, one should admit that the mobile phone improves the efficiency of our communicating with others as it improves the effectiveness of reaching the person we want to reach. Borgmann identifies this efficiency as the aim of the 'device paradigm', which is the formative principle of a technological society that is developing with IT (Borgmann 1984:40-48). Thus, as mobile phones belong to individuals, each user becomes *a-person-always-reachable*. The mobile phone number is now the *location* of people (Angell 1995, 2000), thus a key entity of the IT society.

Does any other IT device resemble the mobile phone? There is indeed one device whose physical appearance is rather similar to the mobile phone: the TV remote control; moreover, surprisingly perhaps, some of the key traits of the mobile phone are the same as those of the remote control. Being a phone, the *remote* character of the mobile is obvious. But is it a device of control? The control the mobile phone brings to our lives seems intuitive. In supporting a more unplanned daily activity apparently it would diminish the control over the activities in which we are involved. Yet, it is because the mobile has made them controllable, that unplanned patterns of activity are able to thrive. This is captured in a common mobile phone promotional message '*always connected, you are in control*'.

Described from this perspective, the mobile phone can be seen to be a device that accelerates the unfolding of the orderability of the real. It reveals people and other entities as permanently and instantaneously controllable. The mobile phone apparently promises to free-up its user's time. However, the logic underlying its functioning is mainly one of greater efficiency. The always-in-a-hurry hero in a David Lodge's novel is asked: "What do you do with the time you save?" The answer to this question highlights a central feature of the maturation of IT in our contemporary world. The time saved by the mobile phone is intuitively overlooked; having saved time, we keep on doing more of the same, thus aiming at raising the output/input ratio to improve efficiency.

The mobile phone, just as the other IT devices, is a ready-to-hand entity. We count on it as it supports possibilities for the unfolding of our involvement in the world. The more we rely on this potential, the more it shapes our actions, attitudes, and options. This kind of support affects most decisively the pattern of our daily activities, not just the actions of each person on each particular day (McLuhan 1994, Angell 1995). The emergence of new contemporary management trends, such as the club-company or the shamrock organisation, referred to by Charles Handy (1990, 1995), or the teleworking, the extended enterprise, the free-lancer experts, or even downsizing practices, are supported by this new pattern of mobility.

The mobility of the mobile phone apparently removes all relevance of the place in which we are. The location where we are and where the person we call is, apparently does not concern us; we can always reach and be reachable. This 'death of distance' is a recurrent claim of some literature on the social and business implications of IT (e.g., Cairncross 1997). But this claim does not hold against phenomenological scrutiny. Today we call a friend's mobile phone and usually ask where he is?! We shall admit that many of the conversations we have while using mobile phones begin precisely by asking and answering where we and our interlocutor are: Where are you? Have you already arrived? Are you near here? Where are you calling me from?

This initial coupling, asking for the places where the interlocutors are, has two different and apparently contradictory meanings. It means that what is critical for the being of the mobile phone is not the places where the interlocutors are, but that they do not need to know where each other is in order to communicate. This is the novelty the mobile phone has brought to our contemporary lives. Nonetheless, the content of many initial conversations means exactly the contrary of what this might apparently suggest. That the talk on mobile phones in a great many cases starts by asking about the places where the interlocutors are means that after all the location matters; it matters most in many cases. This points to the unavoidable fact that we are bodily beings, in-the-world. All possibilities for action emerge against the primacy of this ontological background.

As ready-to-hand beings, in their pervasiveness, mobile phones, PCs and TVs become part of the background against which we dwell. As ready-to-hand entities they withdraw from our attention. They hide their presence when we do not use them. In being used they

mobilise our actions, often also our physical presence, as they locate our activity. They are often the *medium* of the focus of our concerns in a given situation. IT devices gather the people that surround them, and shape their actions. This surrounding refers to the people we are talking to on the phone, to the people with whom, at the same time, all over our country or the world, we are watching the same TV program (McLuhan 1994), to the people with whom we share the same Internet site or newsgroup. Actions of these persons are shaped by the PC or TV, by the conversation that is going on on the phone, by the kind of data presented, and by the understanding people implicitly have of that same data, all of which affects comportment and attitudes.

Our sense of IT devices, grasped from their concrete usage, discloses more than their instrumentality; they make sense to us within a *form of life* that we already share (Wittgenstein 1967). This form of life is one that includes ITness as IT devices show up transparently in their readiness-to-hand most of the time in many and diverse places and situations. This description of mobile phones, PCs and TVs, leads us to the notions of presenting relevant data for and about each particular situation, of attracting attention, of acting as a mediation between ourselves and the world, and of gathering that which is appropriate in each particular context

So far, we have described how IT appears, not yet what IT *is*. IT appears as a collection of devices united by the fact that they are all IT, which is a concept independent of any particular IT device. Considering a PC, TV, or mobile phone as an IT device implies a previous idea of IT itself. Thus, the notion of IT[123] is the first mode in which the phenomenon we are addressing appears. IT devices are united in a *synthesis of identification* (Husserl 1995:39-41) that shows them in their *togetherness*. IT is therefore more than only IT devices. IT is precisely that which characterises those devices as IT devices. This takes us a step closer to the essence of IT, which might sound rather paradoxical at this descriptive phase. Yet, because the investigation is led by the *thing itself,* we should ask: Do IT devices imply in their very appearances anything that is common and crucial to all of them, which would be essential to IT? As we are still describing appearances and have not yet penetrated the realm of essences, the plausible answer at this stage would be *No*.

Nonetheless the answer to the above question is actually *Yes.* There is something common, and to some extent fundamental, about the computer, TV, mobile phone, and to many other IT devices: the screen. The overwhelming presence of screens in IT, and so in our daily lives, suggests that the screen, qua screen, might be closely related to the essential nature of the phenomenon of IT. We act on, and with, most information technologies by observing

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[123] This is to some extent a recalling of Plato's *Idea*: that which remains the same, beyond the appearances of what exists in a particular historical context.

and touching screens.[124] The screen is the typical interface of IT. The screen shows us, it informs us of what is going on—it shows the actual situation, and the options for action. This means that the screen might be closely related to the essential nature of the phenomenon of IT. Their monumental presence in our daily lives, support indeed an interesting etymological based interpretation of this case: the screen has much the meaning of being *the skin* of IT.[125]

To conclude, *noematically*, IT is an open collection of physical devices situated at appropriated contexts because they already presuppose a form of life in which they are meaningful. IT devices attract our attention, and our physical presence as well. They provide relevance about/for us. Their mode of being is ready-to-hand, as they are in a world in which we *always-already-are*. *Noetically*, the readiness-to-hand of IT is deeply enmeshed with seeing, speaking, and hearing, thus with language, and so with human structural coupling.

The modes of consciousness in which we experience IT are united in that IT is something we transparently use. While using a PC, we read, calculate, write, and do other things within a context of what matters to us. Watching TV, we see and hear about issues that are, or might be, of interest to us. Talking on the mobile phone, we coordinate our activity as we go on with our dealings in the world. In-the-world, immersed in data, that is, entangled with the difference Being makes to us, we are already acting with/in IT. The kind of *cogitatio* of the *cogitatum* that IT is, is an *experiencing* and a *living* with and in IT.

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[124] This reasoning is supported by the way we can use either the word 'screens' or the expression 'PCs and TVs' when presenting a great part of the description under way. As an example, and synthesising, some passages of the text from above: "Screens/PCs and TVs present, show, exhibit, what is supposed to be the relevant data in each context, be it a movie while watching TV, a spreadsheet while working at the office, or a schedule while walking in the airport. Screens/PCs and TVs exhibit what was previously captured, processed, organised, structured, and finally presented on the screen. For the case of the PC, the user in many instances creates the data presented. As far as TV is concerned, the user watches the data presented on the screen. Screens/PCs and TVs always find themselves at the centre of the activity: in displaying they attract our attention, often also our physical presence, as they locate our activity. They are often the focus of our concerns in that environment, whether at the office, working, or at home, watching a movie or the news. Screens/PCs and TVs gather the attention of the people that surround it. Actions of those people are usually directly shaped by the presence of the turned-on screen, by the kind of data they present and by the understanding people surrounding implicitly have of that data, which generates particular behaviour and attitudes. Screens/PCs and TVs mainly function as Screens/PCs and TVs when turned on. If they are turned off they tend to be just objects in the background. Burt screens/PCs and TVs do not come to the foreground when we attend to them to turn them on; quite the contrary, turning them on means the arrival of their presence as ready-to-hand entities, which as such, shape and contextualise our actions but are not directly the focus of our explicit attention. When we push the 'on' button the device locates our attention, we sit down, quit other activities we may have been performing, and watch the screen/the PC or the TV, as it is location where that which is relevant to us at that particular time is to take place."

[125] This observation is supported by an etymological analysis of the word screen. Its origins go back to the 14th century; it evolved from the Middle English *screne*, the Middle French *escren*, and the Middle Dutch *scherm*. It is a word akin to the Old High German (8th century) words *skirm* and *skran* that meant shield or a barrier of some kind (WD 2000). These old words have possibly evolved from the Sanskrit (1000 BC)[125] words *carman*, which meant skin, and *kränti*, which signifies 'he injures'. The Sanskrit origins suggest the notions of protection, shield, barrier, separation, arose as metaphors of skin, possible of animal skin (Introna and Ilharco 2000).

4.2. Analysing the Etymology of *Information* and *Technology*

Phenomenology takes etymology as a means, not as an end in itself. The analysis of the etymology of the words identifying the phenomenon of IT is devised to bring back the evolution of meanings around which the *cogitatum* under analysis unfolded, and was given a name. Etymology is used as a way into the phenomenon addressed by the joining of the words *information* and *technology*. The historical unfolding of the meanings of these words should give us clues into the nature of the phenomenon of IT.

IT is a diminutive of something we address by joining the words *information* and *technology*. It is a relatively new expression, recognised only by a few of the English dictionaries.[126] Still, we should note that this abbreviation (IT) is one that succeeded when addressing the phenomenon at stake, which means that it should capture the maturation of meanings around which the *thing* we call IT discloses itself to us.

When referring to the word information we rely on the etymological analysis presented in Chapter 3.[127] Technology has been an English word since 1859 (MW 2001). It has its roots in the ancient Greek words *technê* and *logos* (MW 2001, Heidegger 1962, 1977, Crane 2000). These two words joined in the word *technologia*, which meant the "systematic treatment" (Crane 2000) or the "systematic treatment of an art" (MW 2001).

Technê is an early Greek word used by Homer (8th century BC) and Aeschylus (c.525-c.455 BC). *Technê* meant art, skill (ibid.); cunning of hand (Crane 2000); an occupation or craft of the plastic art or of trade (GHDI 2001).[128] In Greece by the 4th-5th century BC, *technê* received further meanings: "way, manner, or means whereby a thing is gained, (…) an art or craft, i.e., a set of rules, system or method of making or doing, whether of the useful arts, or of the fine arts" (Crane 2000).[129]

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[126] Two recent dictionaries that include 'IT' as an abbreviation for information technology are *The New Penguin Dictionary of Science* (1998), and *A Dictionary of Accounting* (1999).

[127] We recall the key traits of the etymological analysis presented in Chapter 3: Information has been an accepted English word since the 14th century. It means "what is told; news"; the "communication or reception of knowledge or intelligence"; the gathering of data "obtained from investigation, study, or instruction: intelligence, news, facts data"; or "a signal or character (as in a communication system or computer) representing data". For Boland (1987:363), the essence that unites all of these notions of information lies in its name: "Information is an inward-forming." This inward-forming is disclosed by the Latin origins of the word. The Latin verb *in-formo* joins the expressions *in* and *forma*. The verb *formo* meant to shape, fashion, form, adjust, regulate, dispose, direct, prepare, and compose. It can indicate giving form to a thing by shaping, moulding or fashioning it. *Formo* could also mean to formulate an idea of a thing; to represent, sketch, delineate, instruct, or educate. The Latin preposition *in* means "within, on, upon, among, at, into"; it denoted "either rest or motion within or into a place or thing". The English *in* comes from this Latin root: a preposition used as a function word to indicate inclusion, location, or position within limits. The Latin word *informare* is a derivation from the verb *in-formo*, meaning the imposition of a form on some thing, particularly on the mind, in order to instruct and improve that same thing. In this process, a thing or an idea receives a form, a shaping, a contour, which is set "within limits" that evidently belong to the one who is making the forming. These limits are *we*, as we ourselves are.

[128] GHDI: *Greek and Hebrew Dictionary Index* (2001), http://home.sol.no/~ggunners/bibel/dict.htm, February 1, 2001

[129] See, for example, Plato (*Phaedrus* 245a, 271c, *Phaedo 89e,* 90b, *Euthyd.* 282d, *Republica* 381b, *Ion* 532c) and Aristotle (*Rethorics* 1354a11, a12, *Nicomachean Ethics* 1140a8); all references from Crane 2000.

Technê can be traced back to the word *tikto* (GHDI 2001, Heidegger 1978:361), meaning to bring forth, bear, or produce: to produce "fruit from the seed", to bring into the world. Its main signification was the bringing forth "of a woman giving birth", "of the earth bringing forth its fruits" (GHDI 2001).[130] *Tikto* came from *teckos* and *teknon*, which meant the young, a son, the offspring (Crane 2000, GHDI 2001). *Teknon* came from *timoria* and *timoreo*, which meant rendering help, assistance or, in contrast, vengeance, punishment (GHDI 2001). The word *timoreo* has its origins in the words *ouros*, meaning "guard", and *time*, the "valuing by which the price is fixed" (ibid.). *Time* came from *tino*, which signified either to pay a penalty or to provide recompense, referring to the consequences of a human act (ibid.).[131] These consequences are devised to influence a mode of behaviour. This analysis points to deeper origins of the word *technê* as the meaningfulness of a particular way of acting, and being. As such a mode of being, *technê* hinted at *decisiveness* because it grounded action.[132]

Hence, the kind of opening-up that *technê* provides is not strictly a technique, but a bringing forth, an ontological revealing (Heidegger 1977:13, 1978:361). *Technê* is the background against which what appears, appears. It is a mode of *alêtheuein,* of the possibility of truth (Heidegger 1978). The specific character of this revealing is disclosed in another ancient Greek word, *technêtos*. *Technêtos* was used later in ancient Greece to mean *artificial*, as opposed to *natural* (Crane 2000). It emphasised the human action of the bringing-forth of *technê*—a *technê* in which man was actively involved.

The ancient Greek *logos* is the origin of the '-logy' of technology. Literally translated, *logos* usually meant ratio, grounds, subject-matter (ibid.). It also meant the ground, the reason, the ratio.[133] The word also has other meanings, such as "the 'subject-matter', which, as present-at-hand, already lies at the *bottom"* (Heidegger 1962:58). *Logos* was widely used with the above meanings by ancient Greek authors, such as Plato, Aristotle, Demosthenes, Isocrates, and Demades.

Early in Greek civilisation, *logos* meant word, talk, or speak (Homer Iliad 15.393, Odyssey 55 in Crane 2000). Heraclitus used the word *logos* to mention the notion of essential

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[130] The word was also used to refer to the *bearing* of young and *breeding* of female animals (Crane 2000). As a metaphor *tikto* could mean to bear (GHDI 2001), to generate, to produce (Crane 2000). Other meanings include "be delivered, be born, be in travail" (GHDI 2001).

[131] *Tino* still is a common word in the Portuguese language meaning sense, judgement (MVOI:300).

[132] At this point, one might wonder how could any word hold in itself such diverse and different meanings. We should recall the meaning we now attribute to these ancient Greek words are just ways into what were their original meanings. These words meant what they meant; obviously not taking into account any of the meanings into which they would evolve. Although in some cases the meanings we now attribute to ancient Greek words could be present also in other Greek words, it might indeed be possible that some of those meanings were not at all present in ancient Greece. Language is always evolving as we make more and more linguistic distinctions of linguistic distinctions. Thus, the effort to be made is one of thinking the issues at stake not with the meanings on which we now dwell, but with the meanings from which those ancient words came.

[133] The suffix '-logist' adds the meaning of "studious, specialist" (DLP:1026), e.g., *biologist, technologist, phenomenologist.*

unfolding: "Listening not to me but to the *Logos*, it is wise to say, in accordance with the Logos: all is one" (Heidegger 1984:5)[134]. Demades (c.385-319 BC) used *logos* to mean 'voice', in a context where he appeals to truth—*alêtheias logos*, translated as "the voice of truth" (Demades 1962:1.18). Pythagora used *logos* meaning proportion (Crane 2000). In the Bible (Ev. John1.1-4) the word *logos* meant "The Word" (Bible 2001a), the "Wisdom of God" (Greek NT), the "Verb", the "Word of God as creation" (Latin Bible, Bíblia 1985). *Logos* also meant "ground of action" (GNT: Act.Ap.19.38),[135] which, as referred in Chapter 1 and 3, signifies that action itself is the self-evident ground.

Still, the oldest meaning of *logos* is the most surprising of all, and highly pertinent to our current discussion: 'computation' (Crane 2000). What has computation to do with ratio, grounds, subject-matter? What has computation to do with the voice of truth? The *what* of these questions implies an admission that *logos* might have nothing to do with computation. As that is not the case, the correct question isn't *what,* but *how* does logos relate to computation?

In general, *logos* was actually used to mean computation, account, reckoning. For example, "excels the whole account" (Sophocles OC 1225 in Crane 2000) meant being the best of all. *Logos* also expressed the setting of a value on something, or a making an account of something (Democritus 187 in Crane 2000). This meaning sometimes acquired the sense of an account that is measurable. This was done mostly in qualitative terms, as in the expressions "common measure" in Plato (1998 n.746e), "tale" in Heraclitus (Crane 2000), "full tale" in Thucides (7.56 in Crane 2000), "to the point of old age" in Herodutus (3.99 and 7.9 in Crane 2000). Today's meaning of computation is the same of this meaning of *logos*: to reckon, compute, calculate, evaluate, and work out (OPDT:145).

Logos evolved from computation, to ratio, reason, subject-matter, grounds, the voice of truth, to the Word of God as creation. This essential evolution must be borne in mind for the remaining of the investigation. What seems in need of verification is the extent to which IT as *technê* and as *logos* preserve the initial meanings of these latter expressions. That *computation* is the oldest meaning of *logos* and the central device of IT received the name of *computer* is a clue into the possible sameness of the subject-matter addressed by all of these notions from *tino* to IT. The underlying hypothesis that is emerging here is that the

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[134] Heraclitus discerned in the cosmic process a *logos* analogous to the reasoning of man. In the known fragments of his works, he addressed *logos* as an "orderly, law-governed process of change in the universe"—"the unity of diverse phenomena is to be found not in their matter, but in their *logos*. Indeed the very identity of an object depends not on the matter that composes it, but on the regularity and predictability of the changes it undergoes" (Cohen 2000). Heraclitus stressed that the continuous existence of a thing depends on undergoing continual change and movement. What makes something to be what it is, is not just what it is made of, but how it behaves, what kind of unfolding it undergoes, i.e., the *logos*. This notion is closely connected to Heidegger's phenomenological concept of essence, as *essential unfolding* (Polt 1999).

[135] The expression at stake, "to have a case, to have a ground for action against" (Crane 2000), is translated in Webster's Bible by "have a matter against", and in Young's Bible by "have a matter".

way in which computation relates to *ratio, ground, subject-matter, the voice of truth* would be relevant for an essential account of that which IT *is*.

Bearing in mind the etymological tracing back of *technê* and *logos*, we are now in a position to conclude this search for the essential meanings of the word technology. *Technologia* was a revealing, a grounding. As such it pointed to the realms of truth, to *alêtheuein.* In the word *technologia, logos* allows to appear the *voice of truth,* already hinted by Demades. As such *technologia* embodies an ontological revealing.

The mode of revealing of *technologia* shows up in that it is a *what-to-do*, thus, because action is the ground, *a what-to-be*. It is this *what-to-be*—i.e., that which is, as decisive—that keeps together all the meanings addressed in *technologia*. Technology for the ancient Greeks was not about the matter of phenomena but about their *logos*. What something *is* does not depend on what it is made of, but rather on how it behaves, on what kind of unfolding it undergoes, i.e., on its *logos*.

The conclusions of this analysis are further strengthened by the fact that for the ancient Greek the word *philosophia* was synonymous with *technologia* (Crane 2000).[136] The realms where *philosophia* and *technologia* evolved are the same. Although the evolution of the words took distinct routes, the central question of *meaning*, the human "desire to know" (Aristotle 1998), is the ground both of *philosophia* and of *technologia*. The path of these words preserve that initial ontological milieu from where they came to us. The clue, to be verified below, is that in our epoch philosophy shows up as the *question,* and technology shows up as the *answer*.

4.3. Performing the Phenomenological Reduction Upon IT

At this third phase of the method we are to perform the phenomenological reduction upon the descriptive and the etymological findings of the previous phases. Belief in the existence of IT is to be suspended; IT is to be *bracketed out* of the features concerning its actuality, and thus reduced to a phenomenon in consciousness, which would enable us to grasp clear the contours of the phenomenon.

Let us briefly recover and consolidate the main findings of the descriptive and etymological phases, and of the theoretical development concerning information. IT is both a notion and a collection of physical devices. The devices, in showing themselves as they are, already are experienced as IT devices. They are either located in particular and appropriate places or are carried along with us. We use them transparently as we go as we are in the world. As we use IT we come across new distinctions, i.e., we become informed. We capture distinctions in the environment in accordance with our own structure at each particular

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[136] *Philosophia* meant love of knowledge, pursuit, speculation (Isocrates 12.209; Plato 61a, 484c, 288d), systematic, methodical treatment of a subject (Isocrates 2.35), scientific treatment of argumentation (Isocrates 10.6), the study of oratory (Isoc. 4.10, Plat. Theaet. 172c) (all references from Crane 2000).

moment. The distinction is the information, that is, it is something brought forth, formed, or shaped, by us. This forming is an inward-forming, accomplished in mineness. Claiming to be physical devices in an 'outer empirical' world, IT attracts our attention and our physical presence as well. IT devices deliver relevance. IT shows up in that it relates to us and we relate to it. IT is an acting mechanism in that we rely on it for coordinating our dealings in the world. As such, relevance emerges against the background of IT. Nowadays we live with and in IT. Since IT's typical mode of being is ready-to-hand, this means that IT belongs to the realms of structural coupling, of Dasein's primordial mode of being-with.

The findings of the descriptive phase indicate that IT possibly shares the ontological nature to which the ancient Greek word *technologia* points. Thus, the clue is that IT is a disclosing of the world, a *what-to-be,* a stance on that which is, an opening up of the realms of truth.

What part of these findings remains when we *bracket out* actuality from IT?

The phenomenon of IT as it is reduced to an intentional object in consciousness is not some pure isolated being, meaningful in itself. IT always claims to be, as itself is, *something-*in-the-world, not an isolated object in consciousness. The being of IT, that is, the way in which IT makes a difference for us, is one of always already including its unfolding in a world in which it makes sense. In consciousness, IT makes sense for us because it refers to and is referred to by other things and activities of ours. IT is IT within the referential whole in which we always and already dwell. How can we think of IT without discovering the primacy of the world?

IT are entities in the world. In consciousness IT asserts that in two diverse ways. Firstly, IT is a notion that refers to the in-the-world, pointing to our human empirically experienced world. Secondly, this referring to the in-the-world manifests itself in the claimed physicality of the devices. IT devices, in consciousness, show themselves to be some kind of realisation of the notion of IT. That these physical devices are always perceived in a situation intuitively discloses them as a kind of entity entangled with who we are. This entanglement that maintains itself as we bracket out IT of its actuality features comes into view as the transparent use of IT, referred to in the previous descriptive phase.

As we try to strip IT of actuality, reducing it further and further, we can notice beginning to lose ITness as we cut it out from the entanglement pointed out above. In consciousness, IT is only IT when we consider its references, usage, and possibilities as we, as we ourselves are, go on in the world using IT. In consciousness IT is an *I-use-IT-while-being-with.* It is not only that, but it is something more intricate, and to some extent not correctly accessed within the application of the *epoché.*

The reduction of the phenomenon of IT calls for abstraction. Trying to reach ITness abstractly in the way this technique urges us to do, is to a considerable degree a threat of stripping IT of its very ITness. As we continue reducing the phenomenon, we begin to approach IT as a present-at-hand thing, which is precisely that mode of being the least

relevant for the unfolding of IT (Heidegger 1962, 1977, Introna 1997, Ciborra 1998). A correct push for abstraction cannot make us lose IT's fundamental readiness-to-hand. As we lose IT's readiness-to-hand, the very phenomenon of IT begins to vanish. This clarification confirms that the reduced phenomenon of IT is one entangled with being-in-the-world; particularly with being-with.

Having reduced IT to a phenomenon in consciousness we should note that IT still shows its informing nature, its pointing to a world revealed, as a whole and primary, in being-in-the-world. IT attracts our attention. It shows a delivering of relevance because it relates to us, and we relate to it. The reduced IT shows up as entities on which we depend for coordinating our dealings in the world. As such relevance comes forward against the background of IT.

In consciousness IT does support relevance. This relevance shows up within a form of life we already share; it shows up in-the-world, in the lifeworld. This monumental background of meaning is something that cannot be stripped out of IT without losing ITness. IT as itself is, is IT-in-the-world, an in-the-world in which being-with is emphasised. Thus, IT as I-use-IT-while-being-with belongs to the realms of structural coupling, which means that it always is supposed to deliver relevance. Relevance is thus an essential element of ITness: relevance as such is revealed in/through/against IT. Thus, IT is a background for relevance.

Taking that which is relevant to the foreground, IT withdraws to the background; taking IT to the foreground, relevance withdraws to the background. This means that as we act-in-the-world, making distinctions, adapting to stay alive as what we ourselves are for ourselves, we are always already focused on that which is relevant, which, in turn, means that IT as such is a phenomenon that belongs to the background. In its ITness, IT is a background. IT as a background, just like any other phenomenon that is a background, is that against which relevance can be perceived. Thus, the case is not for relevance *per se*, supposedly against no background at all, being addressed through or within IT—IT substantively reveals relevance; not *what* is relevant, but relevance as such. That this is so can be verified in that a reduced notion of relevance as such, if accessed in many particular contemporary *forms of life* does point to or touch upon IT. "Technology is the medium of daily life in modern societies" (Feenberg 1999:vii), which means precisely that IT is the background on which life in modern societies is based.

This opening up of the phenomenon of IT as background is further supported by several analyses referred to in Chapter 1, while reviewing the 'Exploitative Phase' of the path of IT in organisations. The analysis presented questioned the assumed fundamental nature of IT as tool, pointing to some kind of a contextual role that IT might have. Ciborra (1998, 1997b) suggests the concept of *infrastructure* best captures the relevance of IT in a contemporary business environment. Chakravarthy (1997) contends that a "guiding philosophy—a broad vision of the opportunities that the firm seeks to participate" (ibid.:82)—might be perhaps the best a firm can do in current IT-based competition. For

Coombs (1997) "IT cannot be *known* as such, as if it were a given and readily understandable object" (ibid.:252), but rather it is made known through many actors, human and non-human, which while portraying reality "actually create the reality" (ibid.:254). Ciborra (1997b) adds that the role of IT seems to be that of a collective cognitive scheme. It is the sharing at a background level of this cognitive scheme that allows managers to improvise effectively (ibid.:274). As more and more organisations absorb IT it becomes apparent that this new world of IT can generate disadvantages for those who are unable to absorb this particular and new cognitive scheme, that is, for those who do not act based on the background of IT.

Taking IT as a phenomenon whose essence embodies backgroundness, further strengthening its reduction, we find that IT implies worldly perceptions of time and space— this is captured by addressing the IT background from the primary ground that action is. IT devices belong to situations. Each situation is a specific involvement as much related to a place (space) as related to a moment (time). Places or moments reveal IT in its appropriateness—that is, at *right* or *wrong* moments or places.

At the right place and at the right moment IT is completely non obstructive; it either is a ready-to-hand tool, or it is hidden in the background. The hidden-ness of IT, either as background or as ready-to-hand tool, depends on the ITness of that which we bring to the foreground; for example, the elaboration of a business proposal can only be written on a PC, because the PC itself, the way in which it is in our referential whole, previously makes the PC the proper way for doing that—the timing of the elaboration of the proposal, its structure, layout, style, and even content, all of them relied upon a background of ITness. Thus, at the right place at the right moment we experience IT both as a tool and as a background.

The case is a different one for an experiencing of IT at a right place but at a wrong moment. A PC at an office desk is at the right place. Nonetheless as the manager is running a meeting with clients, the moment is a wrong one for using the device. The PC just stays there, in the background, ready to be called into its readiness-to-hand. At these wrong moments IT devices neither are ready-to-hand entities nor present-at-hand ones. They are out of our concern hiding in the background; precisely the IT pervaded background of possibilities on the basis of which the manager is running the meeting.

The inverse situation is the showing up of IT at the right moment but at the wrong place. At the right moment IT shows up in its readiness-to-hand, yet on account of the wrongness of the place it breaks down. For example, we are talking on the mobile phone when suddenly we enter a place without network coverage. The IT device breaks down in its readiness-to-hand, it becomes unavailable. Becoming unavailable, IT reveals to us not only the mobile phone but indeed our acting in-the-world as occurrent. This can happen only because IT was/is the background on which the possibilities opened up by the mobile phone gain their

meaning. IT shows up at the wrong place because IT is the background against which that particular action of using the mobile phone grounds its meaning.

The fourth and last possibility is a puzzling one: IT would show up at the wrong moment and at the wrong place. What would be an example of this? We believe there is none. Once one recognises IT, that is, all of the IT devices, as IT, one is already within a background permeated by ITness. As such, if the moment is wrong IT does not come forth in its readiness-to-hand; it just stays hidden in the IT pervaded background, even if the actual assumptions about that background are incorrect—e.g., the PC of the office, in the example above, was not on the desk but upside down on the floor… while the manager is running his meeting. This rather absurd example means nothing in terms of the simultaneous wrongness of both moments and places. The place of the PC is the office; an office desk to be precise. A PC is a PC in that it always already refers to office, desk, work, and so forth. A PC is always already within a referential whole that makes it a PC. That the PC is upside down on the floor means nothing to the already disclosed ITness of the manager's office and of the PC itself. The PC on the floor is merely accidental; it is non-essential for that which a PC is. That we refer the 'PC on the floor' means precisely that the PC (of the 'PC on the floor') is already a PC, with all its references, no matter if it is on a desk, or on the floor upside down.

Any IT device is at a right or wrong place or moment in accordance to the ITness of places and moments, that is, against a revealing that already has shown what things, places, and moments are. The situation reveals IT in its beingness. IT establishes the criteria for accessing right and wrong places and moments. That the place is a wrong one appears against the moment being a right one, and the moment being a wrong one appears against the place being a right one. In-the-world the rightness of IT comes first. It comes first because it belongs to an already there background permeated by ITness. For IT to be out of all these modes of being would imply a non recognition of IT as itself is; for example, the case of a knight from the Middle Ages handling a mobile phone. This analysis supports that IT is an ontological revealing, a *what-to-do/what-to-be,* a mode of being.

This clue that IT is an ontological revealing began to show up at the descriptive phase, and strengthened its way as we proceeded with the etymological analysis. Here, it consolidates itself as central to the investigation. The suggestion that emerges is that IT is basic to being-in-the-world. IT is an element of the primary phenomenon of being-in-the-world. Always coming first, and coming as a whole, being-in-the-world is in contemporary times entangled with the phenomenon of IT—this is the reduced phenomenon of IT.

The next task is to uncover this entanglement between IT and being-in-the-world. How is it to be characterised? What are its elements? How does it unfold? The answer to the these questions is the essence of IT.

4.4. Investigating the Essence of IT

The investigation opened the contours of the essence of IT: the entanglement between IT and being-in-the-world. Never in History did human activities rely so much on technology as they do in our times (Heidegger 1966, 1969, 1977, Borgmann 1984, 1999, Giddens 1999, 1997, Habermas 1979, Castells 1996, Zimmerman 1990, McLuhan 1994, Ellul, 1964, Beck 1992). Yet, the central question keeps on being asked: "What is technology?" (Heidegger 1977, Dreyfus 1995, Feenberg 1999, Borgmann 1999, Ellul 1964, Ihde 1990). IT is a kind of technology; thus, a kind of what?

What Heidegger said that happened to the question of Being—that it "has today been forgotten" (Heidegger 1962:2)—applies *mutatis mutandis* to technology. The study of technology qua technology is an issue almost neutralised by the prevalent instrumental view of it, which makes it available only as "a matter for specialized research" (Feenberg 1999:12). However this lack of fundamental reflection on technology, which nowadays may be experiencing some kind of an inversion whose consequences are still unclear (Mitcham 1994), might rely to some extent on the readiness-to-hand and pervasiveness of modern information technologies.

4.4.1. *Views on Technology*

There is little help in commonly accepted definitions of technology. They assume it to be merely a tool; particularly a tool of scientific knowledge. Dictionaries and common wisdom tell us that technology is the application of scientific knowledge for practical purposes. Yet, not only what is commonly accepted as scientific knowledge changes over time (Kuhn 1996), but also technology is much older than scientific knowledge, as referred to above in our etymological phase.[137]

Perhaps one would expect that definitions of technology as the one above would stand if referring to industrial and post-industrial technology. Yet, it is precisely in these realms that the traditional conception becomes most contradictory. For decades scientific knowledge has been dependent on the technological apparatus. It is the result of the application of technology itself (Heidegger 1977, Ellul 1964). The branch of exact science on which much of the IT revolution is based, quantum physics, depends entirely on technological tools and on developing newer and newer tools. Technology applies scientific knowledge produced by the application of technology. Moreover, the advancement of scientific knowledge depends upon the development of new technological instruments. "Modern physics, as experimental, is dependent upon technical apparatus and upon progress in the building of apparatus" (Heidegger 1977:14). This dependence of science upon technology is clearly

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[137] The current meaning of the word technology still accommodates the oldest inventions of humanity. The mastering of fire is pointed as one of the most significant technological innovations of all time, marking the succession from the Stone Age to the Metal Age

referred to in the recent papers on the human genome (Venter et al. 2001, IHGSC 2001).[138] Thus, technology, as such, precedes science; it is the nature of technology that demands the application of exact science, not the reverse—"Modern natural science is based on the development of the essence of modern technology and not the reverse" (Heidegger in Neske and Kettering 1990:84).[139]

The traditional view of technology cannot account for this state of affairs. Technology would be only a means to an end, an *instrumentum*, a contrivance that "functions to heap, to build up or to arrange" (Lovitt 1977:5, fn.3). "Information technology is a tool" (Lucas 1990:vii), a computer is a device to write, to calculate, to design, to communicate, and so forth; an airplane is a mechanism for travelling; a dam is an instrument to generate electricity, and so forth. All these apparati are means to ends. The dominance of the scientific functionalist paradigm and technology's ready-to-hand mode of being, help to intuitively establish it as a tool—as a tool only. Phenomenologically we take notice of this; this is the first and general appearance of technology. That this appearance is so obvious and evident "is why the instrumental conception of technology conditions every attempt to bring man into the right relation to technology" (Heidegger 1977:5). In-the-world, coping, directed towards something, we have already forgotten technology.

The instrumental view of technology has been the dominant one for the last decades. This is both a result of the prevalence of Cartesian epistemologies on modern science, which assume the human subject as the 'objective' actor and the final judge of reality (Heidegger 1977, Palmer 1969, Zimmerman 1986), and of a Western tradition that goes back to the ancient Greeks who lived in aristocratic societies in which the highest forms of activity were social, political, and theoretical rather than technical (Feenberg 1999). In the history of Western thought technology was mainly studied in the realms of political theory, where as a technical activity it fell under the study of economy (Winner 1995).

The instrumentality of technology is obviously correct, as one concludes by uncovering IT's fundamental readiness-to-hand. Yet, it might preempt a deeper grasp of the meaning of this pervading readiness-to-hand. For Heidegger (1977:5), it preempts attempts at grasping what technology not only is "too" but is in its essence. The correct fixes itself only upon an appearance of technology, upon the pertinent, of the toolness of technology. "By no means

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[138] "This assembly of the human genome sequence is but a first, hesitant step on a long and exciting journey toward understanding the role of the genome in human biology. It has been possible only because of <u>innovations in instrumentation and software that have allowed automation</u> of almost every step of the process from DNA preparation to annotation" (Venter et al. 2001; our underlining); "Sequencing costs have dropped 100-fold over the last 10 years, corresponding to a roughly twofold decrease every 18 months. This rate is similar to <u>Moore's law</u> concerning improvements in semiconductor manufacture. In both sequencing and semiconductors, such improvement does not happen automatically, but requires <u>aggressive technological innovation</u> fuelled by major investment. Improvements are needed to move current dideoxy sequencing to smaller volumes and more rapid sequencing times, based upon advances such as microchannel technology. More <u>revolutionary methods,</u> such as mass spectrometry, single-molecule sequencing and nanopore approaches, have not yet been fully developed, but hold great promise and deserve strong encouragement" (IHGSC 2001; our underlining).

[139] Below, when addressing Heidegger's (1977) account of the essence of modern technology we enter into some detail on this issue.

does it need to uncover the thing in question in its essence" (ibid.:6). Thus, as long as we remain in the realm of appearances we can never be certain of having achieved a fundamental grasp of technology. This means that yes technology is a tool, still essentially it can be something else.

 "Common sense instrumentalism" (Feenberg 1999) treated technology as a neutral means, requiring no particular philosophical explanation. The steady development that the biological sciences have experienced since the late 18th century was based on the idea of progress and to a great extent it found its guarantee in technological development (ibid.). By the end of the 19th century, under the influence of Marx and Darwin, technological progress was believed to ground humanity's advance, thus progressivism became technological determinism (ibid.). These views implied the neutrality of technological activity and its submission to the fulfilment of human biological needs. Technology was only a means, not altering those natural ends, only shortening the path to them (ibid.).

Within this account of neutrality and instrumentality of technology, which assumes a clear separation between means and ends, positions divide between those who consider the path of technology to be autonomous and those who defend that it is humanly controllable. The former positions are the deterministic theories, such as traditional Marxism, which while they consider that technology aims at natural ends, they minimise human influence over technological development. The latter positions, instrumentalism, assume both the neutrality and the human control of technology; this thesis is the one implicit and prevalent in everydayness, as 'the they' unfolds in-the-world. While identifying this position with "common sense", Feenberg (ibid.:9) lets this insight escape without further implications. That instrumentalism is "common sense", that is, that it shows within 'the they' is deeply related to the ways in which technology unfolds in human History.

Appropriated by everydayness technological devices withdraw. Coping in-the-world we rely on ready-to-hand tools, transparent to us while our action, attention, and purposes are directed towards something else, towards an end. Thus, technology disappears as man falls in the world. The meaning that technology gains unfolding within 'the they' is of something mastered as a means; mastered and forgotten as we, for example, for-the-sake-of-being-good-managers, write at the PC in-order-to complete a report towards-presenting it to the board. Technology disappears as we manipulate it "in the proper manner as a means" (Heidegger 1977:5). This relationship chains us to technology—"Everywhere we remain unfree and chained to technology" (ibid.:4)—because as technology might threaten to slip from our control, the more urgent becomes the will to master it (ibid.:5).

That technology is a tool is the least relevant aspect of technology – "modern technicity is no 'tool' and has nothing at all to do with tools" (Heidegger 1981:56). It may have just never occurred to some thinkers on IT that technology is not "a variable" (Lucas 1990:vii) but a constant, and as such managers will never be able to manipulate it at their own will.

We shape our tools and our tools shape us (McLuhan 1995). Technology is as much a tool for us as our organisations are a tools of technology itself.

By reducing the phenomenon of technology to consciousness, quitting concrete examples and setting a first common notion for all technology, by varying its elements in the imagination, by letting the phenomenon be seen as it-shows-in-the-world, one can grasp that which technology is, as itself is, i.e., within its own limits, ways and modes of unfolding in the world. This way opens the human essence, our *existence*, to technology and it is, in itself, the possibility of experiencing a *free relationship* to technology (Heidegger 1977). The essence of technology would only be accessed if we could experience this *free relationship* (ibid.). This line of investigation proceeds below as we recover Heidegger's (1977) *The Question Concerning Technology* as our main base for the phenomenological setting in place of that which technology essentially is.

Thus far our critique of instrumentalism serves us to address face to face the apparent, superficial, character of the toolness of technology, thus clearing the way for a diverse understanding of the matter in question. Reasons were pointed out for the dominance of instrumentalism: the readiness-to-hand mode of being of technology; the appropriation of technology by 'the they'; the spreading and prevalence in scientific work of the functionalist paradigm. Relying on these arguments we proceed now to claiming a diverse understanding of technology. Let us quote McLuhan (1995:4) to introduce directly what is at stake:

> "In accepting an honorary degree from the University of Notre Dame a few years ago, General David Sarnoff made this statement: "We are too prone to make technological instruments the scapegoats for the sins of those who wield them. The products of modern science are not in themselves good or bad; it is the way they are used that determines their value." That is the voice of the current somnambulism. Suppose we were to say: "Apple pie is in itself neither good nor bad; it is the way it is used that determines its value." Or, (…) "Firearms are in themselves neither good nor bad; it is the way they are used that determines their value." That is, if the slugs reach the right people firearms are good."

Substantivism is at the antipodes of instrumentalism. Substantivism stands for both the autonomy and the value-owning of technology. Substantive theories consider that technology is not a neutral instrument, embodying specific values and thus shaping human life in society. Technology is itself a value system. McLuhan strongly argues in favour of the substantive transformation of human life as it is brought about by the deployment of technology. Nevertheless, that technology was entirely autonomous seems not to have been his position: "Since understanding stops action, as Nietzsche observed, we can moderate the fierceness of this conflict by understanding the media that extend us and raise these wars within and without us" (McLuhan 1995:157). In other words, this is to argue for a free relation to technology.

Heidegger's (1977) thought of technology is a substantive one as well. Heidegger's addressing of technology shows up within a path of his own into the meaning of Being,

which as developed at a higher level of conception, has been understood in many cases as deterministic. To Heidegger modern technology belongs to an increasing self-concealment of Being, which from Plato to Nietzsche is, in itself, the history of Western man (Heidegger 1977, 1984, 1991, Zimmerman 1990, 1986, Biemel 1981, Lovitt 1977). Because modern technology is the revealing of Being that sets the ground for whatever is to appear, as long as the technological understanding of Being rules the earth it does not matter what happens (Heidegger 1966, 1969, 1981 Zimmerman 1986, 1990, Biemel 1981). Still, Heidegger's articulation of technology was not a deterministic one. Although he did not detail this subject he points to the possibility of modern man having a *free relation* to technology (Heidegger 1977, 1969, 1966). This kind of experiencing would only be possible if man opened his *existence* to the essence of technology, encountering its boundaries while keeping his openness for the Being of beings. Heidegger's account of technology discloses the simultaneous revealing and concealing that it embodies, calling upon us to wait and prepare ourselves for a possible coming of a new revelation of what it means to be (Heidegger 1977, 1981, 1984).

None of the authors usually referred to as substantivists, such as Heidegger, McLuhan, or Ellul, defended technology as entirely autonomous, completely escaping human control. They stand for the value-owning of technology, for its substantive shaping of the world, but to some degree they all admit the relevance of the human agency. The argumentative space in which these authors move is indeed a large one. Historically it was first occupied in the early 20th century by the Frankfurt School (Horkheimer, Adorno), but only after World War II did these ideas come to the foreground of Western social sciences, namely with the works of Heidegger (1977, 1969, 1966), and Jurgen Habermas (1970, 1979, 1984, 1987). To Habermas technology is a form of action that answers to the human concern for control, thus organising society and favouring a technological order that Habermas calls the 'technization of the lifeworld' (Habermas 1987). Marcuse (1964) and Foucault (1977) consider that technology is not just a means but is a medium entangled with power. For them technology is not purely autonomous because its usage and spread is related to social organisation and contingencies. In North America in the last decades a new practice in thinking of technology has emerged within a clear substantivist perspective, still accepting human intervention—"in a democratic framework" (Feenberg 1999:6). Hubert Dreyfus, Don Ihde, Langdon Winner, Albert Borgmann, and Andrew Feenberg are among the most prominent thinkers of this new American tradition. Castells assumes a rather similar background, possibly with a deeper influence from functionalism, when supporting Bijker's (Bijker et al. 1987) thesis, concluding that "technology *is* society, and society cannot be understood or represented without its technological tools" (Castells 2000:5).

Our investigation aims at belonging to this Western strand of thinking of technology as a phenomenon which, in itself, is an embodiment of values, yet admitting the pertinence of the human agency as well.

4.4.2. Ge-stell

That technology appears obviously as a means to an end, that "we regard it as something neutral" (Heidegger 1977:4), is to Heidegger (ibid.) what makes us blind to its essence. To capture the essence of a phenomenon one needs to go beyond appearances. Heidegger asks what *is* it to be a *tool*? "What is the instrumental itself? Within what do such things as means and ends belong?" (ibid.:6). An end is the result, the achieving of something aimed at. A means is the way by which the end is achieved. "Whatever has an effect as its consequence is called a cause" (ibid.). However a cause can also be the end in view according to which the means to be used are determined. This shows us the domain of causality. Causality reigns in instrumentality (ibid.).

Aristotle's thesis of the *four causes* (Aristotle 1998) is recovered by Heidegger in order to de-construct causality. Facing the *four causes*—the *causa materialis*, the matter out of which something is made; the *causa formalis*, the shape into which the material enters; the *causa finalis*, the end in relation to which the matter and the form are determined; and, the *causa efficiens*, that which brings about the effect that is aimed at—Heidegger questions: "What unites them from the beginning?" (Heidegger 1977:8) The four causes indeed differ one from the other, yet they belong together. Four causes of what? To what do the four causes, as a belonging together, refer?

The word cause comes from the Latin *causa*, which belongs to the verb *cadere,* "to fall". It means "that which brings it about that something falls out as a result in such and such a way" (ibid.:7). Thus, "the four causes are the ways, all belonging at once to each other, of being responsible for something else" (ibid.). This being responsible has the significance of a bringing of something into being, of "bring forward into appearance" (ibid.:8). The four causes, all at once, are this being responsible—four causes of being responsible for something. At this point we have left the instrumental view, which only considers as a cause the *causa efficiens,* that which effects something as a consequence.

The four causes bring something into being itself. They bring something into appearance, letting it come forth into presencing. They play in unison (ibid.:10); they are an occasioning (ibid.:9); they are unifiedly ruled over by a bringing that brings what presences into appearance (ibid.:10). This bringing forth is what Heidegger says that Plato in *Symposium* (n.205b) tells us: "Every occasion for whatever passes over and goes forward into presencing from that which is not presencing is *poiêsis*, is bringing-forth" (quoted in ibid.:10). This *poiêsis,* the one that Maturana and Varela (1980) recovered to coin the word *autopoiesis*, is a bringing-forth, a coming to presence, either by an arising from out of itself—en *heautôi*, as *autopoiesis*, e.g., the bursting of a blossom into bloom—or from an arising not from out of itself, a bringing-forth by another—*en allôi*, e.g., the work of a craftsman or an artist (Heidegger 1977:10-1).

What is brought forth, coming into appearance, is brought from concealment into unconcealment (ibid.:11). The four causes are united by this bringing forth of something into unconcealment. Bringing forth "gathers within itself the four modes of occasioning—causality—and rules them throughout" (ibid.:12). The gathering of the four causes of a bringing forth is thus a revealing. This revealing, the bringing of something into unconcealment, "is a coming *to rest and move freely*" (ibid.:11), a coming into a preservation and a protection to be what it is (Heidegger 1971:149, Lovitt 1977:11 fn.10), thus to be a *to endure* and a *to last* (a *währen* in German; in Lovitt 1977:3 fn.1).

That which is revealed is brought forth into unconcealment, as it *endures/währen.* This revealing moves in the realm of truth—of *Wahrheit* (in German)—because it is a mode of bringing beings into presence. The way in which a being remains present is *its essential unfolding,* which for Heidegger is the meaning of *essence* itself (Lovitt 1977:4 fn.1). Thus, essence shows up in revealing. *Revealing* is the English translation of the German verb *entbergen,* which as a revealing, has the meaning of the ancient Greek word *alethêia* (Heidegger 1977:11-2).[140] Macquarrie and Robinson (Heidegger 1962:57 fn.1) note that the Greek word *alêtheia* is compounded of the prefix *a-*, which means 'not', and the verbal *lêtheia*, which means 'to escape notice' or 'to be concealed'. Not to escape notice is a granting of the possibility of truth. It is an opening up, a revealing. "The truth may thus be looked upon as that which is un-concealed, that which gets discovered or uncovered" (ibid.). *Entbergen* refers to this kind of revealing—a revealing that uncovers something *as* something; thus, a showing of meaning.

Causality is thus grounded on a revealing, which in itself is a granting of the possibility of truth. Revealing is an already there that gathers the four causes of occasioning, letting beings come into unconcealment, to presence as beings to be preserved *(bewahren),* to endure *(währen),* to be watched over and kept safe *(wahren),* to be manifest *(Wahrnis).* Thus, the opening up of what instrumentality itself is leads us into the realms of truth, of *Wahrheit.*[141] "Technology is therefore no mere means. Technology is a way of revealing" (Heidegger 1977:12). "Technology comes to presence in the real where revealing and unconcealment take place, where *alêtheia*, truth, happens" (ibid.:13).

These conclusions are consistent with our findings thus far. *Technology as such is a revealing*; its way of revealing is an ontological one. It does not only concern the beings that come into presence, a craft's work or a machine, but it is the disclosure of *is-ness* itself. *Entbergen*, firstly and decisively, shows the world as *what-to-do/what-to-be.* As such the technological revealing is primarily and foremostly the background against which appears that which *is*. This ontological revealing is the fundamental nature of technology. Would it

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[140] *Entbergen* and *Entbergung* are German words unique to Heidegger (Lovitt 1977:11,fn.10). Both are formed from the verb *bergen*, which means to rescue, to recover, to secure, to harbour, to conceal, and from the verbal prefix *ent-*, which is used to connote in one way or another a change from an existing situation. *Bergen* or *verbergen* means to conceal; *unverbergen* means to unconceal; and, *entbergen* means *to reveal*.

[141] Refer to Chapter 2 to the addressing of the etymology of *Wesen* and *Wahrheit*.

be the essential nature of *modern* technology as well? Heidegger's (ibid.) answer is unambiguous: "It too is a revealing" (ibid.:14).

> "[A] tract of land is challenged into the putting out of coal and ore. The earth now reveals itself as a coal mining district, the soil as mineral deposit." (ibid.)

Modern technology changes decisively the coming into presence of humans, things, animals, tangibles and intangibles; of that which appears for man. A revealing not only reveals that which is differently, but also reveals and conceals differently. Truth, meaningfulness, thus being-in-the-world, are differently grounded:

> "The field that the peasant formerly cultivated and set in order appears differently than it did when to set in order still meant to take care of and to maintain" (ibid.:14-5)

There is nothing metaphorical here. Modern technology changes substantively that which is decisive in-the-world. It lets unfold a whole conception of *is-ness,* engulfing *what-to-do/what-to-be.* Thus, the question is what is this conception of Being, this backgroundness, that modern technology is? How does the technological revealing first appear? It appears as a challenging—"[M]odern technology (…) puts to nature the (…) demand that it supply energy that can be extracted and stored as such" (ibid.:14):

> "The coal that has been hauled out in some mining district has not been supplied in order that it may simply be present somewhere or other. It is stockpiled; that is, it is on call, ready to deliver the sun's warmth that is stored in it" (ibid.:15)

> "What the river is now, namely, a water power supplier, derives from out of the essence of the power station. (…) the Rhine is still a river in the landscape, is it not? Perhaps. But how? In no other way than as an object on call for inspection by a tour group ordered there by the vacation industry" (ibid.:16)

Thus, the revealing of modern technology is a challenging—the soil of the field, the river, the wind are challenged in that they are faced with the demand to supply *resources* that can be stored as such:

> "The revealing that rules throughout modern technology has the character of a setting-upon, in the sense of a challenging-forth. That challenging happens in that the energy concealed in nature is unlocked, what is unlocked is transformed, what is transformed is stored up, what is stored up is, in turn, distributed, and what is distributed is switched about ever anew" (ibid.:16)

This challenging forth is thus a setting-in-order that *sets* upon nature. Agriculture is now the mechanised food industry. Air is now set upon to yield nitrogen, the earth to yield ore, ore to yield uranium, for example; uranium is set upon to yield atomic energy, which can be released either for destruction or for peaceful use (ibid.:15). As a challenging-forth of nature, technology is always directed from the beginning "toward driving on to the maximum yield at the minimum expense" (ibid.)—this is an essential element of technology; it aims at efficiency.

Efficiently exposing and unlocking the energy of nature, technology reveals a world of resources. These resources belong to an already ongoing process, which is the content of the revealing itself: unlocking, transforming, storing, distributing, switching about, all these

ways, efficiently and never coming to an end. These ways are the technological revealing; a revealing which in itself is the revelation of its own manifold interlocking paths through securely regulating their course (ibid.:16). This course does not designate the dam, the hydroelectric plant, the machine, or any other, as it were, typical technological object, because it rather chiefly designates "nothing less than the way in which everything presences" (ibid.:17). The unconcealment that the technological revealing brings about is a particular standing in which beings show themselves in their belonging to an efficiently ordering process:

> "Everywhere everything is ordered to stand by, to be immediately at hand, indeed to stand there just so that it may be on call for a further ordering. Whatever is ordered about in this way has its own standing. We call it the standing-reserve. (…) It designates nothing less than the way in which everything presences that is wrought upon by the challenging revealing" (ibid.).

The standing-reserve is used to characterise the manner in which everything is commanded into place and ordered according to the technological revealing. What is stressed with the essential notion of *standing-reserve* is the *orderability* and *substitutability* of objects (Lovitt 1977:17 fn.16). "Objects indeed lose their character as objects when they are caught up in the "standing-reserve" (ibid.). For a tract of land, a river, a machine, or indeed a person, their relevant mark becomes their readiness for use. "Today all things are being swept together into a vast network in which their only meaning lies in their being available to serve some end that will itself also be directed toward getting everything under control" (ibid.:xxix). That which shows us in-the-world already comes into being within this framework of beingness. This is for Heidegger what is most essential about technology. He calls it *Ge-stell*, *enframing* in Lovitt's (1977) translation.

Once this revealing is set things, as such, have lost their *thinging-ness* (Heidegger 1971), only coming into presence as standing-reserve within the process of ordering the orderable into which the real has turned itself:

> "The forester who, in the wood, measures the felled timber and to all appearances walks the same forest path in the same way as did his grandfather is today commanded by profit-making in the lumber industry, whether he knows it or not. He is made subordinate to the orderability of cellulose, which for its part is challenged forth by the need for paper, which is then delivered to newspapers and illustrated magazines. The latter, in their turn, set public opinion to swallowing what is printed, so that a configuration of opinion becomes available on demand" (Heidegger 1977:18).

This last passage makes clear that man, himself, is ordered into the ordering process that the technological mode of revealing is—the "current talk about human <u>resources</u>" (ibid.; our underlining) gives evidence of this.[142] Yet man has a unique position in the setting-upon of technology because it is precisely man who accomplishes this challenging-forth. "Man drives technology forward" (ibid.). Yet, as we cannot evidently accept that man has control over unconcealment, i.e., over Being itself, and because technology is a revealing,

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[142] Cooper (1991:6) calls "the supreme comedy" to the labelling of humans as 'human resources'.

thus a way of unconcealement, we cannot accept as well modern technology to be only human doing (ibid.:19).

What man brings about, man brings; but man did not bring himself about. Having not brought himself about, thus being a belonging to a call of unconcealment he himself always already is, man accomplishes a challenging-forth that moves beyond what he strictly brings about. Thus, modern technology belongs to a destining of Being (Heidegger 1977, 1969, 1991). The ordering that modern technology is unfolds within unconcealment, which "is never a human handiwork" (Heidegger 1977:18). Thus, one has to ask: How is man delivered into this unconcealment?

> "We need only apprehend in an unbiased way That which has already claimed man and has done so, so decisively that he can only be man at any given time as the one so claimed. Wherever man opens his eyes and ears, unlocks his heart, and gives himself over to mediating and striving, shaping and working, entreating and thanking, he finds himself everywhere already brought into the unconcealed. The unconcealment of the unconcealed has already come to pass whenever it calls man forth into the modes of revealing allotted to him. When man, in his way, from within unconcealment reveals that which presences, he merely responds to the call of unconcealment even when he contradicts it" (ibid.:18-9).

Unconcealment claims man, and only as such is man what he is. In its essence modern technology moves in the realms of truth. That it shows entangled with the very essence of man, referred as a conclusion of the *reduction* phase of the method, is a clear indication of the essence of technology itself. Within a technological understanding of Being, man challenges nature, brings it in a challenging-forth, because for his part he is already challenged. Man and nature are together in a primary gathering that gathers the real.

> "Whoever builds a house or a ship or forges a sacrificial chalice reveals what is to be brought forth, according to the perspectives of the four modes of occasioning. This revealing gathers together in advance the aspect and the matter of the ship or house, with a view to the finished thing envisioned as complete, and from this gathering determines the manner of its construction" (ibid.:13).

This gathering is the challenging-forth within which each technological object always appears. That which is gathered shows up in the manner of the gathering itself. Heidegger presents two additional examples of this kind of gathering: "That original gathering from which unfold the ways in which we have feelings of one kind or another we name '*Ge*müt'", i.e., we call it disposition in the sense of the way in which something is given; "That which primordially unfolds the mountains into mountain ranges and courses through them in their folded togetherness is the gathering that we call '*Ge*birg'", i.e., mountain chain (ibid.:19). *Ge-* in German is a prefix that indicates gathering, reunion, collecting, or reassembling. Ciborra (1998:318) adds as examples the words *Gesellschaft* (society), and *Gemeinschaft* (community). With this meaning in mind we recover Heidegger's notion for the gathering that, in its essence, technology is: *Ge-stell*.

In the ordinary usage *Gestell* means some kind of apparatus, frame, shelf, or skeleton. Hyphenating the word—*Ge-stell*—Heidegger both wants to bring forward the gathering

that the prefix *Ge-* denotes, and to open us to the whole realms of meaning addressed by the family of verbs centred in the verb *stellen,* and in the noun *Stell.* The noun means place, spot, location. The verb *stellen* means to place, to set, to put, to stand, to arrange, to regulate, to provide, to order, to furnish or to supply, and in a military context, to challenge or to engage (Lovitt 1997:15 fn.14, Ciborra 1998:318).[143] *Ge-stell* is translated by Lovitt (ibid.) by *enframing*, trying to suggest through the use of the prefix '*en-*' "something of the active meaning that Heidegger gives to the German word" (ibid.:19 fn.17). "This claim enframes in that it assembles and orders. It puts into a framework or configuration everything that it summons forth, through an ordering for use that it is forever restructuring anew" (ibid.).

Enframing, *Ge-stell*, is the word that names the essence of modern technology (Heidegger 1977:20). It means the "gathering together of that setting-upon which sets upon man, i.e., challenges him forth, to reveal the real, in the mode of ordering, as standing-reserve" (ibid.). The way in which modern technology unfolds, i.e., *essences*, is through enframing. In Enframing the real is revealed in the mode of ordering. Enframing reveals. That which it reveals is ordering. *Enframing is the essence of modern technology*.

Elsewhere Heidegger writes that Enframing is that which concerns us everywhere, immediately (Heidegger 1969:35). We are immediately concerned by that which in everydayness always and already surrounds us. Within the technological revealing the way in which everydayness essentially unfolds is in ordering and being ordered. Thus, ordering and being ordered, that is, *order* as such, is that within which we *fall* (Heidegger 1962) into the world. As such the world in which we always already are is revealed—which means it *is*—an ordering process. This process is one of ordering what? Ordering everything, that is, through ordering, that which is appears as such. Towards what is this ordering impending? The ordering impends towards ordering itself—ordering towards ordering. The ordering is *for-the-sake-of* ordering itself; it unfolds *for-the-sake-of* ordering. Ordering is the way things are.

This ordering *unfolds* for-the-sake-of-itself. When we turn ourselves to this *unfolding* instead of the ordering, a new question arises: What guides this unfolding? What is the criterion of the ordering? The answer is the gathering in which ordering has gained its way. Enframing reveals the real as standing-reserve, which means that beings make themselves distinct as resources. As resources they belong to a process aimed at a "maximum yield at the minimum expense" (Heidegger 1977:15), that is, aimed at efficiency. As resources of the standing-reserve that the real is, beings appear within an ordering process ordered itself by *efficiency*.

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[143] Lovitt (1977:15 fn.14) notes that *stellen* embraces the meanings of a whole family of verbs: *bestellen* (to order, to command; to set in order), *vorstellen* (to represent), *sicherstellen* (to secure), *nachstellen* (to entrap), *verstellen* (to block or disguise), *herstellen* (to produce, to set here), *darstellen* (to present or exhibit), and so on. *Ge-stell* denotes a gathering, which as such emphasises the interplay of all these meanings.

This answer clarifies the kind of envisioning that guides ordering: efficiency. Yet it brings another question: How does this efficiency that is a guidance has its presence in-the-world? That is, how in our times does this efficiency engulf us? This last query, in its manner and wording, already is part of the answer. The intuitive answer is the correct one: in exact science. In the technological age man is challenged forth into a revealing that, above all, concerns nature, as the chief storehouse of the standing energy reserve (ibid.:21). The way in which man directs himself to nature is the mathematical *physics*: "[M]an's ordering attitude and behavior display themselves first in the rise of modern physics as an exact science. Modern science's way of representing pursues and entraps nature as a calculable coherence of forces" (ibid.).

The real shows up as a calculable coherence of forces because previously to every questioning it was *a priori* mathematised, that is, orderly captured. The procedure of modern physics, just as any other procedure, moves on a previously opened sphere. It is the opening up of a specific sphere that is the essential matter of exact science. "This is accomplished through the projection within some realm of what is—in nature, for example—of a fixed ground plan of natural events. The projection sketches out in advance the manner in which the knowing procedure must bind itself and adhere to the sphere opened up" (ibid.:118). Modern physics can proceed mathematically "only because, in a deeper sense, it is already itself mathematical" [144] (ibid.). Therefore we must not misinterpret technology "as the mere application of modern mathematical physical science to praxis" (ibid.:116). Modern technology, as Enframing, "is itself an autonomous transformation of praxis, a type of transformation wherein praxis first demands the employment of mathematical physical science" (ibid.).

In mathematical physical science, the opening up of a previous ground plan in which beings appear is the way in which the essence of modern technology comes to presence. "The modern physical theory of nature prepares the way first not simply for technology but for the essence of modern technology. For already in physics the challenging gathering-together into ordering revealing holds sway (…). Modern physics is the herald of the Enframing" (ibid.:22). Only because the essence of modern technology lies in Enframing, does modern technology employ exact physical science.

That contemporary technology, that is, IT, has renounced traditional physics, employing a new kind of science, quantum physics, which in its turn is itself a result of the application

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[144] The etymological roots of the word 'mathematics' help to establish the *a priori* character of the ground plan on which exact sciences are based. For the ancient Greeks *Ta mathêmata* means that which man knows in advance of his observation of whatever is: the humanness of man, the animality of animals, the body-ness of the bodies, the vegetable-ness of vegetables. All these *is-nesses* belong to that which is always already known by men. Alongside with these *already knowns* there belongs the *numbers* as well—i.e., the mathematical: "If we come upon three apples on the table, we recognize that there are three of them. But the number three, threeness, we already know" (Heidegger 1977:118-9). Because numbers are, as it were, "the most striking of always-already-knowns, and thus offer the most familiar instance of the mathematical, is "mathematical" promptly reserved as name for the numerical" (ibid.).

of technology, supports this fundamental supremacy of Enframing over modern technology. In spite of mathematical physics having arrived almost two centuries before modern technology, seeing the manner in which they both belong to Enframing, leads us to the essential understanding that it is mathematical physics which is put to use by modern technology, by Enframing to be rigorous, and not the reverse.[145]

4.4.3. Replacement

With Heidegger's findings on modern technology firmly established, the analysis needs now to proceed into the specificity of IT. Is IT a revealing? Is enframing the essence of IT as well? What distinguishes industrial technology from IT?

The inquiry into the relationships between industrial and information technologies is something which has not been done up to now. Key contemporary investigations into the nature of IT (e.g., Feenberg 1999, Borgmann 1984) do not clearly distinguish the two phenomena, assuming some common nature in the two technologies. Yet, that IT, possibly, has something in its nature that is unique is the very suggestion of its new name.

Contemporary thinking on technology began to take form before the widely and pervasive impact of IT in modern societies, namely with the works of Spengler (1880-1936) (1926), Marx (1818-1883) (1999), Juenger (1949), Ellul (1964), and Heidegger (1977). This helps to understand that contemporary thinking on IT relies to some extent on previous analyses of industrial technology, but it does not mean that that is correct. It just means that the unifying nature of those technologies is implicitly assumed. This is to be phenomenologically scrutinised. In a phenomenological manner IT needs to be addressed as itself is, as IT, not just as technology.

The expression *new technology* is commonly used as equivalent to IT, pointing to IT both as *new* and as a *technology*. Thus, its newness relies on what shares the place with the *new*: the *i* of the IT, information. As something new, as IT is recognised as IT, it must evidently rely on an essence, otherwise it will be no phenomenon at all, i.e., nothing for us to recognise as IT.

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[145] Having disclosed the essence of modern technology as Enframing, Heidegger (1977) goes a step further. His analysis is a phenomenological one, which as such goes through all the phases of its method of investigation. When analysing technology (1977), or when analysing what it is to be human (1962), Heidegger extends the original phenomenological method of investigation, as developed by Husserl, into a final phase in which he intends to open possible concealed meanings of those phenomena—*Interpreting Concealed Meanings*. Taking into account the essential way in which man is in the world, Heidegger reassesses Enframing as that which is given in a first phenomenological analysis of modern technology. His intention is to "bring to light <u>our relationship</u> to [technology's] essence" (Heidegger 1977:23, our underlining); not just to respond to what the essence of modern technology is, but to "correspond" to the essence of what is asked about (ibid.:23). Heidegger thoughts on this matter, both difficult and puzzling, do not belong here in this investigation. As we are using the phenomenological method of investigation in order to uncover what IT essentially is, we will need to enter the phase of *Interpreting Concealed Meanings*, we will do that only as far as IT is concerned. In that analysis we will take into account some of Heidegger's (ibid.) arguments of this last phase of the method, as they show themselves pertinent to the disclosure of the deeper meanings of the unfolding of IT-in-the-world.

Where do we stand at this point? We have seen that modern technology is an ontological revealing, whose essence is enframing; and that information is the meaningful *actionation* of data (Chapter 3). It has been claimed that the entanglement between IT and being-in-the-world is the reduced phenomenon of IT. This entanglement was suggested in the etymological phase to be an ontological revealing, which is confirmed in the presentation of *Ge-stell*. As an ontological phenomenon IT permeates the background in which we are, and beings come to be accessible as something. As such IT, in itself, is fundamentally a background.[146]

Now our task is the bringing together of all of these strands. Our investigation moves within the realms of that which was shown essential to information and to technology. How do the essence of information and the essence of technology participate in the new phenomenon of IT?

Figure 4.1 - **Information + Technology**

| **Information** | **+** | **Technology** |
| *Making present* meaning | | *Enframing* / Ordering |

Information Technology
...
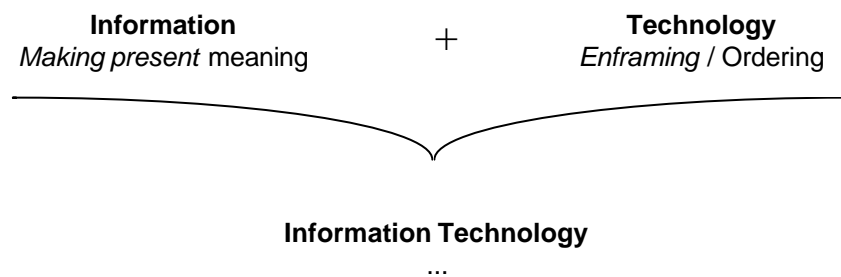
Formally, the content of IT is evidently information and technology. Either IT refers to technologies as they are related to information, or to information as it is related to technologies, or, indeed, to both of the aspects. How do these two phenomena merge in a

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[146] A not so synthesised review of main conclusions of the investigation up to now: We have seen that information is the *actionation* of data. Information is the making present of the sense of distinctions within the referential whole in which we always already are. It is, thus, the making present of meaning. This making present is that which informs us: information. As a making present, a realisation by myself, information is linked structurally to action already unfolding. Concerning technology, we have introduced the actual setting on thinking about technology, recovered the evolution of meanings of the etymological roots of *technê* and of *logos*, and finally put in place Heidegger's analysis of modern technology. We have concluded that in its essence technology is a revealing. Modern technology, that is, industrial technology, is essentially enframing, a setting of the real in the mode of ordering, in which everything must stand by, ready to be called to the ordering process. Every object, man as well, is enframed, becoming a resource for the ordering process. Humans are in this process of ordering that calls for control in order to drive everything to a maximum yield at the minimum expense, i.e., towards efficiency and more efficiency. In describing IT we noticed that IT devices deliver relevance. IT shows up relating to us, and we as such relate to it. IT is a collection of devices that informs and acts upon us, and with which we inform and act upon others. IT are acting entities that attract our attention and our physical presence as well. We experience IT as we transparently use it going on as we are in the world. As ready-to-hand entities, delivering relevance into our continuous acting in the world, IT devices belong to the realms of language, that is, of structural coupling. When performing the *epoché* upon IT we came to the conclusion that the entanglement between IT devices and being-in-the-world is the reduced phenomenon of IT. This entanglement was suggested in the etymological phase to be an ontological revealing, which is supported by Heidegger's (1977) findings on modern technology. As an ontological revealing IT is included in being-in-the-world. As such, it is on ontological grounds that IT permeates the background in which we are, and beings come to be accessible as something. Thus, IT, in itself, is fundamentally a background.

new one? Is there any supremacy of one phenomenon over the other? Does IT refer to information *through* technology or to technology *through* information?

A cross checking of what we have found in our analysis of technology and information with the ways in which IT is described in phase I of the method, supports the matching of the essences of the two phenomena. So, let us cross check the phenomenon of information and the description of IT:

· Does IT, or do IT devices, involve or refer to meaning?

· Do IT devices inform us? Do they present us differences that guide and influence us?

· Is IT included in a worldly unfolding in which we face distinctions and perturbations?

· Does IT mediate data?

· Is IT related to our activities in the world?

· Does IT withdraw into the background as we act in-order-to a toward-which for-the-sake-of-something?

The answers to all these questions is *yes*. Let us now cross check enframing and the findings of the description of IT:

· Is IT included in an unfolding based upon a revealing of the real?

· Do IT devices suggest some kind of a *framework* for the matters to which it relates?

· Does IT refer to the real?

· Does IT participate in some kind of an ordering process of our activities in the world?

· Does IT support efficiency?

· Does IT help beings to be addressed within a stand-by-*ness*?

· Can beings be *called* by IT?

Again, the answer to all of these questions is *yes*. IT is related both to the essence of technology and to the essence of information. Yet, IT does not show itself as two phenomena, but rather as one. IT is IT. In itself, IT is not only or essentially either information or technology, but something different. Thus, within the path we are following, the entanglement of IT and being-in-the-world—the reduced phenomenon of IT—should be accessed, and in principle uncovered, through the phenomenological matching of the essences of information and technology. In order to articulate this matching we will focus our analysis on the most decisive notions we found in the analysis of those two essences.

We recall that information is essentially the *making present of meaning*. Information is the making present of the sense of distinctions within the referential whole in which we always already are. In its turn, modern technology is essentially a *setting of the real in the mode of ordering*. This process, Enframing, reveals everything in its orderability. Man and Being are gathered face to face in enframing, which being ontological, is that which "concerns us everywhere, immediately" (Heidegger 1969:35). This ontological ordering is not some *a posteriori* interpretation that disclose the meanings of entities that appear, but it is rather an *a priori* disclosing that lets appear in particular modes that which is.

How should we join the notions of *making present of meaning* with *a setting of the real in the mode of ordering*? In IT are we facing *meaning about order*, or *order about meaning*? According to our investigations IT has in itself, essentially, order and meaning. Thus, the question is *how*? How do we essentially relate order and meaning?

Figure 4.2 - **Order and Meaning in IT**
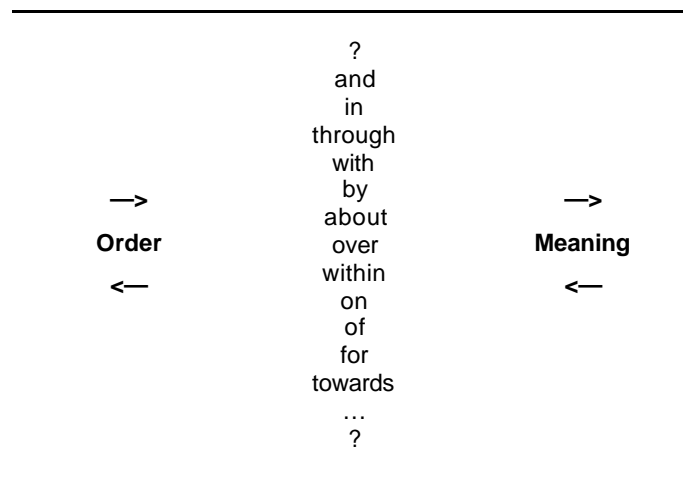
Order is a setting of meaning. Once something is ordered, the meaning is set—this, at least, is the promise of the notion of order. Order is a "condition in which every part, unit, etc. is in its right *place*" (OPDT:522; our italics). As such order relies upon a revealing of the rightness of the places of the matter in question. Once ordered, the places are set, and beings have their meanings. Order is a notion that in itself embodies a previous revealing on the basis of which order itself can unfold. Only that which already shows as orderable can be ordered. Order points to the concealment of that which does not show in orderability. Thus, order is a closing of possibilities.

Meaning, on the contrary, is a notion that points to an opening up of possibilities. Intuitively, meaning suggests questioning. Meaning is an addressing of the place of the thing in the referential whole. It concerns the references that something has in a referential whole. These references, that is, that towards which the thing is pointing and that which is pointing to it, are the recognition of something *as something*. This *as something* is the meaning.

This analysis shows that order and meaning have fundamentally different backgrounds: order, a background of answering and closing; meaning, one of questioning and opening up. Nonetheless IT brings together these two notions. How do these two almost contradictory notions join together in the new phenomenon of IT? Firstly, we should note that order and meaning do not simply join together in IT, but they *essentially* do that. How does this essential union unfold-in-the-world?

It is in order[147] now to enter a clarification of IT as we introduced it in the descriptive phase. IT devices are technologies that relate to information—they are technologies *of* information. Information characterises the kind of technology IT is; thus, IT means *informational technologies*. That IT are technologies that relate to information signifies at an essential level that IT is order (technologies) relating to meaning (information). Thus, the grounds of meaning is that which characterises the kind of ordering that IT is. Informational technologies or technologies of information essentially are ordering and meaning. As this ordering and meaning are together in an essential realm, as they are united in the identity, at the core, of the phenomenon of IT, they can not be addressed as two different entities but rather as one; ordering and meaning essentially join in IT, thus the phenomenon is in itself *ordering meaning* or/and *meaning ordered*.
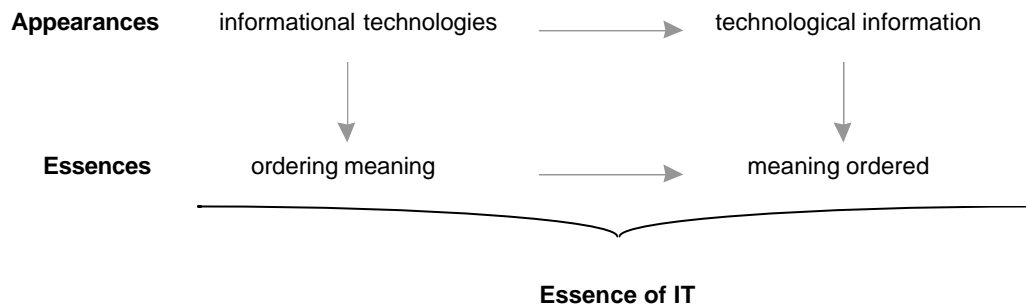
Acting on information IT *technologises* information. In/with IT information becomes technological—"technological information could simply be defined as the object of information technology" (Borgmann 1999:166). The kind of information, that is of the making present of meaning that IT renders is thus an ordered information. IT has ordered information as its object. Hence, informational technologies render technological information, which means that *ordering meaning* renders *meaning ordered*—this is both a logical completion of the reasoning under way, and an evident statement. As long as *ordering meaning* does order meaning, it will evidently accomplishes *meaning ordered*.[148]

This relationship between order and meaning is the *as something* that IT is. In IT order refers to meaning *as* ordering meaning, which, in itself, already includes meaning ordered. This relationship *is* the meaning of IT itself. The way in which the essence of technology and the essence of information mutually refer each other, i.e., the kind of the *as something* they disclose, is what IT essentially is. *Ordering meaning* is our first fundamental addressing of IT. A visual schema might be helpful to grasp what we achieved with the uncovering of the way in which order and meaning relate to each other.

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[147] In this sentence the word order introduces a way to answer the questions of the previous paragraph, which is an example of our interpretation above: a setting of meaning.

[148] This judgement is an analytical one in accordance with Kant's technical terminology (Kant 1985). The conclusion—meaning ordered—is included in the subject—ordering meaning. Stating that *ordering meaning renders meaning ordered* has the same logical certainty as stating that "all colours have extension" (ibid.). We do not need to abandon the concept of colour to conclude with certainty that colours have extension. Extension is included in colour. The same inference can be made concerning *ordering meaning: meaning ordered* is included in the concept of *ordering meaning*.

Figure 4.3 - **Order and Meaning in the Essence of IT**

Appearances   informational technologies → technological information

Essences   ordering meaning → meaning ordered

Essence of IT

Ordering meaning shows IT in a particular way, from a specific perspective. In *ordering meaning rendering meaning ordered* what is indicated is the essential unfolding in which IT presences: an ordering of meaning that renders meaning ordered. What is pointed here is the way in which the essential elements of IT are related. Yet, for these elements to be related, there must be something essential that unites them. What unites them from the beginning? What is foreseen in the unfolding of these essential elements of IT? What bringing forth, revealing, *poiesis*, *technê*, grounds this union? *Ordering meaning* rendering *meaning ordered* is the essence of IT as it is grasped from the perspective of the way in which it unfolds. The task, now, is to grasp it from the opposite position, that is, from its end, from its consummation. Notwithstanding that ordering meaning and meaning ordered are equiprimordial in that their relation is a logical and not a causal one, ordering meaning is the one element that shows up as the subject.

Ordering meaning is the way in which meaning is related to order. It points to an ongoing process in which order unfolds into/onto meaning. Order reaches, comes, gets, attains, arrives, spreads, stretches, extends, expands into meaning. Order is the very essential technological nature of IT, in that it is the holding sway of Enframing: "Enframing means the gathering together of that setting-upon which sets upon man, i.e., challenges him forth, to reveal the real, in the mode of ordering (…)" (Heidegger 1977:20). IT endorses its essential belonging to *Ge-stell* precisely because it is order about meaning; that is, meaning is dominated by order.[149] But how can meaning be dominated? The answer has been given: IT dominates meaning in that it is an ontological revealing, a *technê*. IT essentially is a background, against which that which is appears. This domination is a kind of revealing in which beings show up in the mode or ordering. The 'ordering' element of the essence of IT, as we recall it, is a revealing of the real (ibid.:20, 24, 27). So, IT is that against which the real shows. In ontic terms, in IT the real shows within an environment overloaded with detailed and towards-ordered information (McLuhan 1987).

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[149] Literally, o*rder about* means *domination* (OPDT:522).

Because that which dominates is not IT deviceness but an ontological revealing—the technological understanding of Being (Heidegger 1977, 1966, 1969, Zimmerman 1990, 1986)—IT not only conceals other ways of revealing but it conceals the revealing itself is. This is its character of domination. Domination is achieved in that IT conceals the *revealingness* of itself and of any other kind of revealing.[150]

In IT, ordering meaning shows up the real as a systematic way of making present meaning. This equals saying that IT shows up as a *system of information*. This orderability of meaning comes from enframing, that is, from technology. That Enframing is the essence of machine technology is the motive for the historical appropriation of science by technology, as referred to above. The meaning of the world is in exact science identifiable through calculation in order for it to remain orderable, i.e., in order to be kept under the essential revealing of Enframing. It is because technology unfolds as Enframing:

> "that nature reports itself in some way or other that (…) it remains **orderable as a system of information**" (Heidegger 1977:23; our bold print).

This paragraph is important to our thesis. In it Heidegger addresses indirectly the essence of IT by suggesting that ordering meaning is the evident nature of a *system of information*. For Heidegger the notion of order is evident in a system of information. He uses the expression 'system of information' to disclose the orderability that for him is an implicit and evident meaning of that same expression.[151]

The meaning of the real, in the sense of the world in which we always already find ourselves, is identifiable as to remain orderable. It keeps the essential revealing of enframing. As a systematic way of making present meaning—as a system of information— IT changes the perception of the real, which is equal to say that it changes reality. Everything said, observed, perceived, is always said, observed, perceived by someone (Maturana and Varela 1980, 1992). "[R]eality, as experienced, has always been virtual because it is always perceived through symbols that frame practice with some meaning that escapes their strict semantic definition" (Castells 2000:403). "Thus there is no separation between "reality" and symbolic representation" (ibid.). The perception of reality depends upon the structure of information, which is substantively affected by IT.[152] For example, Lapham (1994:xiv-xv) makes the following remarks:

> "I had occasion to write a six-hour television history of the twentieth century and discovered in the process what McLuhan meant by the phrase "the medium is the message". Allowed 78 seconds and 43 words in which to explain the origins of the World War II and provide the transition between the Munich Conference in September

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[150] In the next phase of the method we address possible ways in which this domination shows up as *what itself is not*.

[151] Heidegger adds that the way in which the real is revealed in a system of information, that is, causality itself, shrinks into a report of standing reserves "that must be guaranteed either simultaneously or in sequence" (Heidegger 1977:23).

[152] McLuhan (1987) comments that each technology arranges differently the ratio of our senses, thus creating new forms of awareness. These new experiences are new perceptual transformations that occur in us regardless of the content of each specific technology.

1938 and Germany's invasion of Poland in September 1939, I understood that television is not narrative, that it bears more of a resemblance to symbolist poetry or pointillist painting of Georges Seurat than it does to anything conceived by a novelist, a historian, an essayist, or even a writer of newspaper editorials."

We should note that as the IT phenomenon is absorbed in-the-world its name has been changing from IT, information technology, to IS, information systems. This change of name points to a deeper engagement of ourselves in the phenomenon of IT (see Table 4.1).

This change of name points to a progressive and deeper absorption of the ontological revealing that IT is. It opens up a specific direction in which the appropriation of IT is to unfold: its *systematic* and *systemic* character. These standard notions of IT and IS (many others would serve as well) show how the notion of system addresses the way in which IT is penetrating not only the assumed external and objective world but rather the very phenomenon of the in-the-world, of our lives as we live them. In short, IS is how we live with IT. IS is IT-in-the-world.

Table 4.1 - **IS is IT-in-the-world**

IT	IS	*Words pointing to the engagement of IT in the world*
The enabling mechanism which facilitates the processing and flow of information. (Peppard 1993:5)	The flow of information in an organisation and between organisations (Peppard 1993:4)	*… in an organisation…* *… between organisations…*
Computers, computers software, files, database management, communications. (Lucas 1990:109 ffs.)	A set of organized procedures that, when executed, provides information to support the organization. (Lucas 1990:15)	*…organized procedures…* *…when executed…* *…support the organization…*
Processing information technology, system software and programming language, data storage and processing, database management systems, communications and distributed processing. (Hicks 1993:215 ffs.)	A formalized computer information system that can collect, store, process, and report data from various sources to provide the information necessary for management decision making (Hicks 1993:2)	*… formalized …* *… to provide …* *… necessary for …* *… management …* *… decision makings …*
Comprises, besides all shapes and sizes of computers, automation technologies and communications. (Earl 1989:ix)	IS strategy is defined as the long-term directional plan which decides what to do with IT. (Earl 1989:67)	*… long-term…* *directional plan …* *… what to do …*

That IT shows up as ontological means that IS as such appears as that which the real is about, much in the way Angell (2000:28) urges us to consider the competitive environment that is coming: "Such enterprises [global and virtual] are project-based, and developed around complex networked information systems: *the information system is the virtual*

enterprise, it is the headquarters—*there is nothing else*—and it can be based virtually anywhere in cyberspace" (our italics). The material from the military field briefly reviewed in Chapter 1, shows a conclusion rather similar to this one: identity, while replacing the front-line as a crucial target of military conflict, relies on information systems. Thus, these examples, point not only to IS as IT-in-the-world, but also to IS as that which engulfs what matters for us as we go on coping in-the-world.

Within a system of information Being is revealed. Being is bound together constructively in a system, presenting itself as something 'clear', and thus requiring no further justification (Heidegger 1962:60). IT is receiving the name of IS because as an ontological revealing it is essentially a background against which that which is appears. IT grounds what appears as a system of information:

> "*It is a system in which reality itself (that is, people's material symbolic existence) is entirely captured, fully immersed in a virtual image setting, in the world of make believe, in which appearances are not just on the screen through which experience is communicated, but they become the experience.* All messages of all kinds become enclosed in the medium because the medium has become so comprehensive, so diversified, so malleable that it absorbs in the same multimedia text the whole of human experience, past, present, and future, as in that unique point of the Universe that Jorge Luís Borges called "Aleph" (Castells 2000:404; italics from the original).

Everything always and already appears against a background. The background provides the meaning of what appears (Dreyfus 1991, Polt 1999); it is the way in which that which is appears. Entities advance to the foreground and recede to the background as we are in the world. In this way, against a background that reveals us beings, beings matter to us. Thus, any background whatsoever, as long as it is in the background, cannot be fully articulated and explicated—by necessity it lies at the background of our understanding (Dreyfus 1991). If this is so, and if IT is an ontology, an epoch of Being in which we all are what we are against a background of ITness, we have to ask how are we able to present this very particular investigation? If IT is fundamentally a background on what account are we able to disclose it?

The answer is that we are relying on phenomenological background. IT reveals entities *as* something: for example, working as writing on a computer, people as email interlocutors, locations as always reachable, companies as calculating entities, informing about the world as watching TV, world as the globe, and so forth. The grasping of these examples as examples of a revealing that has ontological contours can come to the foreground only against a phenomenological background.

Phenomenology provides a non-ITised background. Phenomenology takes no presuppositions for granted. It accepts no explanations, interpretations, or justifications whatsoever of the phenomenon under investigation. The phenomenological method of investigation opens up a way into that which is strictly essential for the phenomenon to be recognised as what it is. Other methods of research surely can provide fundamental access to phenomena, except for one case: if the phenomenon is ontological. Only phenomenology

is able to reveal ontological phenomena because as ontological they set the grounds for action. As such, they would always remain inaccessible in their essence as long as we do not dislocate our quest from the *action* towards the *grounds*. Phenomenology works under no hypotheses. Thus, in addressing the essence of a phenomenon it has the potential of fully uncovering it—that is the aim of its method. As Heidegger states (1962:60) *"Only as phenomenology, is ontology possible."* As a revealing that is ontological, only phenomenology can open for us a way into the essence of IT. With phenomenology as our background, IT shows up its essential contours: an ontological revealing. Within IT backgroundness we can only discover IT as a tool; we would not perceive the background, but rather relying on that background for perceiving the foreground. This is precisely what happens with traditional Cartesian based approaches to IT.

Yet, if we look closer trying strictly to describe this backgroundness of IT, it indeed does not show up as a background as such but rather as a claim for essential backgroundness— this is the meaning of the 'rendering' element of the essential account of IT presented above*: ordering meaning rendering meaning ordered*. The destiny of IT, its consummation as what itself is, is a background. Yet, its unfolding is the claim for that backgroundness. This claim is essential for IT. It unites ordering meaning and meaning ordered. This claim is a push for the replacement of a previous background, one, whatever it would be, whose essence is not order about meaning.

As a background that is gaining its place IT shapes action and models a world. As such any kind of cultural or spiritual reservations anyone may have towards IT will add up to nothing at all. "The effects of [information] technology[153] do not occur at the level of opinions or concepts, but alter sense ratios or patterns of perception steadily and without any resistance" (McLuhan 1994:18), in the way, for example, that "[m]oney has reorganized the sense life of people (…). This change does not depend upon approval or disapproval of those living in the society" (ibid.:19). Moreover, that the essence of screen is *already agreement* (Introna and Ilharco 2000) comes to clarify a crucial way in which IT spreads and conforms people and the real with itself. "Technology isn't just something man has acquired as an accessory. Right now it is what he *is*" (Stambaugh 1969:13; italics from the original). Practices and comportment are directly shaped by the ways in which technology organises its unfolding. Once a practice has been explained by appealing "to what *one*[154] does no more basic explanation is possible" (Dreyfus 1991:155):

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[153] The meaning of the word technology in many of the cases in which McLuhan used it is entirely consistent with the current meaning of the expression information technology. McLuhan used the expressions *media* and *medium* to refer to technology, particularly to new technologies. It is a misunderstanding to think of him as someone who concentrated his well known works on the field of the media, as it is nowadays understood, that is, press, radio, TV, and so forth. For McLuhan the media that possibly affected most our contemporary way of being is the alphabet. For him a media was as much TV, press, and radio, as it was numbers, houses, automobiles, clothes, roads, money, clocks, printing, telephones, movies, or weapons (McLuhan 1994).

[154] *One* refers to Heidegger's (1962) *das Man*, 'the they', the way of humans to be engulfed by the practices and comportment of the collective.

> "Technology not only supplies the demand; it also organizes it. How does it do it? The method is compelling, and utterly simple. To use a familiar technical term that describes it well: "It plugs man in". It does so with the same ease with which we push a button or throw a little switch to turn on a light. The process is all-embracing; it includes not only the labourer but everyone living within the technical organisation. When I get gas, water, heat, or electricity from a public utility, I become at the same time subjected to an organization which expands like a series of widening circles, and which is managed from a technical center. When a telephone or a radio network is installed in my home, I not only get an object for my use, I am also hooked up to a circuit of power lines or radio network. I become part of a large organization which is managed from a central office. However, there is nothing hierarchical about it—it only expresses the lawful regularity of causes and effects, such as we perceive any mechanical apparatus" (Juenger 1949:70).

The ITised background discloses the real because every real is disclosed against a background. As a substituting background IT replaces reality—essentially IT is this ontological *replacement*. "Information gets more and more detached from reality and in the end is offered as something that rivals and replaces reality" (Borgmann 1999:182).[155] "The new media [that is, IT][156] are not bridges between man and nature; they are nature" (…) they "are not ways of relating us to the old "real" world; they are the real world" (McLuhan 1995:272).[157] This detachment of information from, so to speak, *natural* nature, is achieved in that technological "information holds on its own its self-realising" (Borgmann 1999:182), by referring and being referred to signs within the technological information situation. Technological information typically refers to technological information.

The ITised referential whole is constantly sighted beforehand in circumspection as a whole and as totality. In this totality the world announces itself (Heidegger 1962:105). In-the-world we encounter IT in the mode of ready-to-hand. ITised signs are themselves ready-to-hand, part of an equipmental whole we find in action and we do not thematise. Technological information are signs that let an embodied conception of that which is unfold:

> "(…) they let some context of it become accessible in such a way that our concernful dealings take on an orientation and hold it secure. A sign is not a Thing which stands to another Thing in the relationship of indicating; it is rather *an item of equipment which explicitly raises a totality of equipment into our circumspection so that together with it the worldly character of the ready-to-hand announces itself*. In a symptom or a warning-signal, 'what is coming' 'indicates itself', but not in the sense of something merely occurring, which comes as an addition to what is already present-at-hand; 'what is coming' is the sort of thing which we are ready for, or which we 'weren't ready for' if we have been attending to something else" (Heidegger 1962:110-1).

For example, from any Internet connected computer on earth a manager can check his email. In-the-world he does not thematically bring to his attention this possibility. He rather relies

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[155] The candidate first presented the notion of *replacement* as the essence of IT, in December 1st 1998, in a research seminar of the LSE IS department. By then he was unaware of the rather similar way in which Borgmann (1999) was about to use the same idea.

[156] See footnote 153 above.

[157] Lapham urges us to understand technology in Max Frish's phrase, "as the knack of so arranging the world so that we don't have to experience it" (Lapham 1994:xv, Lapham 1997:39).

his own activity as a manager on that possibility; and on many other possibilities as well. He reads the report on the last sales figures, and replies with some instructions intended to affect the next sales figures. He already takes into account the figures of the competition as they have just been shown on TV. He checks the macroeconomic indicators, spots the differences from what was expected by the markets, and writes some new report while rechecking more tables, graphs and charts. He sends his report to his staff through the company's network. A press version is prepared to be sent to the media. Next he takes the mobile phone and checks information on how the NASDAQ, a physically non-located entity, is doing. The flow of information is always running feeding its own movement, showing as the environment in which that which matters appears for this manager. He lives within a technological information that for him is much more real—it is what matters— than what is actually going on store A or store B. The technological understanding of *what is* "is obsessed by the latest news, and regards them as the only thing that is real" (Heidegger 1969:41). What the company's store nearby actually is selling or not is almost meaningless for the manager. In order for it to become relevant it must be ITised, contextualised, shown against the background against which it gains meaning—it must be what he was or was not *expecting*.

This replacement of the real is not something linear nor obvious. We are yet to understand the kind of technology in which we are engaged (Heidegger 1977, McLuhan 1994, Introna 1997, Feenberg 1999, Borgmann 1999). IT is what it is as we operate in society relying on the equipmentability of the devices of this new technology. Because these devices are equipment they withdraw, recede into the background escaping our attention. Thus, we cannot thematically and intuitively grasp what they affect the most.[158]

'The they' has a primordial role in the way we implicitly expect the world to show up. The averageness of 'the they', which establishes what equipment is, is not a statistical notion. There is a tendency in Dasein's being-alongside-with-others towards conforming to norms. "To be told that 90 percent of the population does X, exerts pressure only on conformists, while norms gently influence everyone" (Dreyfus 1991:153). Norms announce averageness, which is the way in which things are supposed to be done in a particular context. Their function is opening up a world that is the background against which beings can get their readiness-to-hand. "[I]n each culture there are equipmental norms and thus an average way to do things. There must be, for without such averageness there could be no equipmental whole" (ibid.) The referential whole in which IT shows up relies on a background of averageness in which a PC, a TV, a mobile phone and so forth are to be used. For IT equipment to work, the what, how, when, where one uses it—that is, how 'the they' uses

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[158] "For in operating on society with a new technology, it is not the incised area that is most affected. The area of impact and incision is numb. It is the entire system that is changed. The effect of radio is visual, the effect of photo is auditory. Each new impact shifts the sense ratios among all the senses" (McLuhan 1994:64). Printing created individualism and nationalism in the sixteen century (McLuhan 1994:19-20). IT brings about globalisation, the rise of power of women, the English language as a *lingua franca*, a general taxation crisis, and many more changes (Angell 2000).

it—must be determined in advance. Thus the functioning of the ready-to-hand is dependent on the averageness of 'the they'.

This averageness lets unfold a world, which is precisely what is never explicitly revealed because it is the basis on which the ready-to-hand is what it is, never showing up itself as a present-at-hand entity. Thus, IT readiness-to-hand, i.e., the way in which we are in-the-world using IT, reveals a world. This world comes into being as a form of life (Wittgenstein 1967), as a way of doing what is supposed to be done. IT is this form of life in which its fundamental unfolding happens in its equipmentability. This does not mean that the norms that make IT available for us are fixed once and for all. "[T]echnological and social developments are constantly changing specific ways of Dasein to be" (Dreyfus 1991:161). However those changes belong by necessity to the background, as such they can happen only at the level of the shared practices. These practices are shared and only *shared* because they cannot be represented,[159] they cannot be communicated (ibid.:221). Thus, they cannot be directly targeted or imposed.[160] This means that it is the way in which IT is used that is and will be decisive for the destiny of our contemporary technological world. "No single man, no group of men, no commission of prominent statesman, scientists, and technicians, no conference of leaders of commerce and industry, can brake or direct the progress of history in the atomic age. No merely human organisation is capable of gaining dominion over it" (Heidegger 1966:52). In everydayness "the agency through which most things come about is one of which we must say that 'it was no one'" (Heidegger 1962:165). It emerges from how things are. Practices and comportment are directly shaped by the ways in which technology organises its own unfolding.

IT as ready-to-hand implies a world in which IT comes into being precisely as equipment. As such it implies from the beginning man's action and involvement in a non-thematic way. It is this mode of being that creates its own way in-the-world, a way that gathers peoples day-to-day coping in the world around IT devices.

> "Perhaps the most obvious 'closure' or psychic consequence of any new technology is just the demand for it. Nobody wants a motorcar till there are motorcars, and nobody is interested in TV until there are TV programs. This power of technology to create its own world of demand is not independent of technology being first an extension of our own bodies and senses. When we are deprived of our sense of sight, the other senses take up the role of sight in some degree. But the need to use the senses that are available is as insistent as breathing—a fact that makes sense of the urge to keep radio

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[159] Representations precisely rely on shared practices in order to be meaningful. The way we are in language dwells upon this background of shared practices, which cannot be made explicit. This explains why the programming of computers to understand natural language—speech recognition, not just voice recognition—has witnessed so little progress.

[160] The way in which the Internet comes to be what it is is a good example of the way in which these background changes can happen. The Internet was firstly conceived more as a network for military communications—Arpanet—, than for the scientific and to some professional communities, and finally it was appropriated as a communication tool by the public in general (Castells 2000; Feenberg 1999:191). The background changes on account of what 'the they' do, not because something was planned. It is not subject to willed change. It changes gradually, just as language evolves gradually, but it never changes all at once and never as the result of the conscious decision of groups or individuals (Dreyfus 1991:161).

and TV going more or less continuously. The urge to continuously use is quite independent of the 'content' of public programs or of the private sense life, being testimony that technology is part of our bodies" (McLuhan 1994:67-8).

In-the-world we live-with-IT; we *know* it in its equipmentability as a totality—as reality. As beings are ITised they enter a new reality. A CD is a not a representation of music, it is music; in many cases strangely but commonly considered *more perfect than reality itself*. This kind of feeling that many of us have experienced is an aspect of the replacement of the real, in the mode of some kind of a disburdenment, that IT essentially lets unfold. "At the limit, virtual reality takes up with the contingency of the world by avoiding it altogether. The computer, when it harbors virtual reality, is no longer a machine that helps us to cope with the world by making a beneficial difference in reality; it makes all the difference and liberates us from actual reality" (ibid.:183). A simulated flight or an electronic stock exchange has meaning and involves us on their own, only maintaining a subliminal reference to that reality where we die. As IT diffuses and deepens, and *vividness* and *interactivity*[161] increase, it is the unreplaced real that sounds more strange and clumsy:

> "[T]he Grizzly Discovery Center [at the Yellowstone Park] has established itself at the west entrance to the park and exhibits grizzlies and wolves, contented and playful to all appearances, and yet, much like their human spectators, cut off from the environment that once engaged their skills and warranted their ferocious power. The IMAX theatre next door will hourly show you *Yellowstone*, the movie, on a screen five stores high and half a block wide. Enveloped by symphonic music pouring forth from the fourteen speakers of a six-channel stereo surround system, you glide over the sunny expanses of the park, move through centuries of human history, penetrate geology of the geysers, come face-to-face with eagles and bears. The real park must appear dreary and boring in comparison" (Borgmann 1999:217-8).

Whatever is touched by IT shows as a new reality. Not only the IMAX screen at the door of the Yellowstone park, but a more effective and efficient world in which people maximise what they see, feel and experience in the least amount of time and space possible. "Whatever is touched by information technology detaches itself from its foundation and retains a bond to its origin that is no more substantial than the Hope diamond's tie to the mine where it was found" (ibid.:5). This detachment rivals reality in that it constitutes a ground for action, that is, an ontology. As an ontology the world matters as it appears within ITness. Introna (1997) addresses this issue, uncovering the way in which Tayloristic thinking makes IT *the* reality itself:

> "In the hyper-real representation, representation becomes an end in itself. This sense of information as generated by computerized information systems is already current. Taylorist managers often believe the computer generated report to be more correct (more real) than reality itself. The models in the decision support system are more real than the opinions of others. The system is taken to be objective and real. For Taylorist managers there is a one-to-one mapping between the representations and the reality,

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[161] According to Steuer (1992): *Vividness* is depth—resolution, of which the CD is the paradigm—and breadth—the number of the human senses involved; *Interactivity* is speed—a CD plays more swiftly than a live orchestra—, range—the degree of response involved in the IT reality— and mapping—the natural character of the involvement, that is, is it pushing buttons, or speech and gestures?

even to the degree that the model *is* the reality. For them the computer is an objective and value-free mirror of the reality" (Introna 1997:184-5).

Introna's argument comes to the support of ours. Nonetheless we add that this *realityness* of IT is not an exclusive presupposition of Taylorist managers, but indeed of much of Western science. Nietzsche noted this when he wrote "It is not the victory of science that distinguishes our nineteenth century, but the victory of scientific method over science" (Nietzsche 1968:261, n.466). Taylorist thinking pervades mainstream management thought, just as other specific Cartesian approaches dominate many other scientific arenas.

After more than three hundred years in which Western education mainly developed under Cartesian epistemologies, the dualist models—subject and object, man and world, thinking and action, data and information, and so forth—are so entangled with our way of being, in our daily lives, that one has to try hard to reflect and to think out of those schemes. To a great extent we are all Cartesians now. It is mainly within this prevalent Cartesian implicit understanding of reality that IT unfolds as replacement—"technological information holds the promise that, if properly linked with reality on the input side, the rigor of its algebra will faithfully preserve and process meaning and yield reliable information on the output side" (Borgmann 1999:166). Controlling information that has a one-to-one correspondence to reality, it is reality itself that is controlled.[162]

Replacement of the real is that which, within enframing, unites all of the elements that IT is. Replacement is that which unfolds and pervades as all of the appearances of IT penetrate our daily lives. This essential notion of the replacement of reality by IT, and the way in which ordering and meaning are related within it, could be grasped in the early days of computers, as the following passage shows:

> "For technical inclined people, the early computers presented a microcosm of technology that they were able to comprehend and inhabit in its entirety, unlike the world of their work where they were confined to a small niche and unlike society at large that alienated them through its forbidding and irrational complexity" (Turkle 1984:165-95).

Entities and world appear against this background of ITness. IT has everything to do with Enframing. From ordering meaning to meaning ordered enframing becomes clear. Ordering meaning is conceived, disclosed, fore-sighted, in that it renders ordered meaning. Ordered meaning, in its turn, is fore-sighted in that it replaces reality. Replacement, last but not least—indeed it is the initial union of IT as a whole—is fore-sighted in that it is an appearance of an ontology. This ontology firstly comes to presence as Enframing.

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[162] We note that the ideas of control and order go back to the etymological roots of information, particularly to the meaning that were attached to the Latin word *forma*. The English word form has its origins in the Middle English *forme*, which in its turn has its roots in that Latin word *forma*. Form has nowadays a plurality of meanings: "the shape and structure of something as distinguished from its material"; "a prescribed and set order of words", "a manner or style of performing or accomplishing according to recognised standards of technique", "an orderly method of arrangement (as in the presentation of ideas)", "a manner of coordinating elements". In transitive senses to form means "to give a particular shape to", "to model by instruction and discipline", "to arrange in order". All these notions point to the idea of a certain arrangement, order, or structure. These meanings are nowadays clearly preserved, particularly, within studies of information or IT relying on the functionalist paradigm.

Replacement is the way in which Enframing consummates its destiny. Replacement is the destiny of Enframing. It is that towards which Enframing moves.

Figure 4.4 - **Enframing becoming clear**

Ordering Meaning - - - - - - - - - - - - - - - - - - - → **Meaning Ordered**
- Enframing +
.................................→

Holding in its nature the essence of IT, enframing clarifies itself in IT. We do not mean that enframing stresses its presencing or that it becomes more powerful, so to speak, but rather that, in IT enframing clarifies what itself is; its unfolding becomes clear in IT. The reason for this is that in IT enframing enters a rationale of totalisation, instead of the rationale of fragmentation within which it moves in industrial technology.

In IT enframing emerges in the domain of structural coupling, of ontogenic communicative behaviour. Heidegger pointed out that the typewriter reveals the intrusion of technology into the domain of language (Zimmerman 1990:206). "Although the typewriter is a symptom of the technological age, Heidegger conceded that it is "still not a machine in the strict sense of modern technology, but it is an in-between thing, between a tool and a machine. Its production, however, is conditioned by machine technology"[163] (ibid.). Today the computer with *word processing* software has taken the place of the typewriter. Although they mainly serve the same function—to write—they are very different mechanisms. Neither handwriting nor the typewriter provide the efficiency of the production of texts as successfully as the word *processor*.

In *processing* words, language enters the ordering process of technology: "In the technological world, even language becomes an instrument serving the production process. Heidegger argued not only that German dialects are being pushed aside by standardized German (promoted by radio and television, as well as by schools), but that the German language itself is being replaced by Anglo-American—the universal language of modern technology" (ibid.:215). We must add that that is correct not only for the German language but indeed for all languages touched upon by ITness.

Castells (2000:70) mentions that it is because information is an integral part of all human activity that all processes of our individual and collective existence are directly shaped[164] by IT. Language is that which adjusts ourselves to environment and to others. *Mutatis mutandis* we are what we are in language; as such IT is entangled with language because we now see, speak, hear, read and write with and through IT. We might say of this IT-

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[163] In *Gesamtausgabe* (Collected Works), Heidegger's *Parmenides*, (Winter Semester 1942) ed. Manfred S. Frings, quoted in Zimmerman 1990:206.

[164] Castells adds: "(although certainly not determined)".

languaging entanglement[165] what McLuhan said would occur if we spoke Chinese: we would have a different sense of hearing, smell and touch (McLuhan 1970). Affecting our structural coupling, IT substantively affects us. Fundamentally acting in language IT is a part of being-in-the-world, opening up a way—the most human of the human ways, to be precise—for the ontological decisiveness of the essence of industrial technology, enframing, further to unfold.

We recall that computing—*computare*—is the oldest meaning of the ancient Greek word *logos* that joined with *technê* in the word *technologia*, and was brought together with *onta* to the new word ontology. This ancient *computare* is coming again boldly into presence in computation: Currently replacement mainly appears as computers. The computer is the millennial machine of contemporary culture (Borgmann 1999:154). Why is this? Why is the computer the centre of the notion of IT? Why did the computer's paraphernalia receive the name of IT? Why was *logos* a computation? Why does enframing clarify in replacement? Can we now bring the strands of our analysis together to solve this puzzle?

IT is technology of a kind—a technology that acts on information. This acting that aims at an ordered meaning unfolds in and as computation. The computer computes. Now, computing is a *recomputing* because it discloses and counts on a previous unifying power of that which computing already is.[166] As such it brings the disclosure of beings against a background of reckoning and calculation. Information, that is, the inward forming that reaches in and reaches out, comes to presence as calculation, reckoning, and computing. It is this *logos* of IT, in the sense of *gathering* and *sheltering* (Heidegger 1984), that shows information as reckoned, calculated, organised, planned, measured material. Whenever "we plan, research, and organize, we always reckon with conditions that are given. We take into account with the calculated intention of their serving specific purposes" (Heidegger 1966:46).

IT are the conditions that are given; it is the gathering that shelters (Heidegger 1978). IT is the ground for action as, as a *logos* that is a *computare*, it substantively reveals thinking as calculation—"Calculative thinking computes" (ibid.). Because this computing is ontological, that is, it is the basis on which action unfolds, thinking remains calculative thinking "even if it neither works with numbers nor uses an adding machine or computer" (ibid.). Thus, it is not IT which appears as computation, but rather the real; the real appears as *computare,* against IT as an ordering background. This ordering "detached from the notion of creation, can (…) be represented in a general and indefinite way as a world-order.

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[165] Language and information are considered by Uchyama (1999) to belong to the same phenomenon. Language is understood on the basis of Kimura's notion of *actuality,* which is an uncovering of an ontological distinction of wholeness; this notion points to some extent to Heidegger's conception of Being of being. Information in its turn is understood within Kimura'a notion of *reality*, which is an addressing of onticity, of a being as such. For example, music would happen in *actuality*, while each of the sounds that compounds the music are at the *reality* level. On the one hand, information is a message from *reality* towards *actuality*. On the other hand, language is a message from *actuality* to *reality*.

[166] Heidegger (1978:407) writes: "Counting is a recounting. It previews the unifying power in cohesion".

The theologically conceived order of creation is *replaced* by the capacity of all objects to be planned by means of a worldly reason which supplies the law for itself and thus also claims that its procedure is immediately intelligible" (Heidegger 1978:119; our italics and bold print).

Against IT the real appears intelligible in/as a system of computation, that is, as a computing information system. As a background against which what is appears, IT is an ontological *informing* that orders meaning in that it captures it in a system, replacing the real, and letting enframing strengthen its path towards an efficiency whose ultimate aim will be shown (in phase VI of the method) to be the very mortal condition of man.

Contrasting with IT that enframes the real by showing itself within the domain of language, industrial technology addresses the onticity of beings, namely its presupposed physicality. Its rationale, its functioning logic, is one of fragmentation as it proceeds by isolating, separating, and analysing, piece by piece and segment by segment. Enframing is of course not this functioning but the monumental framework within which that fragmenting rationale functions. The rationale of IT is quite contrary to the rationale of industrial technology.

Industrial technology reveals the real as standing-reserves. Once one has faced a river as a possibility of a mechanism of generating electric power, or a mountain as a source of precious metals, one cannot anymore not consider, not be affected, by this revealing. Yet, industrial technology recedes into the background and for the most part lies hidden as it reveals new worlds. IT recedes as well into the background as it is used and appropriated, but does not address any action in particular, such as the electricity generation or mining activity referred above. IT does not refer in its essence to any specific action. IT directly addresses language, that is, IT is directed to action as such.

IT is technologies of action. It is a manner of addressing any kind of human action in the world. It affects, it enters, it moves within the languaging that for us humans is the way in which we adjust ourselves to and in the world. This is equal to saying that while industrial technology Enframes the real by addressing the onticity of beings, IT Enframes the real by directly addressing the very domain of humans' structural coupling. When writing that "[c]ybernetics transforms language into an exchange of news", Heidegger (1978:434) is pointing to the standardisation and regulation of language, that is, of meaning, that cybernetics as the "new fundamental science" (ibid.) is directed to establish.

The essence of IT is a kind of a letting-presence, a presencing of what appears within an ontological and unique transformation in which the "letting" itself is allowed to let be in a particular way. The decisiveness of that which is, is let appear within an accomplished stand on the grounds of truth—calculative thinking, as referred to above. For Heidegger the disclosure of beings, "letting beings be", is the unfolding of freedom as the essence of truth (Heidegger 1978, 1999b). Letting beings be, we engage ourselves with them, and as such,

we let them be what they are. "To let be is to engage oneself with beings" (Heidegger 1978:125). By affecting the 'letting be', the modes in which humans structurally couple themselves to each other and to environment, IT pushes toward the stabilisation of the mechanisms that accommodates its own unfolding because to be "structurally coupled to a society consists in having the structures that lead to the behavioural confirmation of the society" (Maturana *in* Maturana and Varela 1980:xxviii). Thus, because IT enters the domain of structural coupling, by necessity it stands for the stabilisation of human conduct, not in such and such activity but in all activities in general.

Table 4.2 - **Essence, Direction and Rationale of Technologies**

Technology	Essence	Direction	Rationale
Industrial	Enframing	Onticity of beings	Fragmentation
Information	Replacement	Structural coupling	Totalisation

IT addresses human activity as a whole. Replacement addresses being-in-the-world, at once and as a whole. The rationale of replacement is thus not one of fragmentation, but rather one of uniting, of totalisation. This is so because the relations of structural coupling that undergo historical stabilisation are those that concern the stability of society within a given medium, disregarding singular choices that any observer might take (ibid.:xxviii). Thus, as long as IT (replacement) rules whatever is to happen happens, and opinions and considerations will avail to nothing at all in these matters.

Now we can answer the initial questions that guided this step into the essence of IT: Is IT a revealing? Is its essence Enframing? Does IT unfold as ordering? The answer to all of them is *yes*. IT is Enframing, a revealing that unfolds in the mode of ordering meaning. Enframing, revealing, ordering meaning, all are elements of that which IT essentially, primarily, and as a whole, is: replacement. Replacement is that which is most essential to IT, and that which from its very coming to presence always already has united its elements of enframing, revealing, and ordering meaning. Replacement is the way in which IT unfolds in the world, that is, it is the essence of IT. This essential notion was brilliantly captured by McLuhan (1994:68), forty years ago, in a sentence, which we recover now in the context of this investigation:

> "I will stand on your eyes, your ears, your nerves, and your brain, and the world will move in any tempo or pattern I choose."[167]

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[167] McLuhan (1994:68) intends in this passage, in which we meant replacement as if it would *speak*, to uncover Archimedes' famous sentence "Give me a place to stand and I will move the world" as grounding our technological culture. Arendt (1958:262) refers to this same Archimedean claim as something fundamentally fulfilled in modernity by the coming to presence of the perspective of the earth from the universe. This view that Arendt claims to have arrived with Galileo's invention of the telescope, is the one we claim below to ground globalisation, which will be shown to be with IT the same phenomenon.

That replacement is the essence of IT is not only consistent with the phenomenological work of Heidegger (1977) on the essence of technology, but it relies decisively as well on Heidegger's (1962) *Being and Time*. Replacement draws as much on *Ge-stell* (Heidegger 1977) as it does on ready-to-hand and 'the they' (Heidegger 1962). Replacement brings *Ge-stell* and being-in-the-world coherently and consistently together, as we think it was shown. It is because IT devices have ready-to-hand as their typical mode of being, and because we live with/in IT in everydayness, that the enframing of modern technology is revealed in IT as replacement. The pervasiveness, both in depth and scope, of IT devices in human activity, and their readiness-to-hand are fundamental for enframing to enter directly into language becoming replacement. In essential terms, as enframing becomes ready-to-hand and is appropriated by 'the they' it becomes replacement. In these basic conditions IT's ready-to-hand grounds our age. Moreover it is always in these terms that any age whatsoever comes to be what it is. It is always the ready-to-hand that defines what is most decisive:

> "The 'antiquities' preserved in museums (household gear, for example) belong to a 'time which is past'; yet they are still present-at-hand in the 'Present'. How far is such equipment historical, when it is *not yet* past? (…) *[A]re* these, which are present-at-hand, still what they were? Manifestly these 'Things' have altered. The gear has become fragile or worm-eaten 'in the course of time'. But that specific character of the past which makes it something historical, does not lie in the transience, which continues even during the Being-present-at-hand of the equipment in the museum. What, then, is past in this equipment? What *were* these 'Things' which today they are no longer? They are still definite items of equipment for use; but they are out of use. Al the same, whether they are in use or out of use, they are no longer what they were. What is 'past'? Nothing else than that *world* within which they belonged to a context of equipment and were entities encountered as ready-to-hand and used by a concernful Dasein who was-in-the-world. That *world* is no longer" (Heidegger 1962:431-2; italics, parentheses, and single inverted quotation marks from the original).

Thus, the ready-to-hand of an epoch is that on the basis of which that same epoch is grounded. As the ready-to-hand grounds an age, IT grounds our epoch, which, elucidatively has taken IT for its name—IT era, information society, digital society, and so forth.

Considering our thesis on replacement as correct, one might say that it would have been possible that Heidegger, in spite of having witnessed only the dawning of the computer age, would have touched upon this notion of replacement somewhere. We think he actually did while hinting that an ordered meaning is the fundamental nature of a system of information (Heidegger 1977:23), and while stating that 'calculative thinking' "replaces" the theologically conceived order of creation (Heidegger 1978:119). The replacement of the 'order of creation' is for Heidegger the very essence of Enframing, which he points to as *the danger* as such (Heidegger 1977). This replacement, held in the essence of enframing, has the danger as its deeper meaning because it aims at man's essence (ibid.). The danger is the changing of what we are. [168] For Heidegger, modern technology is based on "a revolution in leading concepts which has been going on for the past several centuries, and

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[168] The way in which this ontological challenge functions within IT will be made manifest below (phase VI).

by which man is **placed** in a different world" (Heidegger 1966:50; our bold print). This comes to confirm our argument in that in IT enframing becomes clear. It becomes clear because in its essence enframing already and fundamentally is replacement. This essential replacing nature of IT was also pointed out by Heidegger (1981:45-72) in the *Der Spiegel* interview while commenting on the end of philosophy. Let us recover the passage in question:

> "Heidegger: (…) The role of philosophy in the past has been taken over by the sciences. For a satisfactory clarification of the "efficacy" of [philosophical] thinking we would have to analyse in greater depth what in this case "efficacy" and "having an effect" can mean. Here we would need fundamental distinctions between "occasion", "stimulus", "challenge", "assistance", "hindrance" and "cooperation", once we have sufficiently analysed the "principle of ground ['sufficient reason']". Philosophy [today] dissolves into individual sciences: psychology, logic, political science.
>
> Spiegel: And what now takes the place of philosophy?
>
> Heidegger: Cybernetics." (ibid.:59; square brackets from the original).

Heidegger was using the term philosophy to refer to the metaphysical tradition of Western civilisation, which he saw as beginning with Plato and being completed with Nietzsche's Zarathustra (Heidegger 1991, 1977, 1978; Zimmerman 1986, 1990; Biemel 1981; Krell 1991; Polt 1999). For him, that tradition of thinking the meaning of Being is being closed off progressively by the unfolding of the technological understanding of Being, which finds its grounding foundations on man's establishing of himself as the final court of reason, on which reality as such is made dependent (ibidem; Palmer 1969). Nietzsche's *Also sprach Zarathustra* is pointed to by Heidegger as the fulfilment and culmination of this path—man rules.[169] Thus, "the end of philosophy proves to be the triumph of the manipulable arrangement of a scientific-technological world and of the social order proper to this world" (Heidegger 1978:435). In this setting cybernetics takes the place of philosophy because, as cybernetics is taken up by the way in which IT thrives in-the-world, it is shown to be an ontological revealing, a what-to-do/what-to-be. This Heidegger's (ibid.) reference to cybernetics is a important hint towards the replacement nature of IT. "No prophecy is necessary to recognize that the sciences now establishing themselves will soon be determined and regulated by the new fundamental science that is called cybernetics" (ibid.:434). This comes to confirm an initial clue, at the beginning of the first section of this

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[169] Heidegger's argument of considering Western metaphysics to end with Nietzsche's *Overman* (Nietzsche 1969) is much more complex than the simple uncovering of the widespread supremacy of human 'objective thought'. For Heidegger, Nietzsche's *Overman* points to a new beginning. Yet, this new beginning in which man faces and assumes his essential nature by releasing himself from the drive to dominate the earth in order to gain security, only comes to light once some kind of a Cartesian 'objectivist' stance on humanness has been reached, in which man assumes himself as the final judge of the real. This strengthening of the domain of 'objective thought' corresponds to some extent to Nietzsche's nihilist; and, the *Overman* represents post-nihilist. This latter doctrine is brilliantly synthesised by Angell (in a conversation with the Ph.D. candidate) when, commenting on the limits and shortcoming of science, he uncovers what Nietzsche was pointing out in his post-nihilist phase: "It doesn't matter! You're alive, and you're a man".

chapter, in that technology is in our times the answer to the question that philosophy is/was.[170]

Replacement as the essence of IT brings together earlier and later Heidegger, which is something not done up to now, in many cases on grounds of some anticipated impossibility. That Heiddeger did both investigations (1962, 1977) using the same phenomenological method is after all the evident mark that *Ge-stell* and *Being and Time* would obviously have a fundamental connection. Our work on IT begins to show how these two pieces of phenomenological work belong together.

4.5. Watching Modes in which the Essence of IT Appears

Intuitively IT appears as devices. Yet, we are now to understand not how IT devices show up, but how the essence of IT appears—how the essence of IT *essences*. We have seen that IT addresses human structural coupling, featuring a domination over meaning. ITness is the *logos*, the ground for action, against which what appears appears. As such, as a phenomenon with metaphysical contours, IT holds complete domination over all the phenomena of our times. In its grounding of an age, we could say of IT what Heidegger synthesised in the fundamental way in which metaphysics appears in-the-world: IT "grounds an age, in that through a specific interpretation of what is and through a specific comprehension of truth it gives to that age the basis upon which it is essentially formed. This basis holds complete domination over all the phenomena that distinguish the age" (Heidegger 1977:115).[171]

Industrial technology and IT are united in that both of them are technological; this character of both of them was disclosed as ontological. From order to domination we end up in replacement. At the centre of this historical evolution is the old, modern and contemporary notion of *the technological*. This has the meaning of the English word technique, of the French expression *la technique* in Ellul's *La Technique ou l'enjeu du siécle* (1954) (*The Technological Society,* 1964*)*, and of the German expression *die Technik* of Heidegger's *Die Technik und die Kehre* (1962b) (*The Question Concerning Technology,* 1977).

Technique was initially described as an organised group of movements or of actions, generally mostly manual, united to reach a particular end. As such, technique mixes with the origins of human history. The technique, *la technique, die Technik, a técnica,* existed in

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[170] These arguments are further supported by the etymology of cybernetics. It comes from the ancient Greek word *cybernetikos*, which meant the art of govern (Crane 2000).

[171] We should mention that this domination is not equal to social, political or economic uniformity whatsoever. Although by the logic of this investigation we cannot put aside that kind of event, we cannot take it as inevitable as well. What is at stake in here is a much deeper disclosure of the real against which uniformity and multiformity, themselves, show up. For example, this ontological background of technology is that on the basis of which the Western world is "developed" and most of Asian and African countries are labelled "developing". IT as a background, the background of our times, is becoming the implicit criteria against which countries, regions, and cities will be further and further classified (Heidegger 1972:7).

every civilisation as a tradition. "[I]n all civilisations technique has existed as a tradition, that is, by the transmission of inherited processes that slowly ripen and are even more slowly modified; that evolve under the pressure of circumstances along with the body social; that create automatisms which become hereditary and are integrated into each new form of technique" (Ellul 1964:14). Thus it is correct to say that before the arrival of industrial technology there was not technical/technological but rather there were techniques. People have their techniques for hunting, for fishing, for clothing, for fighting, for transport, for building, and so forth. These societies do not have the technological as such.

If this is so, then in the passage from the realm of techniques and tradition to the domain of the technological there lies the origins of the relationship between industrial and information technologies. Yet, what precisely led from techniques to technique no one knows. The involvement of man in his activities as they were delivered to him by culture and tradition, suddenly changed from the activities themselves to the way in which those activities were performed. This shift has the relevance of a changing of worlds. "[W]hat we talking about is a world once given over to the pragmatic approach and now being taken over by the method" (ibid.:15).

Technique is a deliberate grasping of the ways in which activities were performed. This grasping of all of the past, present, and future techniques *as a unity* constitutes the phenomenon of the technique or of the technological. "Completely natural and spontaneous effort is **replaced** by a complex of acts designed to improve, say, the yield. It is this which prompts the creation of technical forms, starting from simple forms of activity. These technical forms are not necessarily more complicated than the spontaneous ones, but they are more efficient and better adapted" (ibid.:20; our bold print).

The technique/technological does not rely on the tradition of the many techniques. The *logos* of this modern *technê* relies on the ever more efficiency it brings to human activities. "Technique no longer rests on tradition, but rather on previous technical procedures" (ibid.:14). Its tradition becomes its own path of efficiency. The technical procedures must fit the criterion of being the most efficient way of achieving a result. This is the ordering of enframing; an ordering towards an ever more efficient relationship of man to his world.

Industrial technology addresses the onticity of beings turning nature, artefacts and people into resources of the ordering process. IT, as a technique, brings efficiency directly to the domain of human structural coupling, in that acting in language it affects horizontally each and every kind of human activity. Within enframing efficiency moves from order to control, from control to the domination of human activity, and from this to the replacement of the real. Each of these notions at its last and purest stage becomes the next: total order means control; complete control means domination; unquestionable domination means the replacement of whatever has been. Thus, the technological as such, in that it is that which is primary, unites industrial and informational technologies. We are in the IT era not because we have discovered the computer, but rather we have invented the computer because we are

in the technological era. In Heidegger's words: "Our age is not a technological age because it is the age of the machine; it is an age of the machine because it is the technological age" (Heidegger 1972b:24).

Table 4.3 - **From Tradition to Replacement**

Tradition	®	**Techniques**	*Techniques preserve tradition. People's concern is the preservation and maintenance of inherited techniques.*
Techniques	®	**Technological**	*People's concern moves away from techniques, and focuses on the way in which they were performed; in which all techniques are technique, i.e., the technological*
Technological	®	**Enframing**	*Technique refers to nature all and at once. The path of technique, that is, efficiency, addresses the beingness of beings.*
Enframing	®	**Replacement**	*Technique refers to all human activities. By addressing language, technique enters the domain of structural coupling.*

Ontically the domination of ITness is linked to the planetary spreading of IT devices. Ontologically it is the very spreading of the essence of IT. As IT devices penetrate every corner of the earth replacement unfolds. To confirm this we only need to make a thought experience.

Let us think, how would we all live without IT?

A formally correct answer is that that world would indeed be *another world*, which means that IT replaces reality. The kind of possibilities, thus of intentions, aspirations, and actions, that these two worlds reveal are evidently substantively different. For example, without IT we would never have seen images of the earth taken from the moon, because man would never have gone there. The moon would still stand in the sky above us, as the mystery it still is, although no longer recognised as such[172]. The possibilities for being that IT has brought to us, and the way in which these possibilities address the whole earth and the all of human activities, is *per se* the dominating character of ITness. It is in accordance with the possibilities revealed by ITness as background that the real is being experienced by man.

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[172] In the *Der Spiegel*'s interview Heidegger (1981:56) commented on this matter: "I don't know if you were shocked, but [certainly] I was shocked when a short time ago I saw the pictures of the earth taken from the moon. We do not need atomic bombs at all [to uproot us]—the uprooting of man is already here. All our relationships have become merely technical ones. It is no longer upon an earth that man lives today".

Revealing the real IT determines the relation of man to that which exists. "Through technology the entire globe is today embraced and held fast in a kind of Being experienced in Western fashion and represented on the epistemological models of European metaphysics and science" (Heidegger 1984:76). This all inclusive human experience of reality was first concretely unveiled in the sixteen century by the 'Memory Theater' of Giulio Camilio (Borgmann 1999:175). Replacement would be achieved by the gathering of all information about reality in one well-ordered information-space (ibid.).[173] The prototype of this space, an appearance of the essence of IT, is today the Internet, and its logic of navigation, hypertext, and search engines (ibid.).

This replacing power concealed in modern technology "rules the whole earth" (Heidegger 1966:50). Ruling the whole earth, it reveals what is the earth as such. The earth, our world, is now united in the *globe.* The answer is everywhere, not only as a present-at-hand entity, but already as a ready-to-hand being. Replacement reveals the earth as a *globe*. As the earth is ITised it becomes global. By making the earth global, IT makes all human activities globalised. The globalised world is that on the basis of which the possibilities for being are now revealed in our lives.

This conception of the earth made global, and of the globe[174] made an object hanging suspended in space, has for long been prepared, particularly by Renaissance and Enlightenment's quests for man to be the master of his destiny. This perspective is the History of Western civilisation, and its origins go back to the Romans, and to a less extent to the ancient Greeks as well.[175] The Romans understood the world as the empire of Rome (Crane 2001: entry *terra,* particularly the references to Cícero Balb. 6.16, and to Agr. 2.13.33). Wherever Rome reaches, the world is revealed against the imperial presence of Rome. ITness currently relies on this same perspective.

The word globalisation is a relatively recent word. Only in 1944 did it become an English word (MW 2000). It derives from the verb to globalise, which means "to make global, to make worldwide in scope or application" (ibid.). The word globalisation forms by joining the suffix -*ation* to the word global. The suffix -ation—which comes from the Latin -*ation*, -*atio*, as referred in Chapter 3—identifies a transformation, an action that transforms (transform + ation). This transformation pointed to by the suffix -ation, is one in accordance with the initial element of the expression.

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[173] Camilio's idea was to order all things that the human mind can conceive and which we cannot see with the corporeal eye, after being collected together by diligent mediation, in order to be expressed by signs in such a way that the beholder may at once perceive with his eyes everything that was otherwise hidden in the depths of human mind (Zuichermus to Erasmus quoted in Borgmann 1999:175).

[174] The English word globe, which means something spherical or rounded, a spherical representation of the earth, a celestial body, the heavens, the earth, dates back to the 15th century. Its origins are in the Middle French, and in the Latin word *globus* (MW 2000). The English adjective global was coined later, in 1676, and it signifies something spherical, or relating to or involving the entire world, worldwide (e.g., global warfare, global system of communication), or relating to a celestial body, or relating to or applying to a whole (MW 2000).

[175] Refer to Crane (2001) to the Latin entries *terra, sphaera, orbis, globosus, globo, con-globo*, and to Greek entry *sphaira*; Strabo in 2.3.1. refers explicitly to the earth as the "terrestrial globe".

Monopolisation means becoming monopolised, an action that monopolises; globalisation, means becoming global, thus an action that globalises. Yet, while we know what monopoly stands for, what does global stand for? Since the word globalisation is a noun, the answer to this question must be found in the word itself. Thus, it must be action: *action* itself *turns global*. Globalisation is action, the human dwelling upon this earth, being globalised. In globalisation all of our activities and involvement in-the-world make sense against a ready-to-hand globalised background.[176] This is as such because action itself is the ground (refer to chapters 1 and 3), against which that which is appears. A crucial way in which the essence of IT essences is thus this substantive transformation of earth into the globe. The globe hanging suspended in space is nowadays the most common and ready-to-hand equipment of our daily coping. The globe is now part, a constitutive element, of being-in-the-world. As such it is an *a priori* present meaning of what we are.

Wherever we look we find the picture of our age: on the TV channels' logos and news bulletins (e.g., CNN, BBC, CBS, ABC, TVE, TF1), on a significant percentage of the advertising material that runs in magazines and newspapers, in the material of international organisations (e.g., UN, OECD, WB, IMF, Greenpeace). Yet in this appearance of the essence of IT, it is not the picture as such, before our eyes, that is most relevant for us. What matters, because it is what changes our lives substantively, is the globe as background of our action in-the-world. What is at stake is not a picture, which, paradoxically, was only *naturally* seen by a very few men, but the collective appropriation of the meaning of that image and perspective in human activities. This human embodiment of the globe hanging suspended in space is what is ordinarily called globalisation. This decisive perspective began to come to actuality as its distinctive sign when the project of landing a man on the moon shows its factual possibility in the 1960s. By landing on the moon, it was the earth and not the moon which was mainly discovered in a new way. The pictures of the earth taken from the moon, offer us a concrete push for the theme of the globe, which dates back to the Roman Empire and the ancient Greece, to enter its own epoch.[177]

In globalisation the essence of IT addresses the real. Replacement unfolds in globalisation. Thus, globalisation is not a phenomenon of the economy, of the markets, of politics, of culture, or of any other kind of human activity. Globalisation is an aspect of the essence of IT, which as ontological has primacy over all the other aspects characteristic of the present

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[176] This signification was somehow captured forty years ago in McLuhan's expression 'global village': the world is understood, taken, presupposed, absorbed, as one whole community in which distance and isolation have been dramatically reduced by information technologies (McLuhan 1989). Still, there is a difference in the distinction we are identifying: the global village is nowadays a ready-to-hand entity.

[177] Hannah Arendt (1958) argues that modernity is founded, besides the discovery of America and the Reformation, on Galileo's invention of the telescope, which firstly made possible to consider the nature of the earth from the perspective of the universe. Our argument is consistent with this view. Not only is IT fundamentally linked to the Renaissance and Enlightenment, but also the telescope might indeed be understood as an IT device, with all the features that characterise contemporary devices of that kind. Thus, man's landing on the moon might have not brought a new and fundamental perspective on human experience, but having relied on an opened perspective, to which Arendt claim the invention of the telescope belongs, it might have recovered and strengthened that same perspective, so that it is in our epoch what is more typical and decisive.

epoch—it is how man is making sense of the world today. It is the basic and fundamental perspective on the basis of which each human activity in the world now gains its meaning. The global perspective is the background against which the traditional arenas of human activity are being addressed. Globalisation as a setting that establishes meta-possibilities and the contours of the analysis, has been an explicit or implicit assumption for much of the research of recent years in several areas of interest besides economy, markets, finance, and world power[178]; for example the law (Braithwaite and Drahos 2000, Evenett, Lehmann, and Steil 2000, Gessner and Budak 1998, Wiener 1999, Borchgrave 1996), culture and social issues (Doheny-Farina 1996, Postman 1993, Appadura 1996, Jameson and Miyoshi 1998, Albrow 1997, Stromquist and Monkman 2000, Fearherstone 1990, Wresch 1996, Rash 1996), the individual versus the collective (Angell 2000, Davidson and Rees-Mogg 1997, Friedman 2000), and sports (Bairner 2001, Miler, Lawrence, McKay, and Rowe 2001). As the earth turns into a globe, and man assumes the role of the subject observing, analysing, and intervening upon this globe, everything is in the process of being globalised (Giddens 1999, Castells 1996, Beck 1992, Fukuyama 1992, Group of Lisbon[179] 1993).

The recent tragic events of September 11, 2001, in the USA, are another example of the unfolding of this globalisation of everything. The underlying logic of that new kind of terror is imminently global. Its global operational reach is just a corollary of something more important and previous to it: the global perspective. Global terror is conceived and unleashed against a background in which human action, even when that action is inhuman, makes sense within this global ready-to-hand perspective.

The world is the globe, an object in space, an object identified, delimited, and isolated. This is clearly the application of the Cartesian paradigm to the whole world as such. The globe is the object, man is the subject. That this is so can be verified by a closer look at an ícon of the epoch. Let us refer to CNN's globe (CNN 2001).

The globe appears in CNN's homepage and in its TV channel's programs, contextualised by other type of signs. While many signs disclose the subjects in which CNN is involved, the globe provide the perspective in which those subjects are addressed: globally. To address an issue globally is to cover it anywhere on earth; it is to consider the whole earth as the relevant arena. CNN surveys the whole world as if from outer space and offers us the latest and the relevant news. Headline news, political news, financial news, sports news, cultural news, and so forth, are the issues that matter; global, is the perspective in which all

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[178] Markets and technology, e.g., Barnett and Cavanagh 1994, Woods 2000, Henderson 1999, Ohmae 1990, 1996, Corsi and Kudrya 1998; financial system, e.g., Hutton and Giddens 2000, Campbell 1996, Gray 1998; politics and world power, e.g., Baylis and Smith 1997, Nye and Donahue 2000, Vayrynen 1999, Rosenau and Czempiel 1992, Beck 1997.

[179] McCormick, Adams; Caraça, João; Woot, Philippe; Dioguardi, Gianfranco; Emeriji, Louis: Fontela, Emilio; Hirata, Zen; Johnson, Pierre-Marc; Julien, Claude; Karl, Terry; Latouche, Daniel; Petrella, Ricardo; Prewitt, Ken; Sassen, Saskia; Serrao, Joel; Tissot, Luc; Yakushiji, Taizo; Yoshikawa, Hiroyuki; Zolberg, Aristide.

of them matter. The global perspective under which CNN makes sense, turns the world into an object, and reveals itself as an always running information system.

Figure 4.5 - **The Globe Hanging Suspended in Space**

(from http://www.cnn.com/CNN, 17/04/2001)

The global perspective means an addressing of the world from space, that is, man's activities in the world disclose their meaning while addressed, so to speak, from outside the world. Yet, as it is obvious that man is not in outer space, he is in-the-world, that picture of the globe might point to other matters as well. The out of the world perspective is primordially a statement of the totality in which reality makes sense today. The world is the globe. A globe is a "spherical object" (OPDT:319), as such it is something delimited—it is spherical—and objectified. "Consciousness does not begin to exist until it sets limits to an object" (Merleau-Ponty 1962:27). Moreover, the globe is an object because it was previously delimited. It matters the least if the world turned out to be a globe or a parallelepiped. That the world is delimited is what matters here because IT, as replacement, can only replace what necessarily and previously was consciously disclosed in its limits. Within the essence of IT, that is, as replacement unfolds, the world turns into an object surveyed, scrutinised, monitored, controlled, dominated by man. This is a fundamental appearance of the essence of IT. The totalising rationale of IT is fully disclosed in the global perspective. Constrained to this earth by our condition we have found a way of acting as if we had it at our disposition from the outside (Arendt 1958).

In this analysis we have come across man's position in the world. By revealing the world as an object man reserved for himself the role of the subject. Thus, in globalisation the Cartesian dualism is thriving. Yet, what holds correct is not that globalisation supports the dualist subject/object model, but rather the reverse. It is on account of the path that Cartesianism has had in the Western world for the last centuries that globalisation comes into presence.[180] Grasping the Cartesian temper of globalisation, and stripping out the

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[180] This quest that goes back to the Renaissance, to Enlightenment, and even to the Romans and ancient Greeks as well, as referred to above, assumed a struggle against superstition, bigotry, and naïve acceptance of tradition. It

words and signs of the picture of the globe suspended in space, we can more rigorously access what is at stake in globalisation. Is the globe hanging suspended in space the full representation of globalisation? The answer is *No*, because everything said, is said by someone (Maturana and Varela 1992), everything surveyed, is surveyed by someone, any perspective is the perspective of someone (Merleau-Ponty 1962).

Figure 4.6 - **The Globe As It Is**

The common representation of
the phenomenon of the globe
hanging suspended in space

The representation of the
phenomenon of the globe hanging
suspended in space as it is
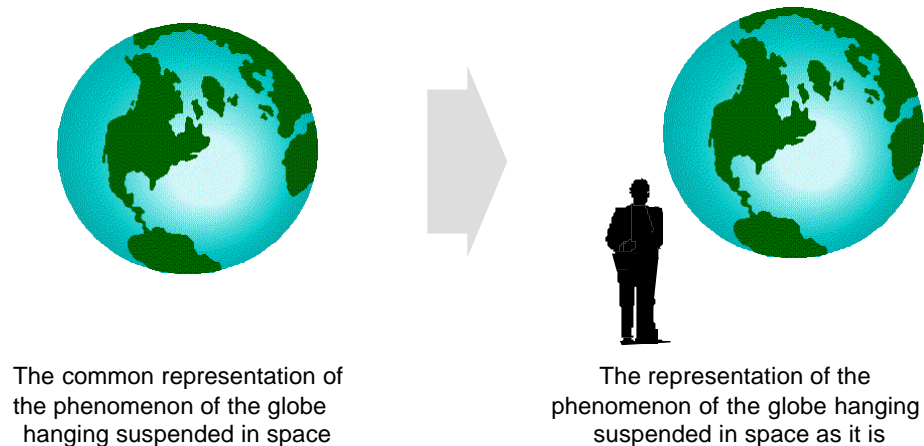
When putting man back into the picture the representation discloses quite easily the subject/object model, but at the same time it becomes untenable. Man is simply not in space. Man-is-in-the-world always already involved, within a mood, towards something, for-the-sake-of something else. This out of the world perspective of globalisation, is always the perspective of man. Man has taken himself out of the representation of the globe because this approach is based on a Cartesian epistemology, in which man, as the subject, assumes himself as the final and objective court of reason (Palmer 1969, Zimmerman 1986). The Enlightenment promise of man being the master of his destiny is opening up a way to its consummation in ITness, by purely and simply firstly delimiting the real and then replacing it.

The way in which the essence of IT appears in globalisation helps us to clarify the relationships between IT and industrial technology, as they are shown to be correctly contextualised on the basis of the development of Cartesianism, of the Renaissance, and of

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aims at a clean, clear, conceptual knowledge unalloyed by subjective preconceptions, accepting nothing that the 'natural light' of reason could 'verify' through experiment. The verifying human reason becomes the final court of appeal, and all truth finds its validation in the reflexive operations of the human mind (Palmer 1969:243). This decisive epistemological stand was indeed an ontological one in that the way in which knowledge is supposed to be obtained was previously based on the assumptions that man is the *animal rationalis*—the being that has reason, that thinks, evaluates, decides, and acts. This conception in spite of relying for all of its validity on a method devised and applied by the subject claimed to be objective, which in fact inverted the notions of objective and subjective. The subjective, that is, that which is dependent on the subject—on its structures and way of being—, turned out to be the objective. The objective, that is, that which stands on its own as itself is, thus objecting to us, turned out to be the subjective (Heidegger 1978, Zimmerman 1981, Palmer 1969).

the Enlightenment, which are suggested to be at the origins of replacement. Thus, let us ask the implicit question that is guiding this argument: Should we understand the Renaissance, the Enlightenment, science, industrial technology, and IT, as the same phenomenon?

We cannot go for more than a very brief outline of this inquiry. Usually we think of the History of man, of his evolution in the last few hundreds of thousand years, as something represented in the figure 4.7:

Figure 4.7 - **The History of Man (1)**
(from Giddens 1997)

| Millions of years ago | 100,000 | 0 | today |
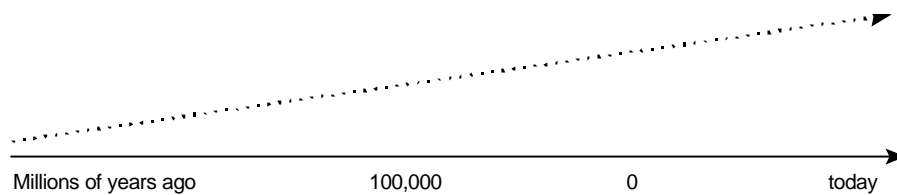
However when one considers the kind of events that have marked and shaped human evolution, taking into account what counts in drawing the picture above, we would rather consider a curve such as the following:

Figure 4.8 - **The History of Man (2)**
(ibid.)

| Millions of years ago | 100,000 | 0 | today |
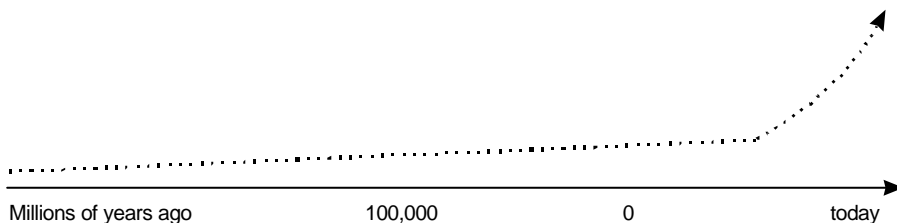
The issue is thus to clarify what accounts for the sudden rise of that curve. It represents modernity (Giddens 1997), but what accounts for modernity? How would one be able to set a criterion against which the slope of the curve begins steadily to rise? Although many elements could show up as relevant for drawing the curve, such as life expectancy, with which Giddens agrees—"Life expectancy certainly would be linked to the chart I drew up: it has expanded enormously during the period of modernity" (Giddens 1998)—one would always have to know in advance when the list of features would be completed. Thus, the rigorous way to understand fully the chart is an investigation into the essence of the phenomenon that establishes the rising slope of the curve. Our conjecture is that that essence is replacement; and, the slope is its clarification.

Figure 4.9 - **The History of Man (3)**
(from Giddens 1997)
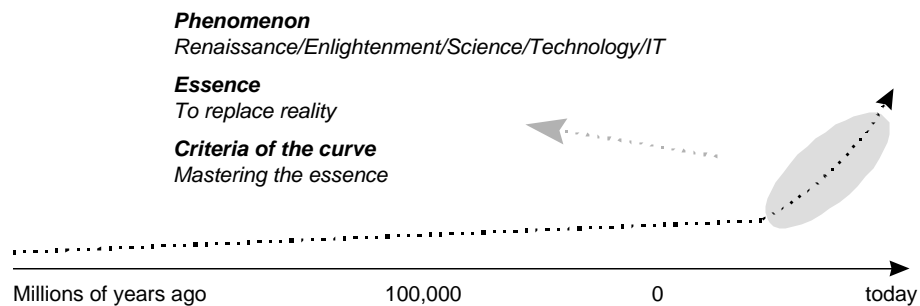
That both Renaissance and Enlightenment's motto was 'Man, master of his destiny', helps to explain why the essence of IT is replacement. It is because Renaissance and Enlightenment aim at man's being master of his destiny, that science and technology develop, and IT is now unfolding more clearly as replacement, as it aims at language directly. Nonetheless replacement might indeed be what is earlier:

> "All coming to presence, not only modern technology, keeps itself everywhere concealed to the last. Nevertheless, it remains, with respect to its holding sway, that which precedes all: the earliest. (…) That which is primarily early shows itself only ultimately to men" (Heidegger 1977:22).

That IT and globalisation are phenomena deeply linked is something that research in diverse scientific arenas has been pointing to. Giddens (1999) supports that globalisation is a fundamental force shaping the way we live today. Angell (2000) considers that companies think globally because they can communicate globally. Walsham (2000) considers IT deeply involved in the phenomenon of globalisation. Featherstone (1990) links the phenomenon of a developing global culture with the electronic media. Beck (1992, 1997) explains how scientific and technological developments are widely appropriated by societies creating a new risky and globalised world. Gray (1999) discusses the impact of technological based financial markets on globalisation. Dicken (1994) addresses the relocation of power, work and opportunities, within a context determined by technological globalisation. Dahrendorf (1990) discusses the influence of TV and electronic media in events of 1989, the reunification of Germany, and the redrawing of the map of world power. Desai (2001) considers characteristics of globalisation real time action at a distance and the planetary media network.

IT and globalisation go hand in hand. In some cases IT is pointed out as an enabler or as a promoter of globalisation. In other cases it is just indicated as a result of the spreading of IT. This investigation aims at uncovering a deeper relation that links both phenomena. Our thesis is that the essence of IT holds in itself as a logical corollary the unfolding of globalisation. *Essentially* IT and globalisation are the same phenomenon: replacement.

"Informatization is globalisation" [181] (Anderson 2001:205) because what firstly and primordially replacement replaces is man's relation with a world in which he is what he is. Let us address this observation with an example.

The Russian politician Grigory Yavlinsky, leader of the Yabloko, an important party in the Duma, said that when he heard the Beatles his world-view changed:

> "The first world-view changing moment in my life was when I discovered the Beatles" (Yavlinsky 1997).

Yavlinsky explains how a music he liked changes not his taste in music but his opinions, feelings, and perspectives about the world as such. 'The Beatles' were a new element, a new *text* to use the hermeneutics technical language, or a perturbation to use the autopoietic's one. For Yavlinsky, hearing the Beatles changed the world in which he was immersed, that is, it changed the *context*, his *world-view*. Yavlisnky's response to the new text or to the perturbation, that is, its structural determined triggered effect, was no less than a change of world-views. The way in which the music of 'The Beatles' was appropriated by Yavlisnky was as a new context on the basis of which the old context was then reassessed.

Figure 4.10 - **Yavlisnky's Change of World-Views**
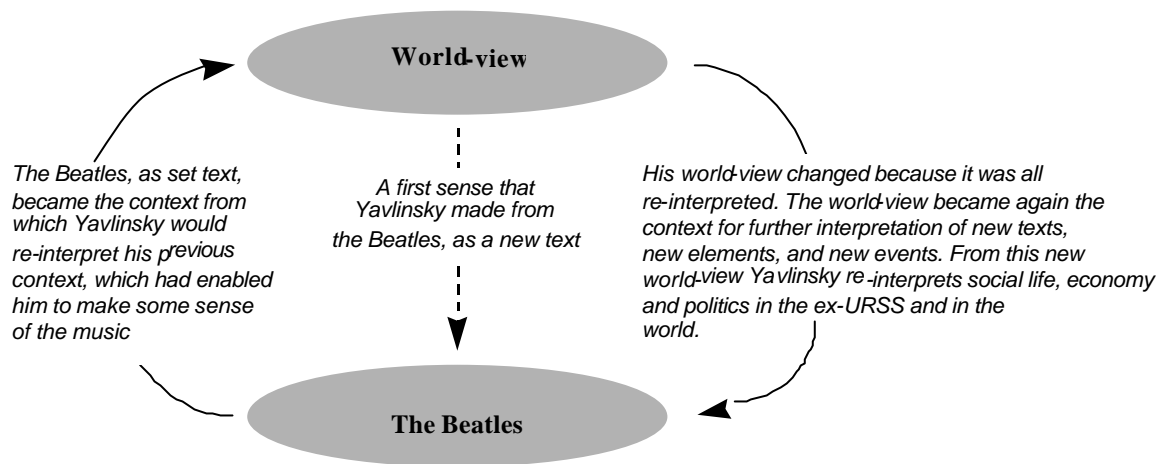
Why did the Beatles become context for Yavlinsky? Why was he able to make some sense of that music in a way that it changed his world-view? Although an entirely correct answer necessarily needs to rely on the situated experiencing, which opened to him new possibilities into the future and new meanings into the past as well, Yavlisnky experienced—like all of us have already experienced—the authentic present. He had a moment of vision, in which all his past experience and future possibilities were united in a new revelation of the world. This new world-view was enacted (Varela et. al. 1991),

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[181] Our translation from the original "Informatização é globalização".

emerged, emanated, in the realms of language: "thanks to the Beatles, I had a common language with my entire generation, everywhere in the world" (Yavlinsky 1997). This last sentence is a faultless example of the two of the decisive claims of this thesis: firstly, that IT is directed towards structural coupling; secondly, that IT replaces the real, and, this replacement appears by making life global.

Figure 4.11 - **From the Beatles to the Globe**

"**thanks to the Beatles, I had a common language with my entire generation, everywhere in the world**"

The Beatles is the language (communicative ontogenic behaviour)

structural coupling being-with-others belonging to a community

the community gathers throughout the world

a world is brought-forth

the world is revealed in its globallity
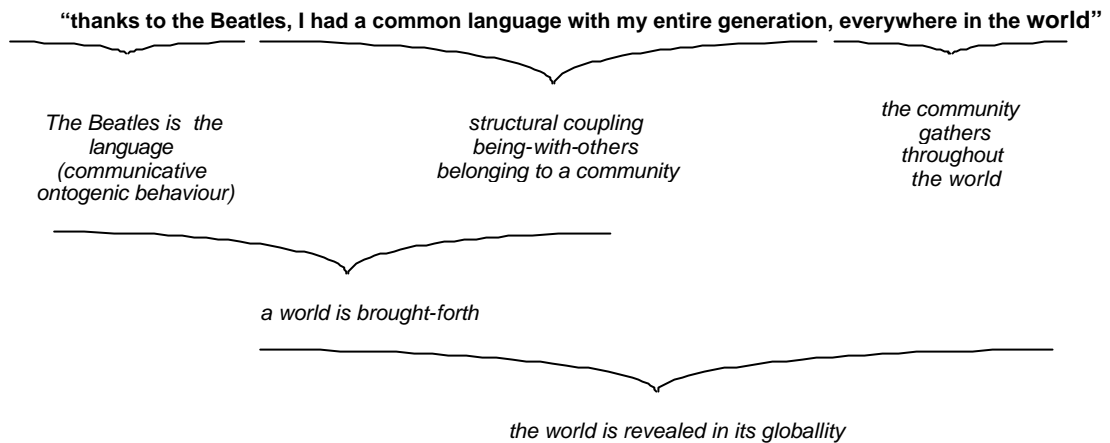
"The Beatles" belong to language, to the domain of communicative ontogenic behaviour. The music moved in the domain of Yavlinsky's structural coupling. That with the Beatles—"thanks to the Beatles"—he had a "common language" with his entire generation means that he was adjusted to that community to which he belongs. This community was a world community, revealed to him in language. It is important to note that Yavlinsky knew how to speak English reasonably well by the time of the example.[182] Thus, the music he heard either 'on the ribs', on old LPs, on radio, or on TV—that is, on account of the spreading of ITness—brought him into a new world, a globalised world. Essentially IT showed him a new reality.

Whenever a setting of the real dominates, that is, when what matters for us (Being) shows up in a particular way, opposite movements tend to left their marks on history. The particular ideas, conceptions, and models, while consolidating at their home base, spread and reach distant places. Countering this movement, people from distant places move to the

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[182] We contacted Yavlinsky's office in Moscow trying to confirm that he knew how to speak English when he first heard 'The Beatles'. This is a passage of the email text we received from his office: "For the first time Dr. Yavlinsky heard Beatles in 1963, he was than a schoolboy in Lvov (Western Ukraine, the USSR). It was a school with a special focus on English, so he could understand the songs. His first impression of the Beatles comes from illegal disks (made out of used X-ray photographs which were used as a substitute for proper plastic discs; people used to call such disks "music on the ribs"), and one could be punished (criminal proceedings could be launched against such listeners) for this. Another possibility was to listen to the Beatles via Polish radio stations (due to the proximity of Lvov to the Polish border this was possible, as the signals of only "capitalist" radio stations were jammed). Actually Western pop-culture (and the Beatles!) was prohibited in the USSR, and the first song by Beatles transmitted by the Soviet radio was "Back in the USSR" , this happened only in the 1970s" (May 31, 2001).

lands where 'what matters' is being shaped and developed. This happened several times in the past (Foreman-Peck 1998), and it is happening again:

> "Now that modern technology has arranged its expansion and rule over the whole earth, it is not just the sputniks and their by-products that are circling around our planet; it is rather Being as presencing in the sense of calculable material that claims all the inhabitants of the earth in a uniform manner without the inhabitants of the non-European continents explicitly knowing this or even being able of wanting to know of the origin of this determination of Being. (Evidently those who desire such a knowledge least of all are those busy developers who today are urging the so-called underdeveloped countries into the realm of hearing of that claim of Being which speaks from the innermost core of modern technology)" (Heidegger 1972:7; parentheses from the original; cf. fn. 171).

The essence of IT fundamentally appears in globalisation. By now, one should ask: Does replacement replace only in globalisation or does it replace in some other phenomenon? Since IT is now part of being-in-the-world it potentially alters many aspects of what we are and of what we do. Furthermore, because the being of IT is ready-to-hand, its equipmental totality cannot be fully grasped (Polt 1999:51). Only a presuppositionless observing of action can provide a deeper disclosure of what human action is becoming on accounts of IT.[183]

Paraphrasing Heidegger (1966:48), we are all strangers now to our former homelands. Those who have moved have been caught up in the turmoil of the planetary networking system. "And those who have stayed on in their homeland? Often they are still more homeless than those who have been moved" (ibid.). Hourly and daily all of them are chained to radio, television, computers, and mobile phones. Day after day, movies, video, pictures, and television carry them into uncommon, but often merely common, realms of the imagination, and give them the *what* and *how* of the matter. "All that is already much closer to man today than his fields around his farmstead, closer than the sky over the earth, closer than the change from night to day, closer than the conventions and customs of his village, than the tradition of his native world" (ibid.).

"Our daily lives are performed within an encompassing [information] technological milieu" (Cooper 1991:27). We are awakened by a digital-clock-radio, we check the email or read the news on the computer, while driving to the office we phone to clients, partners, and so on. At the office the matters in which we are involved come forward on screens. Action is taken by email, over the phone, by video-conferencing, on account of previously monitored computerised charts and tables. How the company is going is on a symbol—stock exchange data—shown on TVs and computers all over the place. As the manager withdraws from action he thinks IT: new ITised products, new ITised practises, new ITised clients, new ITised competition.

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[183] There is here a line that must be crossed with care. Focusing too much on the deviceness of IT, the phenomenon becomes present-at-hand and we would lose the possibility of experiencing the kind of revealing that IT is. Trying to forget it, that is, attempting to leave IT entirely behind us, might lead us to an analysis locked within a background of ITness that would leave us blind to essential appearances of the phenomenon.

An obvious appearance of the essence of IT is the emergence of a whole new sector of economic activity. IT appears not only as a new activity, or business, as it were, but as vast set of newer and newer activities. Chakravathy (1997) calls *infocom* to this phenomenon that unites industries related to information and communication. He claims that infocom is organised around four major clusters: information providers (media, film, music, publishing), information processors (computer and office equipment and services), communications providers (broadcasting, cable TV, telephony, cellular, book, and entertainment distribution), and communication support (telecommunication equipment and consumer electronic manufacturers) (ibid.). These activities in establishing a whole new realm of human contemporary action in the world, that adds and to a great extent substitutes agriculture, industry, and services, are in themselves an evident appearance of the replacement under way.

Infocom has its fundamental origins in the penetration of the mathematical technological thinking in language. This phenomenon is commonly addressed as 'the convergence'. Firstly, the generation of data converged with mathematical logic. Its result was the computer, a machine based in Boolean algebra, which serves to write, to read, to calculate, and so forth. The second convergence was that of the computer and telecommunications, which is today the Internet. It enables one operating on a computer to work with data stored on other connected computers wherever they are, and to send data instantaneously throughout the networks. A third convergence is happening now between the Internet and mobile communications. Always with a mobile phone *at-hand,* Camilio's Theater is entering its age. Yet, in all of these convergences, that which is converging the most is man's being-in-the-world and technology. As today we live in/with/through IT, IT is thus *what* matters, and *how* it matters.

As electric light ended the regime of night and day, of indoors and out-of-doors (McLuhan 1994:52), IT ends the physically necessity of being 'in person' where the action is. Email and mobile phone networks promise to disembody our capacity of action. On account of the always available infrastructure of databases, which are now a fundamental part of the referential whole wherever and whenever we are, we take action disregarding our embodied grasping of the concrete situation addressed. This kind of action of ours thus follows a new pattern which does not rely on bodily presence and face-to-face contact, but on our recovering what matters in that situation.

IT promises to make what matters available permanently. Every place is a proper location either for work or leisure. Symbols are the trading resources. People and materials tend to be dealt with only on the grounds of the consequences of the symbolic activity. People become interlocutors always reachable either on the phone or email; as such they turn into disposable entities (Borgmann 1999). The way in which entities matter to us is being reduced to office automation applications documents, to email text and attachments, and above all to a logic of 'processing', which make us all less committed to our own work

(Zimmerman 1990). Underlying all these changes a standardisation on beingness as such is gaining ground.

It is important to notice that the way in which entities show up is not chosen by us as we go along. "We have not chosen this self-understanding; instead, we are possessed by it. We do not elect to look at the world as an exploitable object; instead, natural beings disclose themselves as objects for us. As long as beings appeared to be creatures of God, or appeared to be valuable other than as raw materials for man, technological culture did not arise" (Zimmerman 1986:224).

Being immersed in the technological culture the world, as what matters to us, is being transferred to networks and databases and made accessible permanently and totally. This means that human activity as such is not only contextualised but is being involved in the production, consuming, and ordering of the technological infrastructure. Paradoxically, as what matters is offered in its totality, it is not specialism and detail that are enhanced, but just movement as such. "At the extreme of the speeded-up movement, specialism of space and subject disappears" (McLuhan 1994:346), allowing the logic of the linkage, the hypertext, to emerge. In hypertext the content is the browsing itself: from one link to the next, to the next, and so forth. Thus, "to 'having the world databases at your fingertips' is to have nothing in your head" (Borgmann 1999:206). Hypertext is the mode in which 'the they' engulfs us in an ITised world. This logic of acting, this mode of being, means that the nodes of the networks are basic entities in holding societal power (Castells 2000).

Always and already in a globalised networked world, now a consummated part of the primary phenomenon of being-in-the-world, we can read with deeper meaning Heidegger's (1984:57) words: "[m]an has already begun to overwhelm the entire earth and its atmosphere, to arrogate to himself in forms of energy the concealed powers of nature, and to submit future history to the planning and ordering of a world government". This world government is both a set of bodies whose concerns are the global addressing of issues (e.g., UN, WTO, WB, IMF, Economy Forum, NATO), and, above all, a global logic of acting. This global logic means, for example, for economic competition, that firstly, that is, instinctively and intuitively, companies take the whole planet as their typical arena. Morita, the leader of the Japanese company Sony, described globalisation as 'global localisation' (in Angell 1995). The planet is taken as a whole and at once, and the managers locate each function and each process, from R&D, software development, raw materials, and customer care, to finance, management, taxation, and markets, wherever on earth a higher output/input ratio is detected.[184] Global efficiency drives the action in an ITised reality.

The manager who knows how to run the company, does not know the factories. The workers who actually make the products do not know what these really are, how they

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[184] This logic led Morita to say that Sony was not a Japanese but a global company, causing an uproar in his Japanese audience (Angell 1995).

function, where, how, at what prices they are to be made available. Students know more and more about computer reality, and less and less about the reality from where the models draw their meaning. Moreover, computer reality is becoming so complex that students to not built it anymore, nor really understand it; they just buy it, and work with simulations that in fact they do not know the functioning (Turkle 1995).

The separation of the worker from the worldly material substance of his work achieves with IT a degree not foreseen in the deployment of industrial machinery (Ellul 1964). Man acts through and in the medium. The technological medium is the extension of man (McLuhan 1994). Man acts "through intermediaries and consequently has lost contact with reality" (Ellul 1964:325). "Men with scientific knowledge of materials are found only in research institutes. But they never use these materials or see them and have merely an abstract knowledge of their products" (Winner 1983:109). The office worker has the computer screen and the mobile phone as the primary elements of his professional environment. At home and sometimes at office as well, the world is shown on TV screens. All at once professional lives are converted into IT environments, where screens engage and show the professionals everything that reality is about. "In our time *techne* has become *politeia*" (ibid.), since IT is a what-to-do/what-to-be.

Since one has experienced the realness of IT our sense of reality changes as it cannot anymore not take into account the possibilities disclosed in IT. The IT reality is not a mere way of adjusting ourselves to the real. It is the real, and as such it is human action that seems to have to adapt to IT. A mobile phone indicates the possibility of reaching and being reachable by every other person on this planet. As this possibility is grasped, and appropriated on a societal basis, it not only cannot be reversed, but it imposes itself as a new mode of being and acting.

The world makes sense according to the IT paraphernalia. The real is on the screens. The *already agreement* that is the essence of screen (Introna and Ilharco 2000) enforces replacement and a human passivity and acceptance of the terms on which relevance reaches us. IT applications, such as powerful Executive Information Systems or data mining systems, disclose businesses in ways which are completely new and impossible to achieve in any other manner. These applications do not only improve efficiency and effectiveness, but they reveal a substantively different reality where companies compete.

The world is now a planetary IT system. The real shows up in a planetary system of communication, where the Internet central routers are called *the truth* by the scientific and professional communities (Village Voice 2001). Land is revealed close to inessential, and nature is mostly a source of energy—a "gigantic gasoline station" (Heidegger 1966:50). In this world turned into a 'village', a properly shaped and appropriated language—needed for the structural coupling of the entities of this new community—is emerging as global: a new English. Beings and 'information' present themselves differently in different languages, which in their turn shape and are shaped by different contexts (Polt 1999:176). "[I]n any

'living' language contexts of meaning change with changes in the interpretation of historical Dasein at the time… A language has its genuine Being only as long as new correlations of meaning and so – although not necessarily – new words and phrases accrue to it from understanding" (Heidegger 1985:271). The "Anglo-American [is] the universal language of modern technology" (Zimmerman 1990:215).[185]

As the 'raw materials' of living as it is lived become symbols, it is the symbolic reality that is real. "[W]e now live in a technologically prepared environment that blankets the earth itself. (…) Nature, as it were, begins to be the content of our technology" (McLuhan 1995:276). In/with/through IT is now the only mode in which many of us in the Western world experience ourselves in-the-world.

4.6. Interpreting Concealed Meanings of IT

Primarily we are to realise that whatever IT is, it already-is-in-the-world in which we, as we ourselves are, are (Heidegger 1962). Possible hidden meanings of IT would only disclose themselves to us as long as we re-access the findings thus far in the light of the ontology in which we base our quest. The task is now to move within a fundamental hermeneutic circle, bringing to the foreground being-in-the-world in order to grasp possible deeper meanings of replacement.

We recall that in-the-world where we found IT we are primarily already directed towards the world itself. This *directedness* is not only a directedness of our acts towards intended objects in consciousness, but one founded on the lifeworld we initially perceived as a whole; it is the intentionality of consciousness directed to the world already experienced as an implicit totality, in which all our intentional acts take place.

> "[It is] that which produces the natural and antepredicative unity of the world and of our life, being apparent in our desires, our evaluations, and in the landscape we see (…). Whether we are concerned with a thing perceived, a historical event, or a doctrine, to 'understand' is to take in the total intention - not only what these things are for representation (the 'properties' of the thing perceived, the mass of 'historical facts', the 'ideas' introduced by the doctrine)—but the unique mode of existing expressed in the properties of the pebble, the glass or the piece of wax, in all the events of a revolution, in all the thoughts of a philosopher. It is a matter, in the case of each civilization, of finding the Idea in the Hegelian sense, that is, not a law of the physico-mathematical type, discoverable by objective thought, but that formula which sums up some unique manner of behaviour towards others, towards Nature, time and death: a certain way of patterning the world (…) [C]hance happenings offset each other, and facts in their multiplicity coalesce and show up a certain way of taking a stand in relation to the human situation, reveal in fact an *event* which has its definitive outline and about which we can talk. (…) We must seek an understanding from all these angles [ideology, politics, religion, economics] simultaneously, everything has meaning, and we shall

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[185] Some forecasts point out that by 2015/25 the Chinese language will the most used on the Internet. If that comes to be the case, which it not clear, it would be relevant to address the kind of consequences and implications that a vast presence of the Chinese language on the Internet might have for politics, business, and international relations in general.

find this same structure of being underlying all relationships" (Merleau-Ponty 1962: xviii-xix).

IT is nowadays a part of this total intentionality of our own contemporary being in the world; it underlies the referentiality of beings as such. Hence, replacement needs now to be addressed as it is, in-the-world in which we are what we are.

The essence of IT is replacement. We must take this as it is. A replacement, as a replacement, does not fully replace but only claims and unfolds as replacement. As long as it is a replacement, there is also something replaced by necessity. Once a replacement replaces there is no more replacement, but only that which is. What is fully replaced does not show itself anymore. Thus, replacement gains its meaning from a reference to that which is about to replace, a real already grasped in terms of world. IT's essence thus gains its significance in a world previous to replacement—"technological information draws much of its life blood from real and traditional culture" (Borgmann 1999:198-9).

Thus a deeper meaning of replacement *per se* relies not on what replacing is, but on what is about to be replaced. A physically non-located stock exchange bases its meaning on the traditionally located stock exchange just as a simulator flight shows its potentialities against the kind of experiencing that the *real* flight is. Yet, this does not signify that the flowing of the technological information, its signs and references, must have a constant relationship to real material things. Quite the contrary, with the technological information the signs ever more abundant refer to other signs. "Information, made abundant and disposable by technology, can lose its bearing on reality, and signs proliferate without regard to things" (ibid.:211). It is the overall flowing that achieves its meaning from the experiencing of a real reality where we die.

The environment in which a contemporary office worker works, the *Microsoft Office* software package for the great majority, is shown on the screen as a picture whose intelligibility draws on the experience of traditional office. The screen replaces the office that centres on the desk. On the screen there is material for drawing and calculating, a telephone, a "Rolodex", a postcard, a notebook, a calendar, a binner, a clock, an inbox and an outbox, a filing cabinet and so forth. The Apple e-world computing environment resembles a little town with an info container, a mail truck, a news-stand, a business and finance plaza, a learning centre, etc. (Borgmann 1999, Mitchell 1995, Kantrowitz 1994). The replacement follows its course maintaining a subliminal reference to the unreplaced reality. Why is this? What for? On what grounds?

> "The ambiguity of cyberspace dissolves the contours of facts, of persons, and of places. Speculation and rumour shade over into factual claims. A shy and reticent man blossoms into an eloquent and self-revealing friend on e-mail. The workplace of a woman evaporates into the nowhere and everywhere of an e-mail address. But nobody and nothing of consequence can escape reality. The truth on whether friendly fire brought down a jetliner will finally out. Ralph remains a mumbling recluse, no matter his e-mail effusions. Harriet does not reside in cyberspace but is an itinerant saleswoman. It takes venality or complicity on our part for persons and things to

remain veiled in some shade of ambiguity. (…) [R]eality at bottom remains inescapable and unfathomable. It is the ground on which the ambiguities of technological information can be resolved and its fragilities repaired." (Borgmann 1999:192, 216).

At some point the reality that IT is putting in place touches people's replaced reality. We are bodily creatures, with-others, who have ourselves to be, who have basic needs of food, shelter, safety, love, and friendship. Its is against this facticity that IT sometimes is discovered in its disruptive character; it might be the case of managers laid off on account of some new lines of software written the other side of the planet (Kvasny and Truex III 2000), or it might be the evolution of stock exchanges' indexes that for better or worse interfere with peoples' day-to-day lives. IT, in its appearance of globalisation, is the phenomenon that is the background against which suddenly and at once something sinister as the events of September 11 2001 change for millions of people the whole significance of being-in-the-world as such.

This life of ours, as beings-towards-death, is the real reality that grounds the meaning of replacement. We essentially are a being-in-the-world, already coming from the past always towards the future, opening up and running out of possibilities up to our death. We are a being-towards-death (Heidegger 1962) and the realisation of our mortality, gives the meaning to the choices we make, taking up such possibility of being and putting aside for ever in our life many other possibilities we do not choose as our own. The real reality is the *facticity* of death. We die, and it is on account of this always and already unreplaced reality that replacement, the essence of IT, always has to have a decisive reference to the non replaced reality. At the end of the day, our being-towards-death is decisive in that it is that against which what matters, matters.

We all die in the real reality, in the 'true world'—"that entity which Dasein, as something existing, is already alongside" (ibid.:141)—no matter what happens in the replaced reality. We die, and that is the reason for us to be called mortals. "The mortals are human beings. They are called mortals because they can die. To die means to be capable of death as death. Only man dies. The animal perishes. It has death neither ahead of itself nor behind it" (Heidegger 1993:178).

We are mortals and replacement unfolds. How would the unfolding of replacement be fundamentally coherent with the being-towards-death we essentially are? The answer is short and simple: replacement, through its technological and mathematical scientific drive, is advancing into immortality. The deepest signification of the essence of IT is the conquest of immortality:

> "Utopian hyperinformation is the brainchild of scientists who, in the tradition of artificial intelligence, believe that the core of an individual is the information contained in the brain, and purport that software can and will be extracted from the wetware of neurons and transferred without loss to the hardware of a computer or some other medium forever and again in this way and that so that the core of individuals, their personal identity, will achieve immortality" (Borgmann 1999:230).

This hidden meaning of IT, immortality, is the concrete articulation in the phenomenon of IT of the hidden meaning of modern technology, uncovered by Heidegger (1977) as *the danger*. When performing the last phase of phenomenological method upon the findings of his investigation into modern technology, that is, upon enframing, Heidegger (ibid.:23-35) points that enframing holds in itself as its crucial and guiding nature *the danger* as such. This danger, not any specific danger whatsoever but the danger as it is, is nothing less than the threat of becoming what we essentially are not. In IT it becomes clear how this ultimate end is aimed at being achieved: by taking away mortality from man. This state of affairs was referred to by Heidegger in 1955: "The international meeting of Nobel Prize winners took place again in the summer of this year of 1955 in Lindau. There the Americam chemist, Stanley, had this to say: "The hour is near when life will be placed in the hands of the chemist who will be able to synthesize, split and change living substance at will". We take notice of such a statement" (Heidegger 1966:52).[186]

The technological age, either in enframing or replacement, is directed towards man's essence. This is the meaning of IT being an ontological phenomenon. Fukuyama's (1992) *The End of History and the Last Man* is grounded on an argument that comes close to our thesis. Two years ago in an article that clarifies some of the controversial points of his work of 1992, he says that "we are on the brink of new developments in science that will, in essence, abolish mankind as such" (Fukuyama 1999). While acknowledging that the "key defect of the *End of History* lies in the fact that there can be no end of science, which drives the historical process", he concludes by saying that the "open-ended character of modern natural science suggests that within the next couple of generations, biotechnology will give us tools that will allow us to accomplish what social engineers of the past failed to do. At that point, we will have definitively finished human history because we will have abolished human beings as such. And then a new, posthuman history will begin".

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[186] This drive into immortality is fundamentally misguided because *mortality* as such defines what is to be a man. What man comes to be, evolving from its human core for hundreds of thousand of years, a self-conscious bodily creature that *clears* the world in language, escapes the analytical objectivation of the present-at-hand scientific approaches. Man is essentially not a thing, a spatio-temporal being (Heidegger 1962, 1971). The recent surprises on the quantity of genes that constitute a human being only surprised those who presuppose man to be that which it essentially is not: a "what" (Stambaugh 1969:12). Man is a *who* (Heidegger 1962). He lives his life in its beingness, bringing forth a world that matters to him. He is a performer of acts, which are something non-physical—"a person exists only in the performance of intentional acts, and is therefore essentially *not* an object" (Heidegger 1962:73). It is not the amount of genes that matter—rice possibly has far more genes than humans, and a mouse has almost as many genes as we have—but it is, possible, how the genes evolve, relate to each other, establish themselves in an autopoietical organisation that came to generate what we are today. What is more and what is evident: there are no genes as such! The 'gene' is just a category, a human distinction in language, which as such would always fall short of that which we are pointing to. In synthesis, the recent developments on the human genome show at least three shortcomings. Firstly, they show that even as a 'what', that is, as a present-at-hand thing, man is still far away from being discovered. Secondly, they show that the reductionist approach of the method—the assumption that the knowing of the parts will lead to the knowing of the whole—is not suitable for what is being sought. Venter et al. (2001) recognise this explicitly while pointing to the necessity of taking into account complexity theories. Thirdly, finally and decisively, the research presupposed that an ontic addressing of man would lead to an ontological account, which is untenable because what is being sought always and already appears within the historical ontological ground of man as the *animal rationale*. That ontology is guiding from the start the way in which exact science proceeds in actuality. This is equal to saying that whatever is to be found in these researches will always show up within this ontology.

This 'posthuman history' of Fukuyama is pointed to by the second essential element of the essence of IT: the ordered meaning. In ordering meaning *rendering* meanings ordered, what shows up within the analysis we are performing in this section is indeed, and again, the instrumentality itself—that is the meaning of the *rendering*. Yet, this fundamental instrumentality does not concern IT devices, but the real itself. Man transforms nature at will. "In the technological age (…) instead of conforming to the natural order, people force nature to conform to their needs and expectations. Whenever nature proves unsatisfactory for human purposes, people reframe it as they see fit" (Zimmerman 1990:207). Instrumentality is indeed correct in IT. Yet, that which is instrumentalised is not IT. The real is what becomes instrumental as IT essentially unfolds aiming at man's mortality. Only a being such as man, who for himself is an issue, can aim at overcoming his mortality, which he has discovered in his ontological Being from the beginning.[187] This conclusion comes in support of Heidegger's (1969, 1981, 1991) claim in that with the unfolding of modern technology, methaphysics is approaching its end. Man's pursuing of immortality can only happen against a background – the one of replacement – within which he assumes to be moving on the realms of mastering Being.

The hidden meaning of IT is the instrumentalisation of the real reality where we die, by replacing it. The real is what becomes instrumental as IT essentially unfolds. Within this essential horizon of signification, taking into account the kind of beings we ourselves are, the aim of this mighty challenge, the aspiration of all living beings, the miracle that forever was away from our world, the enigma of life, the mystery of Being, is being addressed directly in the contemporary scientific charge on the issue of immortality (e.g., Tipler 1995, Moravec 1988). That an immortal man would not be a man anymore (Heidegger 1962, Dreyfus 1991, Polt 1999) is a proof that IT in its essence is an ontological phenomenon, which is a major claim of this investigation.

4.7. Recapitulation

In Chapter 1 we identified and established the guiding question of this investigation: *How does IT affect strategy?* We claimed also the need to make explicit the ontological and epistemological assumptions of the investigation. This opened up a way for a phenomenological account of IT and strategy against an ontological background based on Heidegger's (1962) findings and on the theory of autopoiesis,

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[187] This argument points to theological realms, which are beyond the aim of this investigation. As a clue we think elucidative of the kind of issues we are slightly touching upon, we would like to refer a passage of Seneca (born *c.* 4 BC, Corduba, Spain; died AD 65, Rome), the Roman philosopher and statesman, leading intellectual figure in the mid-1st century AD: "Among the four existent Natures (trees, beasts, man, and God), the latter two, which alone are endowed with reason, are distinguished in that God is immortal while man is mortal" (Seneca 1997:443-445).

In Chapter 2 we introduced phenomenology, characterised its key concepts, and presented the method of investigation to be applied in Chapter 4 to IT, in Chapter 5 to strategy, and in Chapter 6 to the relationships between IT and strategy.

In Chapter 3 we developed the theoretical foundations of this investigation – Heidegger's (1962) findings and the theory of autopoiesis (Maturana and Varela 1980, 1992) – in respect to action, meaning, data, information, and knowledge. We showed that action as such is our primary ground and that information is the *actionation* of data. It is the making present of the sense of distinctions, of data, within the referential whole in which we always already are. Data was indicated as a distinction from a background, or a perturbation of the living being. Meaning was referred to as references that enable a distinction to be distinguished – as its sense. Knowledge was uncovered as ready-to-hand information; in its essence, as instinct. Meaning, data, information, and knowledge, all these distinctions ground themselves in a self-evident, always and already unfolding action.

In this chapter we have introduced the actual setting on thinking about technology, recovered the roots of technology, and put in place Heidegger's analysis of modern technology, claiming that industrial technology is essentially enframing, a setting of the real in the mode of ordering, in which everything must stand by, ready to be called to the ordering process. Humans are in this process of ordering that calls for control in order to drive everything towards efficiency and more efficiency.

In describing IT we noticed that IT devices deliver relevance. IT is a collection of devices that informs and acts upon us, and with which we inform and act upon others. IT shows up relating to us, and we as such relate to it. IT are acting entities that attract our attention and our physical presence as well.

We experience IT as we transparently use it going on as we are in the world. As ready-to-hand entities, delivering relevance into our continuous acting in the world, IT devices belong to the realms of language, that is, of structural coupling. When performing the reduction upon IT we came to the conclusion that the entanglement between IT devices and being-in-the-world is the reduced phenomenon of IT.

This entanglement is an ontological revealing. As such IT is included in being-in-the-world. IT permeates the world in which we are, and beings come to be accessible as something, on ontological grounds. It is because IT devices are ready-to-hand in their typical mode of being, and because IT is what it is within 'the they', in everydayness, that the enframing of modern technology, in its backgroundness, is revealed in IT as replacement.

The pervasiveness, both in depth and scope, of IT devices in human activity, and their readiness-to-hand are fundamental for enframing to enter language and thus becoming replacement. In these basic conditions the ready-to-hand of IT grounds our age in that it becomes the background against which that which is appears. Our notion of replacement, as

the essence of IT, brings *Ge-stell* (Heidegger 1977) and being-in-the-world (Heidegger 1962) coherently and consistently together.

Technological information allows an embodied conception of that which is to unfold. The ITised referential whole is constantly sighted beforehand in circumspection as a whole and as totality. In this totality the world announces itself. ITised beings are part of an equipmental whole we find in action and we do not thematise.

Replacement is a letting-presence of what appears within an ontological and unique transformation in which the 'letting' itself is let be in a particular way. By affecting the 'letting be', moving in language, the modes in which humans structurally couple themselves to each other and to environment, IT pushes towards the stabilisation of the mechanisms that accommodate its own unfolding. This is first shown in the appearance of IT that globalisation is.

Yet, the unfolding replacement gains its meanings against that which it is about to replace, a real already grasped in its worldhood. As a background against which what is appears, IT is an ontological *informing* that orders meaning in that it captures it in a system, replacing the real, and letting enframing strengthen its path towards an efficiency whose ultimate aim is the very mortal condition of man. Beings-towards-death is the real that grounds the primary meaning of replacement. It is in these realms that the hidden meaning of the essence of IT has been shown as being immortality. The conquest of immortality is the concrete articulation in the phenomenon of IT of the hidden meaning of modern technology, uncovered by Heidegger (1977) as *the danger* as such, which is nothing less than the threat of becoming what we essentially are not.

Hence, replacement as an ontological essence under the lens of its deeper meaning of immortality reveals the full breadth of the path of IT-in-the-world, one in which instrumentality is indeed correct, in spite of not addressing IT devices but the real as a whole.

Chapter 5
On Strategy

"What does your conscience say? —You shall become the person you are."

Friedrich Nietzsche
The Gay Science (1974:219, n.270)

Intuitively, strategy is an answer. Strategy is action with a purpose, or a way for acting towards an aim. Yet the way in which it first comes to consciousness, that very first glimpse of the phenomenon, is much more a question than an answer. To think of strategy, to detail strategy, to engage oneself in a conversation or in a professional exercise on strategy, one has already experienced the need for setting the grounds for that which strategy would be. "There is no universally accepted definition of strategy" (Mintzberg, Quinn, and Goshal 1998:3). "The concept of 'strategy' has proven notoriously difficult to define" (Murray, Knox, and Bernstein 1994:I). "The theory of [strategy] (…) presents extraordinary difficulties, and it is fair to say that very few people have clear ideas about its details" (Clausewitz 1976:70; parentheses from the original). "What is strategy?" (Porter 1996, Hamel and Prahalad 1993).

The lack of agreement as to what strategy is, is what first deserves to be noted. When phenomenologically investigating strategy we cannot let pass these very initial terms of establishing the concept in consciousness. This lack of a common ground on strategy is indeed the horizon of a most primary and intuitive addressing of strategy. Yet, there is another aspect which deserves to be mentioned. Nowadays strategy is a notion, a concept, an idea, even a central discipline in two different fields of academia and human activity: management and state policy. Moreover, there is little, if any, communication between these two fields concerning their research into the phenomenon of strategy. Each of these fields takes strategy as something that belongs fairly obviously to itself. Yet, as hinted above, in each of these fields there is also a lack of agreement as to what strategy is.

How should we proceed to investigate into the essence of strategy? Phenomenologically we should acknowledge that whenever we address strategy theories, either on management or on international politics, we are primarily confronted with appearances. Taking this or that theory, considering this or that thinker, strategy always appears to be something different. Almost every author from every field that uses the notion of strategy has a different concept, a different definition of it. Porter's (1980) theory of strategic positioning is an appearance of strategy just as is Hamel and Prahalad's (1990) proposal on core competencies, or Carl von Clausewitz's (1976) theory of war, or the widely quoted Sun Tzu's (1994) *The Art of*

War. The appearances of strategy are fairly obvious. Yet its essence seems to be something less intuitive and clarified.

Strategy foremostly appears as something that *appears* to be such and such. A common first appearance of strategy can be summed up in a sentence such as 'I have some understanding of it'. This sense is an experiencing of something questionable, appropriated in our own terms and for our own purposes, defensible though still contestable as we experience diverse understandings of the phenomenon.

Comparing the beginning of our phenomenological investigation of strategy with that of IT, as presented in the previous chapter, we should notice the diverse ways in which we account for both phenomena. When starting to address IT we reasonably concede that we all share an idea of what we are talking about: whatever IT would be, that is, whatever idea of IT each of us finds appropriate to circumscribe it, we agree that computers, telephones, fax machines, televisions, telematic networks, data-bases, and so forth are what IT refers to. In contrast to IT, which appears in its many and pervading ready-to-hand entities, strategy appears as something unclear, complex and to some extent hidden. Foremostly strategy appears; everything can hide behind appearances, even nothing. To what does strategy pertain? Is there any common and decisive ground uniting all the appearances of strategy? What enables us to recognise a discourse, a theory, or an action as strategy? What is the essence of strategy?

The findings of our investigation into the phenomenon of strategy, in its essentiality and wholeness, are presented below. We begin by addressing the phenomenon of strategy in the general field of management, the one area that is closer to the IS field of research. Then we take into account Clausewitz's (1976) theory of war. This is justified because his work has had a profound influence on military thought, and although close to 200 years old it still is today referred to as a master-piece on war and strategy. Besides, Clausewitz's *On War* will be shown to share deep phenomenological traits and to be theoretically consistent with Heidegger's (1962) ontology. We will also address the frequent claim that the origin of strategy belongs to ancient Chinese culture of Warring States (403 – 221 BC). We will try to uncover a strand of the Chinese thought on strategy by investigating its original and powerful concept of *shi*. Before concluding the chapter by bringing together the findings of these investigations and proceeding into the essence of strategy, we will take into account the rich etymological origins of the word strategy. We will uncover the signification and relationships of the ancient Greek words *stratêgia, stratêgos,* and *stratagema,* and of the ancient Roman words, *strata* and *sterno*, and of the older Sanskrit word *strnämi.*

This account of diverse and distinct appearances of strategy both in time, space, and in human activity, is designed to contrast them better and, thus, to serve us as an effective way into that which is common and essential to all manifestations of the phenomenon under investigation. We will conclude the chapter by showing the essential and vital ground of

strategy and by readdressing its essence in the light of the ontology on which we base this investigation, uncovering a deeper meaning of the phenomenon in question.

5.1. The Management Field

In the management field strategy is deeply related to the long-term profitability of the firm. For Ansoff and Sullivan (1993) strategic success relies on the optimisation of the firm's *profit potential*, in the form of new products, markets, and technologies and competitive strategies. This optimisation process is achieved when the strategic behaviour of the firm is aligned with the environment (ibid.). Ansoff and Sullivan (ibid.:13) claim that "there is no single success formula which has universal validity", and thus develop a contingent strategic success formula based on the assessment of three key variables, one external (environment turbulence), and two internal (the way the firm manages change, and the degree of change between a firm's strategic moves and the kind of data, mind-set, or experience the firm uses in choosing its moves). According to this framework Ansoff and Sullivan (ibid.) suggest that different theories and techniques of strategic management (e.g., Porter 1980, Chandler 1962, Quinn 1980, Ansoff 1965, Mintzberg 1990) are pertinent in different situations, given that their specific applications are driven by the aim of optimising the firm's potential profitability in the future.

Profit drives companies; that is one of the unquestionable assumptions of most theories on strategic management. Taking the three most relevant bodies of strategic theory within the management field, namely the design school, the positioning school, and the resource-based approach, we note that all of them address the long term survival and prosperity of the firm. The issue of profit clearly appears at the centre of strategy. It is the path, the modes, and particularly the assumptions to achieve the desired outcome that make the difference between those theories.

The concept of strategy remained within the military context until the Industrial Revolution when it began to enter large business enterprises (Chandler 1962, Bracker 1980, Hoskin, Macve, and Stone 1997). The analogy between war and business, nowadays a widely discussed topic in the management field, is suggested by Clausewitz himself (1976.:149). War belongs to man's social existence. It is a "clash between major interests, which is resolved by bloodshed – that is the only way in which it differs from other conflicts. Rather than comparing it to art we could more accurately compare it to commerce, which is also a conflict of human interests and activities; and it is *still* closer to politics, which in turn may be considered as a kind of commerce on a larger scale" (ibid.).[188]

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[188] It is worth noting that Clausewitz uses business notions to make his point when analysing the different interests of the members of military alliances: "But even when both states are in earnest about making war upon the third, they do not always say, "we must treat this country as our common enemy and destroy it, or we shall be destroyed ourselves". Far from it: the affair is more often like a <u>business deal</u>. In the light of the <u>risks</u> he expects and the <u>dividend</u> he hopes for, each will <u>invest</u> about 30,000 to 40,000 men, and behave as if that were all he stood to lose"

On War's influence on strategic management has been continuously addressed for several years. Sicard (1987) points to the similarities of elements between the military and business: the general/manager, the army/employees, the enemies/competitors, the conquest/market share, and the stimulus of security and well being/profits and customer satisfaction. James (1980) considers the military field a goldmine of competitive strategies. The works of the Chinese author Sun Tzu (4th century BC) and Clausewitz's *On War* are the most widely studied. Mintzberg, Ahlstrand, and Lampel (1998) consider Clausewitz's *On War* to be at the origins of the positioning school of strategic management, as referred to above. Katz (1970) applies some Clausewitzian principles on strategy such as the concentration of forces concerning the resources of the company and its current or potential competitive advantages. Ries and Trout (1986) fully apply Clausewitz's principles of defence, frontal and flank attack, and guerrilla warfare to strategic and marketing management. Vasconcellos e Sá (2001) relies on Clausewitz's strategic notions of deciding the *when* and *where* of battles to suggest a theory of strategic management. Quinn (1980) draws on a more intricate approach to corporate and business strategy relying on several Clausewitzian notions such as surrounding, thrust, dominance, stretching resources, cunning, flexibility, psychological will, and more. Ghyczy, Bassford and Oetinger (2001) try to connect today's business environment to Clausewitz's thinking on strategy. Recently the origins of management strategy was claimed being in the military field, yet not in Clausewitz, Sun Tzu, or ancient Greece, but in the USA West Point Academy, in the first half of the 19th century. This proposal has the originality of claiming to account both for the origins of modern military and business strategies.

Chandler (1977:12) considers the modern business enterprise an institutional response to increasing consumer demand and the rapid pace of technological development. He argues that one of the most significant developments in business management was the running of USA railways. Hoskin (1990:20) claims that by that time, the early 1800s, those big enterprises were beginning to be run by numbers, by applying mathematical analysis to the recorded data. Hoskin (ibid.) argues that those techniques were imported from the USA West Point military academy, from where some of the key executives of those companies came.

That kind of quantitatively oriented analysis of major businesses continued to gain momentum, and the first experiences of separating the task of setting the company's objectives (which would be the work of strategists) from actions effectively taken to reach those objectives (which would be, at least in theory, the criterion for setting a structure) were carried out early in the 20th century in the USA, particularly by the firms Dupont

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(Clausewitz 1976:603; our underlining). Refer also to ibid.:189, quoted below. According to Howard (1976:43-4) it was this kind of analogy between war and commerce that made Friedrick Engels draw Karl Marx's attention to Clausewitz *On War.*

Nemours and General Motors (Godet 1993:250). The use of statistical and financial analyses grew, in spite of they not yet being integrated into a comprehensive business plan.

After World War II a growing awareness of business opportunities, created by changing population, income and technology, opened up the way for the emergence of modern corporate and business strategies (Chandler 1962). Initially companies tried to cope with an environment increasingly characterised by a consumer demand which was greater than companies' supply (Robert 198?). From 1945 to the mid-1970s there was more demand than supply, and the producer was king (ibid.). "Everything they [the companies] produced was immediately gobbled up by long lines of customers craving their products" (ibid.:48). In this kind of economy companies were mostly interested in forecasting market growth, speeding up the volume of production, and lowering costs.

This economic and technological environment, along with the relative political stability of the post-II World War era, led to the first sound proposals of management strategy, namely those of Selznick (1957), Chandler (1962), Ansoff (1965), and Andrews (1971). All of them set the ground for the very influential strand of strategic management identified as the design school. Yet Ansoff's (1965) proposal was more focused on formalised planning than the proposals of the others referred to above who emphasise the analysis and working of company's key strengths and weaknesses, and environment opportunities and threats (the widely used SWOT technique), for achieving an optimum fit between the firm and its environment. Chandler (1962) establishes the notions of business strategy and organisational structure. The separation of thought and action lies at the roots of the need claimed for structure to follow strategy. Andrews (in Christensen, Andrews, Bower, Hammermesh, and Porter (1982) quoted in Mintzberg, Ahlstrand, and Lampel 1998:32) referred that "[until] we know the strategy we cannot begin to specify the appropriate structure". In this light formulation and implementation are clearly separated.

That is also Ansoff's (1965) proposal, in which the key features of the original design school became an elaborated sequence of steps. "There are hundreds of different strategic planning models. (…) But most reduce to the same basic ideas: take the SWOT model, divide it into neatly delineated steps, articulate each of these, articulate each of these with lots of check lists and techniques, and give special attention to the setting of objectives on the front end and the elaboration of budgets and operating plans at the back end" (Mintzberg et al 1998:49). The strategic planning models are based on three areas of concern: the setting of the premises (fundamental organisational, social and economic purpose, values of top management, and SWOT analysis), the planning itself (mission, long-range objectives, policies, and plans, as well as medium and short range horizontal policies and programs and vertical plans and procedures), and the implementation and evaluation (monitoring, feed-back, and adjusting). As in the original design school models, these planning techniques would deliver unique strategies.

Both of these views, either more focused on structural fit or on formal planning, are eminently prescriptive in nature. Their concern is what the strategy of the company should be, rather than what that strategy actually is.[189] In 1980 a new prescriptive proposal on strategy appeared in the field of management: a positioning school whose main aim was to position the company in its specific competitive environment. The underlying philosophy of this school is the same as "the selection of optimal strategy of literal position in the context of military battle" (Mintzberg, Ahlstrand, and Lampel 1998:85), much in the way it is presented in Clausewitz's (1976) *On War*, and in Sun Tzu's (1994) *The Art of War*. Contrary to the design school, the positioning one argues is that there are limited number of strategies that each given company might follow.

A central work of the positioning school is Porter's (1980) *Competitive Strategy*, which brings industrial economics to the core of corporate strategy. Just like the design and planning models, in Porter's theory "the essential notion of strategy is captured in the distinction between ends and means" (ibid.:xvi). "Essentially, developing a competitive strategy is developing a broad formula for how a business is going to compete, what its goals should be, and what policies will be needed to carry out those goals" (ibid.). Porter's answer is the carrying out of an analysis of the industry (the well-known model 'Five Forces of the Industry'), and choosing one of the three "potentially successful generic strategies to outperform other firms" in that industry: overall cost leadership, differentiation, or focus either by cost or differentiation (ibid.:35). At stake is the firm's choice. Trying to compete by being all things to all segments, or not to choose what kind of trade-off the firm is going to be engaged in, is a recipe for poor performance; not choosing, consciously and decisively, the firm will end up by being 'stuck in the middle' (ibid.).

Other positioning proposals had considerable success in the business community, namely the 'Growth-Share Matrix', which addresses the allocation of resources to the different businesses of the firm depending on the current market share and the growth potential of the business (Henderson 1979), the 'experience curve' that suggests that as the cumulative production doubles, its overall cost declines by a constant percentage, and the PIMS (Profit Impact of Market Strategies) model, which identifies a high number of variables and estimates expected returns, profits, market share and so forth (Schoeffler 1980). Recently, strategy researchers have been drawing on game theory – following the article of Brandenburger and Nalebuff (1995). Game theory, a development in economics, tries to analyse how rational, self-interested, actors are likely to behave in very well defined situations (Von Neumann and Morgenstern 1980). In all of these proposals the central strategic issue is one of choosing a position.

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[189] As this review of literature is intended to capture the way in which strategy appears in different proposals in the management field, it is of no particular relevance here to address the shortcomings usually identified in each of the theories presented. All of them have strengths and weaknesses (Mintzberg et al. 1998), and the fact that others proposals have continued to emerge in the last decade is a clear indication of the impossibility of accounting for one single best theory.

Both the design and positioning schools are focused on the external environment and what firms' strategies should be. In contrast to these perspectives a different proposal on strategic management, either focused on learning, power, cultural, or psychological issues, has been advancing for more than a decade. This approach to strategic management, identified as the resource-based view, focuses on the firms' internal capabilities and resources and attempts to address how strategies actually happen. At stake is a shift from what should happen to what actually happens – not how strategies are formulated, but how they form?

Two particular works dating back to 1959 can be said to be at the origin of the resource-based approach to strategy. Lindblom's (1959) paper questioned the premises of 'rational' management. He argued that policy is not an orderly and controlled process but a messy one in which executives try to cope in many ways with the complexity of a world well beyond their control. Whilst Lindblom first targeted government, in spite of having disturbed much of the business world, Penrose (1959) directly addressed the issue of the growth and prosperity of the firm. She claims that what makes growth is the accumulated experience and knowledge from within the company. So Penrose (ibid.) not only pointed out the firm's resources as the basis for its growth, but also identified knowledge as the one resource that can make the difference between companies. For Penrose (ibid.) the 'input' of production is never the resources themselves, but the way in which they are used according to the firm's experience and knowledge.

This approach was dormant up to the 1980s most certainly due to the period of economic growth and euphoria that followed the World War II (Magalhães 1996), in which the tools of quantitative planning delivered the effectiveness desired. Wernerfelt (1984) developed Penrose's insights in the field of strategic management, claiming that a firm's strategy is the balance between the exploitation of existing resources and the development of new ones. This approach assumes that the type of resources that can lead to high profits can be identified. Barney (1991) outlined the kind of resources this approach is interested in: physical capital (IT hardware and software, plant and equipment, geographic location, access to raw materials, etc.), human capital (experience, training, judgement, intelligence, relationships, etc.), and organisational capital (formal systems and structures, informal relations, practices and comportment). He suggested four criteria to identify this kind of resources, so called strategic resources: valuability (the capacity to enhance the company's efficiency and effectiveness), rarity (a scarce resource in high demand), inimitability (either achieved by chance or committed development), and substitutability (the impossibility of substituting a specific resource for another). Underlying all these criteria, Conner and Prahalad (1996) contend, is a knowledge-based view of the firm, in the way Penrose (1959) had suggested. A firm should be viewed as a repository of knowledge and as a process of knowledge creation.

These ideas, as developed by Quinn (1980), Hamel and Prahalad (1989, 1990, 1993, 1994), Stalk, Evans and Shulman (1992), and Nonaka and Takeuchi (1995), set much of the

agenda in the strategic management field. To this new approach to strategy in management, competencies, capabilities, and skills are the strategic assets that might lead to firms' sustainable competitive advantages. This reverses the external focus of design and positioning schools. Competitive advantages, which lead to higher profits, "should be found in resources and skills 'inside' the company, as opposed to the market environment 'outside' the company" (ibid.:48). The core competence is a key concept of this theory. It is a particular combination of resources "that enables a company to provide a particular benefit to customers. At Sony that benefit is 'pocketability', and the core competence is miniaturization. At Federal Express the benefit is on-time delivery, and the core competence, at a very high level, is logistics management" (Hamel and Prahalad 1994:199). "A core competence represents the sum of learning across individual skill sets and individual organizational units. Thus, a core competence is very unlikely to reside in its entirety in a single individual or small team" (ibid.:203). The integration of skills, technologies, wills, and practices is the hallmark of core competence.

These notions point to an important corollary of this theory on strategy: that the leveraging of resources, in order to develop and consolidate core competences, is as important as allocating them. Thus, "the concept of stretch supplements the idea of fit" (Hamel and Prahalad 1993:77). Hamel and Prahalad (ibid.) thoroughly worked out the manner in which resources can be leveraged: by concentrating them more effectively on key strategic goals; by accumulating them more efficiently; by complementing one kind of resource with another to create higher order value; by conserving resources whenever possible; and by recovering them from the marketplace in the shortest possible time.

"General Motors versus Toyota. CBS versus CNN. Pan Am versus British Airways. RCA versus Sony. Suppose you had been asked, 10 or 20 years ago, to choose the victor in each of these battles. Where would you have placed your bets? With hindsight, the choice is easy. But at that time, GM, CBS, Pan Am, and RCA all had stronger reputations, deeper pockets, greater technological reaches, bigger market shares, and more powerful distribution channels. Only a dreamer could have predicted that each would be displaced by a competitor with far fewer resources – but far greater aspirations" (ibid.:75). These aspirations that motivate, involve, and leverage resources, thus stretching the company into the future, have been for some time captured in the management notion of vision or strategic vision (Bennis and Namus 1985) – the desired state of the company in the future. Hamel and Prahalad (1993) worked out this notion, considering the company's strategic architecture its options and commitments either in resources, products, or markets, which together aim at achieving the vision (Hamel and Prahalad 1994:129). The emotional and intellectual energy for that journey into the desired future state of the company, both ambitious and compelling, is called the firm's *strategic intent*. "Strategic architecture is the brain; strategic intent is the heart. Strategic intent implies a significant *stretch* for the organization" (ibid.; italics from the original).

According to these authors strategy is about leveraging resources, developing core competencies, and stretching the company in order to shape and capture future markets (ibid.). "Creating stretch, a misfit between resources and aspirations, is the single most important task senior management faces" (Hamel and Prahalad 1993:78). It equals creating "an obsession with winning at all levels of the organization and then sustain that obsession over the 10- to –20-year quest for global leadership" (Hamel and Prahalad 1989:64).

The will of the organisation, of its employees individually and collectively considered, is the underlying ground that enables the organisation to develop and consolidate its experience and knowledge around its core competencies. This strategic intent of the organisation implies a sizeable stretch (ibid.:67): "Current capabilities and resources will not suffice. This forces the organization to be more inventive, to make the most of limited resources. Whereas the traditional view of strategy focused on the degree of fit between existing resources and current opportunities, strategic intent creates an extreme misfit between resources and ambitions. Top management then challenges the organization to close the gap by systematically building new advantages" (ibid.). This means that strategy as stretch is more than a pattern in a stream of incremental decisions. It is a clear view by the top management of the goal ahead, as well as an open path to follow and discover through leadership in the field. Strategy as stretch, these authors conclude, recognises "the essential paradox of competition: leadership cannot be planned for, but neither can it happen without a grand and well-considered aspiration" (ibid.:84).

The main strands of theory on strategy in the management field are the ones reviewed above: design, positioning, and resource-based schools. There are many other ideas on the issue, yet not as influential as these ones. These proposals have appeared at different stages in the development of strategic management. All of them address the ways in which a firm will be able to survive and thrive, thus maximising its profits in the future. The kind of assumptions, both about the nature of a company as such, and about its environment, as well as the grounding epistemologies of each theory, among other factors such as the individual genius and imagination, lead to different proposals on strategy. Nonetheless of all the aspects referred to in this section it would be correct to say that all of them share the assumption that strategy has its *raison d'être* in the company's well-being; this is to say, in its present and future profits.

That profit drives companies seems a self-evident statement. Yet one should concede that so does management as such. Many considerations and objectives of strategy are those of management qua management. On account of the limited resources available, and of their effective and efficient use, management is the process of working with and through others to achieve organisational objectives in a changing environment (Kreitner 1989:6). How is this supposed to be achieved? For some time the answer to this question has seemed to be twofold: through structure and through strategy (Chandler 1962). This duality of the organisation, on which design and positioning schools are based as well as the resource-

based approach to a lesser extent, has its deeper roots in Tayloristic scientific management (Taylor 1914), which in its turn relies on Descartes' epistemology. Descartes' rational subject becomes Taylor's rational manager; the world, an objective *res extensa* out-there, becomes the workmen and their tasks; action in that world, that is, the Cartesian representations, theories, laws, and models, become the manager's plans, policies and procedures (Introna 1997). This framework applies also to strategy as well. It becomes the thinking, the evaluating, setting of objectives, and planning *mind* of the corporation; structure as such becomes the way the organisation is put in place and manages its processes and functions, that is, its *body*, in order to achieve the desired short, medium, and long term objectives of the company.

This duality of the organisation has been thoroughly questioned in recent years (e.g., Angell and Smithson 1991, Introna 1997, Mintzberg 1992, 1994, Argyris 1993, Nonaka 1994, Krogh, Roos, and Slocum 1994,). At the heart of these critiques is the impossibility of separating doing and thinking, which points to a deeper questioning of the ontological assumptions on which most theories are based. Our arguments concerning the unfeasibility of separating thinking, and action, body and mind, knowledge and action, were presented in Chapter 3. The impossibility of completely separating the company's *mind* and its *body*, and its ineffectiveness to the long term profitability of the firm are the motives for the emergence of new proposals in the management strategy, such as the ones that focus on learning, cognition, culture, and most recently the trend of proposing a configurative school that would absorb the insights and techniques from all the other schools (Mintzberg, Ahlstrand, and Lampel 1998). Ansoff and Sullivan's (1993) paper referred to above might be viewed as a first opening up of this trend.

The shortcomings of the dualist epistemologies might also be a motive for the strategic function or process in corporate management, which was called until the late 70s/mid 80s 'business policy', to have started being addressed as *strategic management* (Schendel and Hofer 1979). With this novel notion strategy as the study and the making of decisions about the conditions for the long-term profitability of the firm, was put back into management. That the expression 'strategic management' is a tautology makes this point clear. By definition, management is at the service of strategy: management is the art of putting the organisation at the service of strategy (Boyer and Equilbey 1990). Thus, what differentiates management from strategy? What is strategy? What is its essence?

A deeper look into what management is shows us that initially it pointed towards the kind of action in which thinking and doing were fused together in one coherent whole (Introna 1997:86). The word management comes from the Latin word *manus*, which meant literally hand (ibid.:82). *Manus,* in its turn, has the Latin word *man* as root. *Man* signified man, and is related to the Latin *ma*, which meant to measure (Crane 2001). The Latin *ma* is akin to the Sanskrit *ma*, which meant measure or moon (Crane 2001, Capeller 2001, Cunha 1982). Thus, the way in which man relates to his environment, a theme highly pertinent to the field

of strategic management, seems to be present in the etymological roots of the word management. The suffix *us* joined later the Latin word man, forming the word *manus*. The Latin *us – usus, us –* signified to use, using something (Crane 2001). *Man-us*, thus, pointed to man using, the using of man, man using something. This meaning in ancient Rome was reserved to signify hand. Hand is thus the way in which man is using; the way he manages in the world.

This Latin word *us* is preserved in contemporary English with an apparently different meaning. The English 'us' is a pronoun used by a speaker to refer to himself, and one or more others (OPDT:853). This brief analysis points to the connections between using and us, between us and using something. *Manus*-ment is thus the action of man in the world, involved, using, being the measure of it and of his own actions. Management is the hand of man in the world, which is the way in which he is what he is in the world: acting, using such and such, measuring thus deciding, arranging and opting. The word management captures all these meanings, pointing to the action of man in the world. This action of ours, of us, is the way in which we are in the world, that is, the measure of it as Protagoras said – "Man is the measure of all things" (in Plato 1987:n.160d).

Introna (1997:84) claims that these deeper meanings of *manus*, for long preserved in apprenticeship, were almost lost with the development of industrial technology. "The dominance of *manus* in the cottage, the pre-industrial commerce, was broken by the rapid development of technology" (ibid.:86). Apprenticeship was converted into textbook, secrecy into methodology, learning by doing into learning by being managed, and doing and thinking were separated as different functions of the company (ibid., Drucker 1978:26). Craftsmen's shops were replaced by factories, men by machines, and manus by management (Introna 1997:86). Taylor fully captured and developed the notion of management aiming at always finding the one best way of doing (ibid.). The subject/object dualism was the theoretical base of Taylor's (1914) scientific principles of management: separate thinking and doing; select men according to their abilities to do the tasks to be performed; integrate man and task; coordinate and supervise the performing of the tasks.

Hence, the separation between the manager and the worker, the end of *manus* and the rise of management, opened the way for the rise of strategy as an autonomous activity of the thinking subject. However one should not consider management as a strictly new kind of activity that emerged with the industrial revolution. Introna (1997:85) recalls that, for example, a typical management system existed for the construction of temples in Mesopotamia (c. 3000 BC), and Sun Tzu's (1994) *Art of War* highlights an elaborated system of planning and managing war. Godet (1993:239) suggest that the notions we now address in management and in strategy were already present in pre-historical times, when men gathered to hunt big animals, isolating and leading them to a specific ravine where they would fall. Yet it is with the industrial revolution, and on the basis of Descartes' and Enlightenment project, that we witness the full development of management.

As industrial activity has become more and more complex the former managers have become more and more a part, not of the *mind,* but of the *body* of the company. Functional or process managers are now Taylor's workers, the acting subject, in contrast with top management, or the strategists, who are the thinking subject, the mind of the corporation. As the mind of the company, strategy has the function of totalising it (Strategor 1993). That is why up to the 1980s that kind of activity was called 'Business Policy' (Schendel 1994:1).

Policy has been an English word since the 15th century (MW). It means prudence or wisdom in the management of affairs, the management or procedure based primarily on material interest, a definite course or method of action selected from among alternatives and in the light of given conditions to guide and determine present and future decisions, or a high-level overall plan embracing the general goals and acceptable procedures especially of a governmental body (ibid.). Policy comes from the Middle English *policie*, which meant government or policy, and has its roots in the late Latin word *politia* (ibid.), which in its turn comes from the ancient Greek word *politeia* and *polis* (Crane 2001). The word *politeia* meant the condition and rights of a citizen, citizenship (e.g., in Herodutus 9.34, and Thucydides 6.104), a body of citizens (e.g. in Aristotle's *Politeia* 1292a34), the life of a citizen, civic life (e.g., in Democritus 19.184 and 20.122). *Politeia* also signified the life and business of a statesman, government, or administration (e.g., in Aristophanes Kn. 219, Xenophone. Mem. 3.9.15, and Thucydides. 1.127), civil polity, the constitution of a state (e.g. in Antiphon 3.2.1, and Thucydides. 2.37), a form of government (e.g. in Plato's *Republic* 562a), and republican government, free common-wealth (e.g., in Aristotle's *Nicomachean. Ethics* 1160a34).[190] The ancient Greek word *polis* had rather the same meanings, although more directed towards the notions of one's city or country, city governor, community, body of citizens, state or community, rights of citizenship (Crane 2001). *Polis* has possibly its roots in the Sanskrit word *pur* and in the Old Lithuanian word *pilìs* (ibid.). *Pur* meant a castle, a fortified town, a stronghold, and fullness and abundance (Cappeller 2001). *Pilìs* meant a castle (LED 2001). This entanglement of meanings is thus captured in the expression 'business policy', and offer managers a ground to consider the fundamental unity and identity of the corporation. One can see how all of these notions belong more or less clearly to the discipline of business policy or strategic management.

Strategy is thus a totalising of the company – it is its policy, its establishing its identity and of how it survives and thrives in the future (Strategor 1993). To the reviewed theories on strategic management, strategy is a particular understanding of management which assumes the duality of structure/strategy, and allows us to understand the organisation through its modes and methods of setting objectives and pursuing them for its long-term profitability. Thus, the strategic behaviour of a firm forms a pattern "that is effective over long periods of time, affects the company in many different ways and focuses and commits a significant portion of its resources to the expected outcomes. The pattern resulting from a series of

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[190] All references from Crane 2001.

such decisions will probably define the central character and image of a company, the individuality it has for its members and various publics, and the position it will occupy in its industry and markets" (Andrews 1980:51). This character of the company, its basic determinants, if purposefully institutionalised is likely to persist through and shape the nature of substantial changes in product-market choices and allocation of resources (ibid.).

To conclude, the questions of the firm's character or identity (its throwness and its primary for-the-sake-of-which, according to Heidegger's (1962) notions), its surviving and thriving-through-profit in environment (its structural coupling, its in-the-world), and, its willing, unity and clarity (its resoluteness and future focus) appear central to the phenomenon of strategy. We will re-scrutinize them in the final section of this chapter. Now we need to engage into a second beginning of our search for the essence of strategy: Clausewitz's *On War*.

5.2. Clausewitz's Theory

Carl von Clausewitz (1780-1831) was born in Burg, near Magdeburg, Prussia, and died at Breslau, Silesia. He entered the Prussian army at the age of 13 and was made Major-General when he was 38. Fighting against the armies of the French Revolution and Napoleon he gained extensive war experience. On War (Clausewitz 1976), his unfinished magnum opus, was first published in 1832, a year after he died.[191] It is considered a masterpiece on strategic thinking in war. Its influence has been felt up to now (Howard 1976).[192]

Bassford (1996) considers On War "unquestionably the most important single work ever written on the subject of warfare". Luttwak (in Handel 1986) states that the teachings of Clausewitz remain unsurpassed. The USA Marine Corps' basic military philosophical manual Warfighting (WF 1995) is essentially a summary of Clausewitz's On War, aimed at

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[191] Born to a poor middle-class family of professional background, Clausewitz entered the Prussian Army in 1792 as a cadet (Fahnenjunker) in the 34th Infantry Regiment. Between 1793 and 1794 he fought in the campaign against France. In 1795 he was promoted to lieutenant. In 1801 he was admitted to the War Academy in Berlin, and in 1804 he graduated with top ranking. Then he was named aide-de-camp to Prince August of Prussia. Two year later he was captured by the French, and kept in captivity in France and Switzerland until 1808. After that he took part in the reorganization of the Prussian army, was appointed professor at the Prussian Academy of War, and made responsible for the military education of the crown prince. Between 1812 and 1813 he refused to collaborate militarily with Napoleon, leaving the Prussian army and joining the Russian one. A year later he became chief of staff of the German-Russian legion, then he was reinstated in the Prussian army. In 1815 he fought in the Waterloo campaign as chief-of-staff to General Thielmann's of the III Prussian army corps. Between 1816 and 1818 he served on General Gneisenau's staff in Coblentz. In 1818 he was promoted to Major-General, named director of the War College in Berlin. Up to 1830 he devoted himself primarily to research. In 1830 he was appointed chief of staff to Gneisenau's army, and placed on the Polish border to contain the Polish Revolution. He died in November 16, 1831, of cholera contracted in the field. Clausewitz's tomb is in the city cemetery at Burg (Clausewitz 1976, EB 2001, CW 2001).

[192] Our analysis of Clausewitz's account of the phenomenon of strategy is more extended than those of the other sections of this chapter. Two reasons in particular advise us to do that: first, Clausewitz's *On War*, although often referred to is poorly studied in management and IS studies; second, *On War* is the master-piece that has definitively coined the term strategy.

providing a broad guidance in concepts, values, and action (ibid.). Clausewitz's theory of war also was adapted and absorbed by the Marxist-Leninist theory of class struggle (Ziemke 1994).[193] The first attempts to adapt Clausewitz's insights to the post-Cold War world have already happened. Among them we refer to Beyerchen's (1992) analysis of Clausewitz's work in the light of non-linear mathematical theory.[194] Based on the study of On War, here synthesised, it appears that Clausewitz's work will remain useful for years to come. Besides international politics and war, Clausewitz's (1976) influence has been felt for some time on management as well, as referred to above.

Strategy, as an autonomous and unique event, is addressed by Clausewitz (ibid.) when fully investigating the phenomenon of war. Strategy is a central theme of his work because war is essentially linked to it. Clausewitz sought to outline "universal, permanent elements in war on the basis of a realistic interpretation of the present and the past" (Paret 1976:3). This kind of approach immediately suggests a phenomenological one, which is something confirmed as one takes notice of his method and follows the development of his argument.

Clausewitz tries to address the "essence, or regulative idea" (ibid.:11), of the phenomena of war, policy, and strategy. He claims that theory might enable one to go beyond first impressions – appearances in the phenomenological sense – into the essence of the phenomena. Yet the urge "to reach a set of positive conclusions on the phenomenon of war" (Clausewitz 1976:134) might lead one to fail to account for the paradoxes and complexity of war, only relying on factors that can "be mathematically calculated" (ibid.).

Much in a phenomenological manner Clausewitz (ibid.) was not fond of strict definitions. He stressed that even the most realistic theory would never be able to match reality. His main objective is to address each element of war as sharply as possible yet insist on the absence of discrete limits. War is a phenomenon that should be addressed as a whole (ibid.:183). Its breaking up and mathematisation will add up to nothing when in the field the general and the army face not war on paper but real war (ibid:119).

For Clausewitz (ibid.) a theory of any activity – even if it aims at effective performance rather than comprehensive understanding [195] – "must discover the essential, timeless elements of this activity, and distinguish them from its temporary features" (Paret 1976:11). This necessity, its motives, and aims, are thoroughly presented in Chapter 2 when introducing the phenomenological concept of reduction. For Clausewitz (1976) the reduced phenomenon of war is violence and political impact. The relationships between these elements are accounted for in the phenomena of policy and strategy.

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[193] "[W]ar is the continuation of the politics of definite classes and states by other means" (*Marxism-Leninism on War and Army* (Moscow 1972), quoted in Howard 1976:44).

[194] In the light of the recent terrorist attacks of September 11, 2001, in New York and Washington, it should be expected that *On War* will soon experience a wave of new analyses under a new perspective on international politics and war.

[195] This aspect will be shown (Chapter 6) to be of high importance concerning the implications of theoretical investigations in general, and phenomenological ones in particular.

Clausewitz's (ibid.:61) method is the logical analysis of the phenomena at stake combined with an account of empirical experience. "Analysis and observation, theory and experience must never disdain or exclude each other; on the contrary, they support each other" (ibid.). He investigates "the essence of the phenomena of war and (…) indicate[s] the links between these phenomena and the nature of their component parts" (ibid.:61).

Clausewitz's account of strategy relies on his broad and deep analysis of war. For him strategy is a phenomenon deeply entangled with war as a whole, which encompasses much more than armed battles. War is the collision of two living forces (ibid.:77), of which at least one holds hostile intentions to the other. Generally they both have hostile feeling towards each other. These feeling climax in a clash of armed forces. The fighting is a "trial of moral and physical forces through the medium of the latter" (ibid.127).

"Essentially war is fighting" (ibid.:127), a duel on a larger scale (ibid.:75). The means of war is force (ibid.:75). Its object is "to impose our will on the enemy" (ibid.). Thus, "[w]ar is nothing but the continuation of policy with other means" (ibid.:69).[196] If this will of ours proceeds through negotiations, diplomatic notes, international meeting and the like, we are in the realm of politics – international relations, state policy, diplomacy. If this policy is pursued by force – 'by other means' – we are in the realms of war. Thus, war and politics fall under a higher notion of policy that is the pursuing of a state's interests or objectives.[197] This superior conception of policy that comprises politics and war is for Clausewitz the strategy of an entity, a state for this particular case. War and politics are the major elements of strategy (ibid.63).[198]

However the overarching political aim is not something blind to the use of force and to its consequences. The means themselves, in their possibilities and probabilities, in the expectable consequences of their use, influence the policy that is guiding their deployment, and eventually change it. The means can never be considered in isolation from their purposes.[199] A change in the nature of tactics, namely on account of technological development, "will automatically react on strategy" (ibid.:226). "[Policy] must adapt itself to its chosen means, a process which can radically change it" (ibid.). Yet, in this possible change, "the political aim remains the first consideration" (ibid.). Policy permeates the

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[196] Lidell Hart's (1967:335) – one of the Western thinkers on strategy more influential in the post WW II – well-known definition of strategy, although clearly Clausewitzian, is a much stricter one: "the art of distributing and applying military means to fulfill the ends of policy". Clausewitz's notion of strategy addresses policy and war as whole. Hart's suggest a rather clear separation between policy and military means.

[197] The word policy indicates a rational process of consciously interrelating means and ends. The word politics indicates a process characterised as struggle for power between opposing forces (Bassford 1996). Politics is thus the process in which policy is accomplished.

[198] That Foucault (1980) inverted this notion of Clausewitz, stating that 'politics in the continuation of war by other means', does not undermine Clausewitz account of strategy. Quite the contrary, in Foucault's notion strategy remains the grounds where war and policy unite, which is precisely what Clausewtiz (1976) claims to be the case.

[199] Clausewitz (ibid.:608) regards as necessary the political participation in military decisions. Brodie (1976:646) considers that "[Clausewitz] knew, and we know today, that the usual practice is rather to let war take over national policy".

operations of war and should always guide them as long as the violent nature of these will admit it. We should keep this in mind for the remaining of our exposition.

For Clausewitz war can be of two kinds "in the sense that either the objective is to *overthrow the enemy* – to render him politically helpless or militarily impotent, thus forcing him to sign whatever peace we please; or *merely to occupy some of his frontier-districts* so that we can annex them or use them for bargaining at the peace negotiations" (ibid.69; italics from the original), achieving a limited concession. This dual nature of war is dependent on the political objectives it serves. "The political object – the original motive for the war – will thus determine both the military object to be reached and the amount of effort it requires" (ibid.:81). Therefore "war is an act of policy" (ibid.:87); its end is the subjugation of the enemy, and its means is the destruction of his fighting forces (ibid.:526). "When whole communities go to war – whole peoples, and especially *civilized* peoples – the reason always lies in some political situation, and the occasion is always due to some political object" (ibid.:86-7). What makes war different from strictly political endeavours "is simply the peculiar nature of its means" (ibid.:87). Thus, "the art of war is the art of using the given means in combat" (ibid.), and its conduct consists in the planning and conduct of each of the single acts of fighting, which are called engagements (ibid.:225-78).

War is a clash of force, all permeated by material, moral, and psychological factors, by diverse collective and individual objectives and capabilities, by changing perceptions, altogether engulfed by actual and potential extreme violence. The "element in which it exists is danger" (ibid.:85), the realm of uncertainty and chance. "In war more than anywhere else things do not turn out as we expect" (ibid.:193). "The art of war deals with living and moral forces. Consequently it cannot attain the absolute, or certainty; it must always leave a margin for uncertainty" (ibid.:86). "[A]bsolute, so-called mathematical, factors never find a firm basis in military calculations. From the very start there is an interplay of possibilities, probabilities, good luck and bad that weaves its way throughout the length and breadth of the tapestry" (ibid.). Fully to account for this state of affairs Clausewitz developed the novel notion of *friction*, although advising that it is a notion "that theory can never quite define" (ibid.:120.).

Friction is devised to indicate – to indicate *formally*, much in the way Heidegger's phenomenology (1962) accounts for being-in-the-world – the distinction between "real war and war on paper" (Clausewitz 1976:119). Clausewitz sustains that actual war cannot be fully grasped without having experienced it. Moreover, experiencing it must account for its essential unpredictability. "Countless minor incidents – the kind you can never really foresee – combine to lower the general level of performance" (ibid.). "Fog can prevent the enemy from being seen in time, a gun from firing when it should, a report from reaching the commanding office. Rain can prevent a battalion from arriving, make another late by keeping it not three but eight hours on the march, ruin a cavalry charge by bogging the horses down in the mud, etc." (ibid.:120). Yet, friction mainly comes in the individual

actions. War is an act of force, danger is constantly present, and as such the emotions cannot fail to be involved. Clausewitz recalls that a military machine is not of one piece (ibid.:119); "each part is composed of individuals, every one of whom retains his potential of friction" (ibid.). The clarity of plans does not apply in real war. "A battalion is made of individuals, the least important of whom may chance to delay things or somehow make them go wrong"(ibid.).

Friction is not some notion that should be considered or added to a full quantifiable and objective analysis of war. Quite the contrary, friction is a pervading and constant force in war. It characterises it and each of the features of war should be weighted against this distorting, paralysing, and threatening force. Only luck and combat experience can counter the adverse effects of friction. At this point the whole theory of Clausewitz stands as fundamentally consistent with Heidegger's (1962) ontology. It is also shown in agreement with the theoretical development of ours on action and knowledge (Chapter 3). Let us quote a passage concerning how friction can be dealt with effectively:

> "[E]very war is rich in unique episodes. Each is an uncharted sea, full of reefs.(...) The good general must <u>know</u> friction in order to overcome it whenever possible, and in order not to expect a standard of achievement in his operations which this very friction makes impossible. Incidentally, it is a force that theory can never quite define. Even if it could, the development of <u>instinct and tact</u> would still be needed, <u>a form of judgement</u> much more necessary in an area littered by endless minor obstacles than in great, momentous questions, which are settled in solitary deliberation or in discussion with others. As with <u>a man of the world instinct becomes almost habit</u> so that he always acts, speaks, and moves <u>appropriately</u>, so only the experienced officer will make the right decision in major and minor matters – at every pulsebeat of war. Practice and experience dictate the answer: 'this is possible, that is not'" (Clausewitz 1976:120; our underlining).

The knowledge of friction that Clausewitz considers relevant is 'instinct and tact'. A general who *knows* friction, in the sense of being capable of dealing with it 'appropriately', needs to have made it instinctive, 'almost habit'. Thus to have knowledge of friction is to have turned it into instinct; which is in accordance with the notions developed in Chapter 3. It is not enough merely to be familiar with the idea of friction (ibid.). Effective experience and instinct, that is, to have embodied the notion and subtleties of friction is what counts in real war. That this basic position is fundamentally consistent with the ontology on which this investigation is based, is further supported by the fact that Clausewitz appeals to the notion of 'a man of the world' – for whom 'instinct becomes almost habit' – to explain the kind of ready-to-hand competence that is at stake in dealing effectively with friction. Habit comes from the full and non-thematic constant immersion of man in-the-world. To 'make the right decision at every pulsebeat of war' accounts for the primacy and transparency of action while relying on a ready-to-hand equipmentability. In this passage, thus, Clausewitz points to the kind of experience Heidegger (1962) addresses with the notion of being-in-the-world as something fundamental to his theory of war.

Friction is a constant and pervading element of war (Clausewitz 1976:119-121). States are shaped by their history as well as by their present circumstances (ibid.). "The structure of government and military institutions plays a crucial role in the formulation of strategy and its applicability to actual conditions" (Murray et. al 1994:19). States, just as individuals, are *thrown* into the world (Heidegger 1962), *always and already* acting (ibid.) with a purpose on account of the circumstances of the present and of the past they embody (ibid.). Clausewitz states that the phenomenon of war does not obey any set of rules. Paret (1976:11-2) refers that "[e]ven in his early writing Clausewitz had no difficulty in exposing the inadequacy of prescriptive systems when faced with the infinite resources of the mind and spirit". The notion that for Clausewitz best approaches the interplay of friction, chance, and victory in war is that of genius, the one 'who rises above all rules' (Clausewitz 1976:136). Clausewitz acknowledges that every case in war must be considered and thought through in its own right (ibid.). "His teachings embodied that freedom of thinking (...) [that emphasise] the creative action of the individual and disdain for formalism" (Howard 1976:27).[200] The notions of friction, chance, and genius are central fully to grasp the way in which Clausewitz theorises about war and accounts for the phenomenon of strategy.

The whole phenomenon of war, in its dominant tendencies, is for Clausewitz (1976:89) a "paradoxical trinity – composed of primordial violence, hatred, and enmity, which are to be regarded as a blind natural force; of the play of chance and probability within which the creative spirit is free to roam; and of its element of subordination, as an instrument of policy, which makes it subject to reason alone". In this account one can distinguish fundamental traits in the relationship of strategy and war: war as an instrument of policy is understood within the realms of strategy, which has the dominant role of a 'rational policy' shaping and controlling war; force is the peculiar means of war through which policy is pursued; and, chance, uncertainty, and genius, unveil an addressing of human life as such.

For Clausewitz the psychological, personality, motivational and emotional issues are central in war. He calls them 'moral issues' (ibid.:136, 184-9).[201] The sense of one's own strength, within the danger in which everything in war moves, is the principal factor that influences judgement (ibid.:137). So "[t]heory becomes infinitely more difficult as soon as

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[200] When reading Clausewitz's *On War* both its fundamental consistency with large pieces of Heidegger's ontology, and its phenomenological contours become evident. That has never been pointed out might be understood possibly on the grounds that *On War* usually was a work studied under Cartesian backgrounds. That Clausewitz considered himself a Kantian – throughout *On War* he uses Kant's (1985) *a priori* features of 'time' and 'space' to arrange his analysis – might have helped also to favour a not so rigorous approach to his theory of war. This made it difficult fully to grasp some of Clausewitz central notions, namely his concept of friction. Yet, this might explain why, in spite of its having been considered, almost since its publication, a timeless achievement, *On War*'s insights "have *not* been adequately absorbed" (Brodie 1976:50; italics from the original). From our analysis we should conclude that *On War* is much more a Heideggerian approach to war than a Kantian one.

[201] In Clausewitz's theory of war 'moral issues' do not concern ethics, but intellectual, emotional, and psychological matters in general.

it touches the realm of moral values" (ibid.). War is not a mechanical operation.[202] "[W]ar is not an exercise of the will directed at inanimate matter (...). In war, the will is directed at an animate object that *reacts*" (ibid.:149). Clausewitz (ibid.:138) criticises theorists who "are apt to look on fighting in the abstract as a trial of strength without emotion entering into it. This is one of a thousand errors which they quite consciously commit because they have no idea of the implications". On these accounts Clausewitz (ibid.:177) claims that strategy has to go onto the field. "[A]ny method by which strategic plans are turned out ready-made, as if from a machine, must be totally rejected" (ibid.:154):

> "The insights gained and garnered by the mind in its wanderings among basic concepts are benefits that theory can provide. Theory cannot equip the kind with formulas for solving problems, nor can it mark the narrow path on which the sole solution is supposed to lie by planting a hedge of principles on either side. But it can give the mind sight into the great mass of phenomena and of their relationships, then leave it free to rise into the higher realms of action. Then the mind can use its innate talents to capacity, combine them all as to seize on what is *right* and *true* as though this were a single idea formed by their concentrated pressure – as though it were a response to the immediate challenge rather than a product of thought" (ibid.:578; italics from the original).

For Clausewitz the role of a theory of war is not to establish a system of rules, but to enhance the personal capacity and ability of either intuitive or analytical judgment on the most adverse, dangerous and surprising conditions.[203] "Theory exists so that one does not need to start afresh each time sorting out the material and plowing through it, but will find it *ready to hand* and in good order" (ibid.:141; our italics). The meaning of a theory, as a body of knowledge, is thus captured by Clausewitz much in agreement with the notions developed in Chapter 3, which point to knowledge as ready-to-hand information. Led by action, an understanding of theory, that is, an embodiment of it by the individual participant, instinct and intuition influence the course of events. This seems indeed to be Clausewitz' central message concerning the use of theory, which is particularly valid in strategy. Strategy concerns major operations and very few people have clear ideas about its details (ibid.:70). "Most men act on instinct, and the amount of success they achieve depends on the amount of talent they were born with" (ibid.:71). A genuine understanding of a theory, that is, its embodiment, is thus what might lead to change positively that instinctive and talented dependent behaviour of men. Clausewitz considers 'ridiculous' that a theory on strategy excludes all 'moral' qualities, and "only examines material factors (...) [reducing] everything to a few mathematical formulas of equilibrium and superiority, of time and space, limited by a few angles and lines" (ibid.:178). War is a phenomenon constantly and

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[202] "Architects and painters know precisely what they are about as long as they deal with material phenomena. Mechanical and optical structures are not subject to dispute. But when they come to the aesthetics of their work, when they aim at a particular effect on the mind or on the senses, the rules dissolve into nothing but vague ideas" (ibid.:136).

[203] Clausewitz's position on the issue is entirely consistent with the argument on action and knowledge supported above in Chapter 3, also supporting our claims presented in Chapter 6 on the possibilities and consequences of phenomenological investigations.

as a whole permeated by friction, which to a great extent is tantamount to the unpredictability of the constant feedback of intended and non intended actions.

The intellectual, psychological, motivational, and emotional factors, that is, the moral factors, are among the most important in war (ibid.:184); they are "the real weapon" (ibid.:185). The moral factors, as a whole, "constitute the spirit that permeates war" (ibid.:184). "[A]t an early stage they establish a close affinity with the will that moves and leads the whole mass of force, practically merging with it" (ibid.). This account is very close to Heidegger's (1962) notion of *mood*. Clausewitz's argument is precisely that the way in which things matter to an army (its *mood* in Heidegger's terms) is a decisive factor in war. This aspect accounts for the different value of the armies of an alliance. "One country may support another's cause, but will never take it so seriously as it takes its own" (Clausewitz 1976:603). Surviving, securing, prosperity, in short identity as that which we ourselves are for us, is thus what accounts most for the mood of an army in the context of a particular battle. Those aspects are indeed those on the basis of which the ultimate political aims of war are formulated.

At the centre of war is a clash of wills. As a means of policy war is "an act of violence meant to force the enemy to do our will" (ibid.:90). Thus 'our will' is that upon which war depends. Clausewitz (ibid.) notes that it might not be enough to destroy the enemy's army or/and to occupy its country. What is at stake in war, an act of violence between two opposing wills, is to break the enemy's will (ibid.). That hostile activities can be renewed after the peace treaty "shows that not every war necessarily leads to a final decision and settlement" (ibid.). War is a means and as such a purely military victory might or not be enough to impose 'our will' – it depends on the circumstances (ibid.:94). 'Our will', that is, the objective of policy that gives signification to a particular war, might be achieved by a total or a limited war: "(...) in war many roads lead to success, (...) they do not all involve the opponent's outright defeat. They range from *the destruction of the enemy's force, the conquest of his territory, to a temporary occupation or invasion, to projects with an immediate political purpose, and finally to passively awaiting the enemy's attacks.* Any one of these may be used to overcome the enemy's will: the choice depends on circumstances" (ibid.; italics from the original).[204] At stake is an act of choice that depends on the wider political context, against which it gains its meaning. Here we enter the realms of strategy. "When, where, and with what forces an engagement is to be fought" (ibid.:129).

Where, when, who should fight with what objectives? That is Clausewitz's account of the vital linkage between policy and war, i.e., of strategy itself. His strict definition of strategy is "the use of engagements for the object of the war" (ibid.:128). The whole of military activity relates directly or indirectly to the engagement – the effective combat between two armies. "The end for which a soldier is recruited, clothed, armed, and trained, the whole

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[204] Clausewitz adds that personal relation and the questions of the personalities of the statesmen involved in a war "raise the number of possible ways of achieving the goal of policy to infinity" (ibid.).

object of his sleeping, eating, drinking, and marching *is simply that he should fight at the right place and the right time*" (ibid.:95; italics from the original). In war engagements lie at the root of both tactical and strategic action. According to Clausewitz (ibid.:128; italics from the original) "tactics teaches *the use of armed forces in the engagement*; strategy, *the use of engagements for the object of the war*". Tactics is concerned with individual engagements; strategy with their use, that is, their "significance" (ibid.). Thus, the significance of each engagement differs from one side of the battle to the other according to the political aims that govern the contenders (ibid.:245). *Planning and executing* each of the engagements is called tactics; coordinating each of them with the others in order to further the object of war is called strategy (ibid.:128). Strategy is concerned with major bodies of troops, wide areas and substantial lengths of time; tactics with the opposite" (ibid.:368). Tactics addresses one engagement. Strategy addresses them all. Strategy thus determines or conditions the tactics to be used.

Strategy, while linking war and policy, "decides the time when, the place where, and the forces with which the engagements are to be fought, and through this threefold activity exerts considerable influence on its outcome" (ibid.:194). On grounds of an overarching purpose of policy, strategy determines what the engagements and their possible results mean to the whole to which they belong. The result of an engagement *per se* has no absolute value. War is a continuous chain of events. The capture of certain geographical points, contrary to providing an obvious advantage may indeed lead to future disadvantages.[205] "[J]ust as a businessman cannot take the profit from a single transaction and put it into a separate account, so an isolated advantage gained in war cannot be assessed separately from the overall result. A businessman must work on the basis of his total assets, and in war the advantages and disadvantages of a single action could only be determined by the final balance" (ibid.:182).

Several engagements at the same time should be considered under the same strategy if their command is unified. Concerning a succession of engagements in time, they should be considered under the same strategy as long as their meaning is grounded on the same object of war, and as long as a 'turning point' has not been passed (ibid.). There is a moment in every engagement at which "fresh forces will be too late to save the day" (ibid.:240). Either an object or a position is lost, it can no longer be defended, or the continuous application of force is no longer advantageous (ibid.:240-1, 248). This culminating point unifies and gives the meaning to an engagement. This reason applies to war as a whole as well; Clausewitz (ibid.:566) calls it the 'culminating point of victory'.

War is carried out with a political objective, thus the destruction of an enemy's armed forces and/or the conquest of his territory should be weighed against that ultimate aim.

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[205] In the Yom Kippur war (1973) the occupation of the desert of Sinai by the army of Israel, in spite of being a military victory proved to be a hard conquest to preserve. It implied a strong commitment of Israeli forces without that kind of advantage that would not be impossible to achieve by political means (Handel 1994).

Victories often lead to changes in political alignments that "are likely to be to the disadvantage of the victor" (ibid.:569); they will probably be so in direct proportion to his advance in war (ibid.). "Thus the superiority one has or gains in war is only the means and not the end; it must be risked for the sake of the end. But one must know the point to which it can be carried in order not to overshoot the target; otherwise instead of gaining new advantages, one will disgrace oneself" (ibid:570). "If one were to go beyond that point, it would not merely be a *useless* effort which could not add to success. It would in fact be a *damaging* one, which would lead to a reaction; and experience goes to show that such reactions usually have completely disproportionate effects" (ibid.). These effects might come about on grounds of military affairs, because an army has taken more territory than it can manage (ibid.:571), and/or on political grounds, because the kind of victory achieved comes to alter the balance of power between states (ibid.:569).

Policy, state interests, determine the purpose of war. Strategy thus determines the use of the engagements to achieve that purpose. The plan of the war would consist of a series of actions intended to achieve the purpose of the war. It will decide and shape the individual campaigns (ibid.:177). "War plans cover all the aspects of a war, and weave them all into a single operation that must have a single, ultimate objective in which all particular aims are reconciled" (ibid.:579). The political objective determines the war and its plans. "No one starts a war – or rather, no one in his senses ought to do so – without first being clear in his mind what he intends to achieve by that war and how he intends to conduct it" (ibid.). Bernstein (1994:57) notes that this reasoning of Clausewitz is in agreement with the text of Polybius (2nd century BC): "No sane man goes to war with his neighbours simply for the sake of defeating his opponent… All actions are undertaken for the sake of the consequent pleasure, good, or advantage" (Polybius III, 4, 10-11 in Bernstein 1994:57).

The motive for starting a war is directly grounded on its political objective. The political objective and the scale of means and effort to achieve the political end determine how the war is conducted (Clausewitz 1976:579). The character and scope of a war should be determined on the basis of the political probabilities (ibid.:584). To set how much of our resources should be mobilised for war we must first examine our own political aim and that of the enemy (ibid.:586). The plans of war and the resources provided for it should underpin the basic political objective, and on the other hand, be governed by the particular characteristics of the country's position and "conform to the spirit of the age and to its general character" (ibid:594).

This apparent linearity between the political objective and the plans of war does not mean, according to Clausewitz, that either the tactics or the strategy of a war should be something clear and linear. Clausewitz's theory of war differs fundamentally from the established views of the period. He accepts the full consequences of accepting war as a human and social activity. Its inherent tensions, contradictions, chance, and friction warns strategy to go into the field. Most matters with which strategy is concerned are based on assumptions

that may not prove correct. In other cases detailed orders cannot be given in advance. Thus, strategy should emphasise the essential and general, leaving scope for the accidental and individual. It also follows that "the strategist must go on campaign himself. Detailed orders can then be given on the spot, allowing the general plan to be adapted to the modifications that are continuously required" (ibid.:177). This adaptation aims at achieving the purpose of war. It is this guidance that unifies the actions, making them components of a strategy, and ascribing them a specific value. Thus, for Clausewitz, strategy might only aspire to being a set of flexible principles, ready to adjust, which in the circumstances of danger and friction, and within a political context, would govern the thinking on war.

Clausewitz claims that war deals with matters that no permanent law can provide for (ibid.:71). Yet, his work strives to show that the notion of war holds in itself certain propositions – which he tries to support on the grounds of logic and self-evidence, that is, thoroughly in accordance with the phenomenological method – that can be demonstrated (ibid.). A great deal of *On War* details the analysis that supports these kind of propositions about the conduct of war.[206] We conclude this section by addressing the strategic principles of warfare, within the context thus far introduced, that Clausewitz considers correct although advising us to keep our minds open and flexible.

Clausewitz is clear on the best strategy. "The best strategy is always to be very strong; first in general, and then at the decisive point" (ibid.:204). This rather self-evident claim was addressed by Thucydides (5th century BC) when commenting on the Athenian conduct of the Peloponnesian War: "We have done nothing extraordinary, nothing contrary to human nature in accepting an empire when it was offered to us and then refuse to give it up. Three powerful motives prevent us from doing so – security, honour, and self-interest. It has always been a rule that the weak should be subject to the strong" (Thucydides 1976:80). Clausewitz (ibid.:194) refers that the "superiority of numbers is the most common element in victory". Clausewitz claims that it is the most important factor so long as it is great enough to counterbalance all other contributing circumstances. *On War* provides enough examples, particularly of Napoleon and Frederick the Great, in which smaller forces defeated larger ones. This fact, however, does not invalidate this principle but it leads to another principle of war: the concentration of forces.

The concentration of forces at the decisive point is a principle logically implicit in the above principle on the best strategy. "No simpler law of strategy than that of *keeping one's forces concentrated*" (ibid.:204; italics from the original). If one cannot be the strongest everywhere, one should strive to be it at the decisive points. As many troops as possible should be brought into the engagement at the decisive point (ibid.:195). Napoleon asserted

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[206] The core of *On War* contains chapters on strategy, the engagement, the military forces, the defence, the attack, and the war plans. These main divisions cover a variety of topics, sometimes entering clearly the tactical level, from war as an instrument of policy, battlefield decisions, lines of communication, and flanking operations, to mountain warfare, night operations, fortresses, outposts, and so forth.

that one could never be too strong at the decisive point (ibid.:208). Clausewitz (ibid.:197) refers to the relative superiority being particularly characteristics of Napoleon and Frederick the Great.[207] Relative superiority is thus a skilful concentration of superior strength at the decisive point. This implies the need of having correctly identified the decisive point, which is precisely what strategy is about – the where, when, and who of engagements.

This principle of the relative superiority of numbers, in its turn, leads logically to another one: that of taking the enemy by surprise (ibid.:198). Surprise becomes the means to gain superiority. Although this principle has obvious application in the domain of tactics, Clausewitz is more interested in its relevance for strategy. Thus, what is at stake here is not a surprise attack, but the advantage that might be gained by surprising the enemy "by our plans and dispositions, especially those concerning the distribution of forces" (ibid.). Secrecy and speed are the two factors that produce surprise. In general its effects, besides the unfavourable situation of those who are taken by surprise, are confusing the enemy and lowering its morale. On this account Clausewitz considers that surprise should be considered an independent principle of war (ibid.).

Clausewitz reserves the term 'cunning' to address the kind of "secret purpose" in conducting war that suddenly forces the enemy to witness an unfavourable strategic surprise (ibid.:202). Cunning is deceit at a strategic level. "The use of a trick or stratagem permits the intended victim to make his own mistakes, which combined in a single result, suddenly change the nature of the situation before his eyes" (ibid.). Clausewitz considers that the etymological roots of 'strategy', the ancient Greek word *stratagema* indicate the "essential nature" of strategy (ibid.). "The universal urge to surprise" the enemy means that "each surprise action is rooted in at least some degree of cunning" (ibid.).

These essential contours of strategy, which as Clausewitz refers are indebted to the Greeks origins of the word strategy, are also a central theme in the ancient Chinese classic of war Sun Tsu's The Art of War (Sun Tzu 1994). "Warfare is the Way (Tao) of deception" (ibid.:168). Deception must be achieved either by concealing appearance or by creating false impressions.[208] It has a role both at tactical and strategic level, in which it aims at the

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[207] This same principle was referred to by the Chinese leader Mao Tse-Tung (1893-1976) (Vasconcellos e Sá 2001) as the basic strategy of his army in the Chinese civil war of 1930s/40s: "We are ten against one hundred, but we always attack ten against one. One hundred times, and we win".

[208] Sun Tzu (1994) provides some examples of the ways in which deception can be achieved: "although [you are] capable, display incapability to them. When committed to employ your forces, feign inactivity. When [your objective] is nearby, make it appear as if distant; when faraway, create the illusion of being nearby. ... Display profits to entice them. Create disorder [in their forces] and attack them. If they are substantial, prepare for them; if they are strong avoid them. If they are angry, perturb them; be deferential to foster their arrogance. If they rested, force them to exert themselves. If they are united, cause them to be separated. Attack when they are unprepared. Go forth when they will not expect it. These are the ways military strategists are victorious. They cannot be spoken of in advance" (ibid.:168; square brackets from the original). The meaning of the last sentence is both that for cunning to be effective the general must not transmit or divulge his determinations concerning these principles, and that the application of these same principles cannot be strictly determined in advance before the situation develops. (ibid.:306, n.20).

enemy's plans – "the highest realization of warfare is to attack the enemy's plans" (ibid.:177). Sun Tzu's work often uses the notions of deception (ibid:240, 245) and deceit (ibid.:198, 208, 239, 243), attributing to them a high value in achieving war's quintessential objective: to win without fighting, "subjugating the enemy's army without fighting is the true pinnacle of excellence" (ibid.:177). Clausewitz is at odds with this conception of strategy. The realities of the historical context in which he was immersed made him to disbelieve that simple possibility: "We are not interested in generals who win victories without bloodshed" (Clausewitz 1976:260). The theme of cunning and deception is thus common to the essential nature of strategy either when addressing the ancient Greek origins of the word strategy, Sun Tzu's texts, or Clausewitz's work; yet, this latter author considers cunning less central to strategy than Sun Tzu. Clausewitz considers that the weaker the forces at one's disposal, the more appealing the use of cunning becomes. "In a state of weakness and insignificance, when prudence, judgment, ability no longer suffice, cunning may well appear the only hope" (ibid.). In these situations, as in war in general, the effective use of all our forces is what counts.

Clausewitz (ibid.:213) claims that all forces should always be involved when fight occurs. "If a segment of one's forces is located where it is not sufficiently busy with the enemy, or if troops are on the march – that is, idle – while the enemy is fighting, then these forces are being managed uneconomically. In this sense they are being wasted, which is even worse than using them inappropriately." Even the least appropriate of our tasks will occupy some of the enemy's forces thus reducing his overall strength, while inactive troops should be considered as neutralised (ibid.). Clausewitz (ibid.) calls this notion the principle of the 'economy of force', dealing with the timing and overall efficacy of the use of the armed forces.[209]

Defence and attack are the two forms of warfare. The object of defence is preservation. The object of attack is conquest. The essence of defence is to stand fast, rooted to the ground; the essence of attack is movement, towards a conquest (ibid.:285). Defence has a negative purpose, to hold ground, to preserve. Its form of warfare is intrinsically stronger and easier than the offensive one (ibid.:358); if it were not so there would never be any reason for resorting to it. Yet, because only offensive action can achieve the desired results, imposing our will on the enemy and maintaining our freedom of action, the defence "should be used only so long as weakness compels, and be abandoned as soon as we are strong enough to pursue a positive object. When one has used defensible measures successfully, a more favourable balance of strength is usually created; thus the natural course in war is to begin defensively and end by attacking" (ibid.). The transition to counterattack should be accepted as a tendency inherent in defence (ibid.:370). Moreover, since in defence our

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[209] Most writers in our time have mistakenly understood this notion as the application of the minimum necessary strength for the task (Brodie 1976:665). If that were the case, it would be a notion in contradiction with the principles of the superiority of numbers and the concentration of forces.

bullets are already on the offensive (ibid.:358), and when attacking we have to defend as well, the underlying character of engagements, either attacking or defensive, are ultimately only determined by strategy, not by tactics.

A particularly relevant aspect of the permanent trade-off between defence and attack in war is that of the home base, because an army is highly dependent on it. The home base is the army's sources of supply and replenishment with which it must maintain communications (ibid.:341). The home base is vital to the existence and survival of an army (ibid.). "If no particular purpose is assigned to an army its sole concern will be its own self-preservation and consequently its security" (ibid.:298). An army forms a unity with its base. The lines of communication are an important part of that unity. "They link the army to its base, and must be considered as its arteries. The roads are in constant use for all sorts of deliveries, for ammunition convoys, detachments moving back and forth, mail carriers and couriers, hospitals and depots, reserve munitions, and administrative personnel" (ibid.:345). In enemy territory the lines of communication become even more important, and an army is less able to switch its position because of the difficulty of changing communication systems in an adverse environment (ibid.:346).

Clausewitz (ibid.:354) advises us that all theory of war must stay focused on "the real thrust and blow, the object, the value that is *victory in battle*" (italics from the original). Nietzsche (Day Break n.571) captured sharply this advice when he wrote: "What is the strongest remedy? – Victory." "Tactical successes are of paramount importance in war" (Clausewitz 1976:228). "Only great tactical successes can lead to strategic ones" (ibid.). Victory "is the only thing that really counts and can be counted on, and one must always bear it in mind, whether it be in passing judgment in books or in taking action in the field" (ibid.). However *fascination* with tactical victories, in practice might lead to risk strategy. Helmuth von Moltke, a Prussian General who served under Otto von Bismark, put it bluntly: "[I]n the case of tactical victory, strategy submits" (in Paret 1986:180). Clausewitz (1976) objects to this position. War is always a means of policy, because only policy can account for the final balance, which is what really counts.

Until *final victory* occurs, that is, until the political aim is achieved, nothing is decided, nothing won and nothing lost. It is the end that "crowns the work" (ibid.:582). War is indivisible and its component parts (the individual victories) are of value only in their relation to the whole (ibid.:582). "Conquering Moscow and half of Russia in 1812 was of no avail to Bonaparte unless it brought him the peace he had in view" (ibid.). What counts is the total score (ibid.), which gains its meaning as part of the whole to which it belongs: political intercourse between governments and peoples (ibid.:605).

All these principles of war, either stated on grounds of logic or on empirical evidence, belong to the "continuation of political intercourse, with the addition of other means" (ibid.). "War in itself does not suspend political intercourse or change it into something entirely different. In essentials that intercourse continues, irrespective of the means it

employs" (ibid.). Clausewitz (ibid.:607) concludes that at its highest level, that is, concerning the signification as a whole of actual and potential engagements, the art of war turns into policy; "[b]ut a policy conducted by fighting battles rather then by sending diplomatic notes" (ibid.). War is never an isolated act, 'pure strategy' (ibid.:577) holds it as an element.This entanglement of policy and war is for Clausewitz what is essential in strategy.

5.3. The Chinese Word *Shi*

As referred to above the origins of strategic management have at least two distant roots, besides the European military thought of the 18th and 19th centuries, on which we focused by analysing above Clausewitz's theory of war: the Greek root, on account of the etymology of the word; and, the Chinese root, chiefly by the impact of Sun Tzu's (1994) *Art of War* since the second half of the 20th century. Next we shall present a phenomenological account of the Greek etymological root. In this section we shall try to capture the specificity of the ancient Chinese approach to the issues we have been addressing under the theme of strategy.

In the so called Chinese 'classic period' (551 – 249 BC) the peoples of the vast lands of Eastern Asia, which are now China, were devoted to two fundamental activities: agriculture and war (Sun Tzu 1994b:17, 23). Nature and the weather arranged the proper period for both. In the summer it was too hot to combat, and in the winter it was too cold. Agriculture mainly had its activities of seeding and harvest in those seasons. The armies fought mainly in spring and autumn, and often they carried in their names the period of the year in which they fought. Nature arranged how and when these activities were carried out throughout the year (Sun Tzu 1994, 1994b). Most of the contenders of those times nurtured the dream of empire; they aimed at unifying those immense lands of Asia (Sun Tzu 1994b:19).

Warfare was a central concern of all states and powers of those times in ancient China. There was no separation between the political, the military, and the civilian. War permeated all human activities. "Warfare is the greatest affair of state, the basis of life and death, the Way (Tao) to survival or extinction" (Sun Tzu 1994:167). The art of war and peace were the two faces of the same coin, of government (ibid.:151). The states of ancient China were focused on preserving, enriching, and strengthening their power at the expense of their actual and potential enemies (ibid.:22). To achieve this, the unity of the state was essential (ibid.:34).

By the time Sun Tzu is supposed to have written *The Art of War* (circa 5th century – 3rd century BC), China had already experienced a thousand years of almost unremitting conflict and war, and had been brutally unified into a vast, powerful, imperially directed entity (Sawyer 1994:14). Chinese military thought probably originated with Neolithic village conflicts four or five thousand years ago (ibid.). Sun Tzu, who might have been a

contemporary of Confucius (6th/5th centuries BC), draws his thoughts about strategy from a rich history of war, power and cultural clashes, with the aim of preserving insights that proved to have worked and avoiding the errors of the past (ibid., Sun Tzu 1994b:11-22).

Sun Tzu's (1994) work cannot be literally translated either into our language or our era without losing much of its value. The notion of opportunity, disposition, adaptation, mobility, and others, are corollaries of an ontology which is much different from the one that forms the mainstream of Western thought since the Enlightenment. Julien (1999) suggests that a particular Chinese word, *shi*, might serve us well as a clue into the right perspective from which we can make sense of Sun Tzu's account of strategy.

This word *shi* is often used in Sun Tzu's works. It does not have a direct and clear translation. Most often it is translated as the 'strategic configuration of power' (Sun Tzu 1994, Julien 1999). Julien (ibid.:267) recalls that the term *shi* is believed to represent literally a hand holding something, as a symbol of power. He suggests it might symbolise something put into a position, or positioning. *Shi* has both a spatial and a temporal connotation, and should, in many cases, be understood as something like opportunity or chance.

The word *shi* is grounded on the perspective that every kind of reality may be perceived as a particular deployment or arrangement of things to be relied on and worked to one's advantage (ibid.:15). "Art, or wisdom, as conceived by the Chinese, consequently lies in strategically exploiting the *propensity* emanating from that particular configuration of reality, to the maximum effect possible. This is the notion of 'efficacy'" (ibid.; italics from the original). Propensity designates both the particular circumstances characterising the various stages of the process in which the world is engaged, and the particular tendency produced in each case (ibid.:222). Every configuration of things or disposition possesses an inherent potential or propensity that is fulfilled by its own disposition. A concrete disposition of things, that is, "the way they are disposed, their arrangement, prevailing tendency, mood, or inclination" (MW), is thus called a *dispositif* (in Julien's original French term), a setup, a dispositive, a deployment, a configuration, a propensity, or a tendency. The way in which things are disposed in a specific situation forms a *dispositif* that can be used to produce an effect. Thus, "*dispositif* refers to the efficacy of a disposition, its capacity to function spontaneously and inexhaustibly" (Julien 1999:9). A strategic dispositif is how things are disposed strategically so as to be effective (ibid.).

This approach challenges the Western assumption of the relevance between means and ends to explain human action, which is seen explicitly at work in some central parts of Clausewitz's theory of war, and in the majority of the proposals on strategic management reviewed above. As referred to in the 'management' section of this chapter, Western philosophical and scientific thought is mainly based on Cartesian epistemologies, which, in their turn, rely on Aristotle's notion of the *animal rationalis*, and on the conception of Being as actuality (as presented in chapters 1 and reviewed in the Appendices). This

conception holds causality as an evident principle of understanding. Causality epistemologies consider that in order to have fundamental knowledge of anything we must acknowledge that the cause from which an event results is the cause of that event. "We never reckon that we understand a thing till we can give an account of its 'how and why', that is, of its first cause" (Aristotle 1963:194b).[210] Heidegger (1962, 1977) shows that the four Aristotelian causes are united in a bringing forth, which is an ontological revelation of that which is. Thus, according to this analysis, presented in some detail in chapters 1 and 3 the Chinese notion of *shi* is an account not only of a different epistemology but also of a different ontology. The key conjecture that shapes the ancient Chinese strategic thought was that what is worth questioning is not Being as such, such as Heraclitus, Parmenides, Plato and others have stated, but rather "the source of efficacy that is at work everywhere in reality and the best way to profit from it" (Julien 1999:262). The primary question, thus, is not how we plan and implement our options, but how we retain our capacity to function.[211]

Causality is questioned by the perspective underlying the Chinese word *shi*. *Shi* implies an ontology that accepts and assumes that reality is a closed system, in which each situation has its own propensity and tendencies (ibid.:221). "[T]he sequence of changes taking place stems entirely from the power relations inherent in the initial situations" (ibid.). Yet the causal relationship is not totally ignored; it is relegated to a "framework of experience taking place in front of us, where its impact is immediate" (ibid.:220) *Shi* implies never to extrapolate causality into "imagined series of causes and effects extending all the way back to the hidden reason for things or even to the principle underlying reality as a whole" (ibid.).

Julien (ibid.:17) in trying to grasp the possibilities of the word *shi* states that one has to recall that the Chinese thought typically lies in an indifference to any notion of a final ending for things, for they sought to interpret reality "solely on the basis of itself, from the perspective of a single logic inherent in the actual processes in motion".[212] Yet, *shi* is not a philosophical or technical concept in the sense of the Western sciences (ibid.:12). "It is a simple, practical term, forged initially for the purposes of strategy and politics" (ibid.). We will handle Julien's (ibid.) analysis in the military domain, where he addresses the phenomenon of strategy.[213]

From the start Julien (ibid.) advises us of the kind of perspective from which we should try to grasp the richness and possibilities of *shi*. "On the one hand there is the disposition of

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[210] LSE' motto, *rerum causas cognoscere*, that is, to know the causes of things, is the motto of the history of the Western inquiry into the real and its underlying principles.

[211] This outcome is consistent with the ontological position of this investigation, as developed in Chapter 3, namely in that a key issue is turning knowledge into instinct.

[212] This approach shows phenomenological contours, and it is consistent with Heraclitus's claim of a "forever changing reality", and with Heidegger's (1962) ontology.

[213] Julien (1999) analyses the word *shi*, its self-evident nature to the Chinese (ibid.:17), in several domains of human activity, namely the political, the military, the aesthetics of calligraphy, painting, literature, his tory and first philosophy.

things – their condition, configuration and structure. On the other there is force and movement" (ibid:11). Yet he stresses that this dichotomy is abstract. It just represents reality, it is not reality (ibid.). Nonetheless the meaning of *shi*, Julien (ibid.:13) claims, is original and powerful enough to "even pass beyond peculiar cultural perspectives and thereby illuminate something that is usually difficult to capture in discourse: namely, the kind of potential that originates not in human initiative but instead results from the very disposition of things". [214]

The Chinese ontological assumptions that grounds the notion of *shi* lead to the strategic notion that the *potential* of armies, governments, and all powers in general, is *born of the disposition* at each particular situation in which they engage themselves. The commander must aim at exploiting, "to his own advantage and to maximum effect, whatever conditions he encounters"(ibid.:27). Among other factors, as each situation is unique and unrepeatable, a disposition is born out of the conditions of the land, the morale of the troops, the climate, the degrees of organisation, and so forth. "Mere numerical advantage gives way before these superior, more decisive conditions" (ibid.:28). As part of a situation the commander must stretch his forces to a maximum in order to take advantage of it: "*shi* is like a crossbow stretched to its maximum" (ibid.:28); "Their [of those that excel in warfare] strategic configuration of power (*shih*) is like a fully drawn crossbow, their constraints like the release of the trigger" (Sun Tzu 1994:187).

What matters most is the situation as it happens and the kind of advantages one takes of it. The deployment of soldiers, its specifity and adaptability to the situation, is far more relevant than the personal qualities of each individual. Thus victory would come from the potential born of disposition and not directly from the fighting men. "Of all the factors to be considered, only *shi* is truly decisive" (Julien 1999:31), because *shi*, in itself, is a grip on the process of reality in its own terms. Thus, Julien (ibid:31) proposes the following account of strategy: "[i]n general, strategy aims, through a series of factors, to determine the fixed principles according to which one evaluates the prevailing power relations and plans operations in advance". However, Julien (ibid.:31-2) advises, much in a Clausewitzian way, that warfare is the domain of unpredictability and chance par excellence, and thus it remains beyond the scope of theoretical predictions. All this "imposes practical limits on any strategy" (ibid.:32).

These limits on strategy, however, if grasped from the perspective of *shi* are not a disadvantage but an advantage. There is in the Chinese way of war in the 5th century BC certain elements which tend to be considered as constant, such as Sun Tzu's (1994:178-9)

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[214] This insight is consistent with the findings of the phenomenology of IT presented in Chapter 4, and might open up relevant clues for answering our research question *How does IT affect strategy?* That IT's essence is replacement, and the fact that we mostly experience it in the readiness-to-hand of the IT devices, are strong enough motives for hoping to benefit from *shi,* from the propensity of things, when analysing the relationships between the millennia-old notion of strategy and the new phenomenon of IT. Angell and Smithson (1991) follow a path close to this one when addressing the way in which information systems might or might not be strategic; we will address in the next section their key arguments as they are matchable and complementary to the material presented now.

'five factors': "the first is termed the Tao [the moral legitimacy and people's acceptance of the rule], the second Heaven [the weather, the constraints of the seasons], the third Earth [the characteristics of the terrain], the fourth generals [the ability and capacity of the military command], and the fifth the laws [organisation, regulations, and logistics of the military]"(our square brackets). These notions serve only as ways into the concrete and always evolving situation. The situation leads and there is a permanent interplay between theory and practice, principles and circumstances (Julien 1999:32). The evolution of the circumstances constitute "a general's major tactical trump card, allowing him to renew the *potential* and hence the efficacy of the strategic deployment (ibid.:33).

The efficacy of a disposition depends on the one hand on its capacity to lead the enemy to adopt a disposition that is relatively fixed and therefore easy enough to be attacked, and, on the other hand, on its own renewability (ibid.:33). *Shi* as a strategic tool must be mobile "as a flowing water". Victory is gained by originality, by not repeating strategies, by transformation and adaptation to the situation and to the enemy (ibid.:33; Sun Tzu 1994:191-3). Central to this approach is the most central idea of Chinese culture on which *shi* is based: the perpetual change and renewed efficacy of the course of nature (Julien 1999:34).

Potential born of disposition, "usually conveyed by the term *shi*" (ibid.:27), is thus grounded on that Chinese ontological assumption. It is a concept that when considered in the realms of political and military power leads to the central Chinese strategic belief of the benefits of avoiding direct confrontation. "[V]irtually all strains of Chinese philosophy frowned on the use of force. Even Sun Tzu's description of war and conquest avoids much talk about violence. He uses the word *li*, force, only nine times in his entire Art of War, while Clausewitz uses *Gewalt* [force] eight times alone when defining war in the two paragraphs of Book 1.2" (Waldron 1994:101). Victory and skill in warfare, thus, depends on *shi*, as the potential born of disposition (Julien 1999:27). Hence strategy would be the operative perspective of a natural process of change that would evolve to our advantage if we make opportune use of its propensity (ibid.:34). Chinese thought on war oppose the ancient Greek vision of the hero that has confrontation at its heart (ibid.).

From this perspective the concrete situation, in all its configurations, tendencies, and surprises is what counts most in strategic thought. "Chinese strategy aimed to use every possible means to influence the potential inherent in the forces at play to its own advantage, even *before* the actual engagement, so that the engagement would never constitute the decisive moment, which always involves risk" (ibid.:35; our italics). In ancient Chinese strategic thought the focus was on the situation at each moment, and on its propensity. The relation between means and ends is never made explicit; it is replaced by notions of a setup and its efficacy (ibid.37). What counts in strategy "is not so much the large number of troops or pure brute force but rather exploiting the potential born of disposition" (ibid:41).

This contrasts with Clausewitz's (1976) notion that direct confrontation, the battle, is the centre of the theory of war. For Clausewitz (ibid.) strategy is the use of engagements for the objective of war. For the ancient Chinese, strategy was the use of *shi*, of the propensity of situations, to achieve a natural victory, preferable without fighting. Yet, it is correct to say that Clausewitz's concept of friction tries to account for much of the gap between the plan drawn up in advance, which is of an ideal nature, and its practical implementation, which renders it subject to chance and surprise (Julien 1999:38).

The Chinese notion of *shi* sheds a whole new light on the classic Sun Tzu's (1994) *Art of War*, which, contrasting with Clausewitz's (1976) theory of war, claims that armed engagements should be avoided, and that the excellence in strategy is to win without fighting (Sun Tzu 1994). Those bound to be victorious would only combat after they have already guaranteed to triumph, while those bound to be defeated seek to win only when battle commences (ibid.: 177-9; Julien 1999:26). This tendency towards non confrontation in the Chinese strategic thought of the times of the Warring States is not prompted by any moral concerns, but only by the resolute and pragmatic attitude of being victorious. "[E]very thing should be played out at an earlier stage in the determination of events, when dispositions and manoeuvres, at this point still solely dependent on our own initiatives, can be adjusted at will" (Julien 1999:26-7).

The task of the general is thus to develop in advance a grasp of the kind of situation about to evolve, and to work with it. Instead of wishing to impose our own preferences on the situation, one should let oneself "go with the flow of things, adopting the line of least resistance" (ibid.:40). As a setup, *shi* "consists in organizing circumstances in such a way as to derive profit from them" (ibid.:32). The crucial point is not of trying to create a new situation but of taking advantage of the actual situation in which one engages. This means that in advance one must try to arrange the kind of circumstances that might lead to favourable situations.

The order of things should be taken as it is, in its own and quite often surprising terms, so that one should adapt and change according to its tendency. Julien (ibid:223) stresses that the notion of *shi* indicates that at the most embryonic stage of a situation its tendency is already latent. So, "[i]t is this tendency that one must examine attentively from the very beginning, from the first hint of its existence, for it gives us certain *information* regarding the evolution of things and provides us with a dependable basis for success" (ibid.; our italics). The kind of *in-form-ation* one might capture bases itself precisely on an embodied notion of *shi*. As explained in Chapter 3, the distinctions made and the action taken rely on our *throwness* and *projecting* (Heidegger 1962) in accordance to our *structure* (Maturana and Varela 1992) at each moment. Thus, the perspective of *shi* might render that kind of information into what would not be available if one bases one's analysis on a framework of means and ends, aiming at changing the situation and the factors at play. *Shi*, thus, as a

shaping of instinct and a way of acting, is a kind of knowledge whose intimate meaning one can grasp in the things themselves, in their own propensity.

5.4. The Etymology of Strategy

Strategy has been an English word since 1810 (MW). It has a few central meanings, covering the above referred above fields of the political ("the science and art of employing the political, economic, psychological, and military forces of a nation or group of nations to afford the maximum support to adopted policies in peace or war"), the military ("the science and art of military command exercised to meet the enemy in combat under advantageous conditions"), and management ("a careful plan or method, a clever stratagem; the art of devising or employing plans or stratagems toward a goal") (ibid.).

The origins of the word strategy are in the ancient Greek words *stratêgia* and *stratêgos* (MW, Crane 2001, OED). *Stratêgia* meant the office or command of a general (Crane 2001, OED). The word was often used with this meaning by several ancient Greek authors (e.g., Herodutus 1.59, 5.26, 6.94; Euripedes Andr. 678, 704, IT 17; Thucydides 1.95, 5.26; Xenophane. Hell. 6.2.13. in Crane 2001). *Stratêgos* meant the leader or commander of an army, a general, or a governor (Crane 2001).[215]

In ancient Athens the word *stratêgos* was the title of ten officers elected by yearly vote to command the army and navy, and conduct the war department; they were the commanders in chief and ministers of war (e.g., Herodutus 6.109; Aristotle Ath. 4.2., 26.1, 44.4., 61.1., D.4.25., in ibid.). The word *stratêgos* also meant the chief magistrates of the cities of the Greek empire (ibid.) (Crane 2001).

Although this etymological analysis seems clear enough, it is correct to say that this kind of presentation, and others yet more synthetic often presented in strategic management texts, really explain very little. That strategy comes from the Greek word *stratêgos* – end of story – leave the reader somehow puzzled, wondering as to what those origins really mean. Considering only *stratêgos* as such – the governor of the ancient Greek city-states, the general, or the commander of troops – and the way in which the word strategy is used nowadays, it would be impossible to clarify much about the phenomenon of strategy. What is worth stressing is that, although the meanings of the words *stratêgia* and *stratêgos* must be taken into account when presently analysing the phenomenon of strategy, the current meaning of the word strategy was not present in those same ancient Greek words in their historical period. This is the central point to an opening up of the meaning of *stratêgos* and *stratêgia*.

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[215] Aristophane, Aeschines, Plato and Plutarch used the word *stratêgia* to mean the office of the *stratêgos* at Athens (e.g., Aristophane Pl. 192, Aeschines 2.41; Plato Apol. 36b, Rep. 599c, Plutarch Per. 16, in ibid.). Xenophane (Hell. 6.2.39. in ibid.) used the word *stratêgia* to mean a period of command or a campaign. Strabo (12.1.4. in ibid.) used it to mean a province governed by a *stratêgos* (Crane 2001).

Having said that, one needs to enter a deeper analysis of the Greek root of strategy. Partridge (1966:673) refers that the modern English words strategy, strategist, strategic, and stratagem come from the ancient Greek word *stratos*, which meant literally a 'spread' army. Partridge (ibid.) notes that the word *stratêgos* arose from the combination of the words *stratos* with the word *agein*, which meant to drive or to lead. *Stratos* was used in ancient Greece to mean, in general, an encamped army, an army (ibid., Crane 2001). The word may also refer to the soldiery, the people, and the commons "as something exclusive of the chiefs", thus, as something the chiefs have at their disposal and with which they concern themselves (Crane 2001). Thus, the leading of the people, the commons, and the soldiery was what *stratêgos* meant, and the word was appropriately reserved for the governors of Athens and other ancient Greek city-states who had both political and military functions.

The ancient Greek words *stratêgos* and *stratêgia* became Roman words (ibid.). For the Romans *stratêgia* not only meant office, government, a district, or a province, but also signify dignity (ibid.). This dignity was that of being at the command of the *res publica*, of the public domain, maintaining order, and caring for the Roman citizens and the empire. This meaning is grounded on the Greek word *stratos* 'as something exclusive of chiefs', referred to above. Investigating the literal meaning of *stratos,* as a 'spread' army, strengthens this clarification. *Stratos* has the word *stor* as its root (ibid., Partridge 1966), which was usually used to form words with meanings related to spread (Crane 2001). It is worthy of note that *storgêo*, adding *êo*[216] to the root *stor,* was synonymous with *stergô* which means to be fond of, to show affection for, to love (ibid.). These analyses support the notions of dignity, of leading the people, and the soldiery, of caring for the *res publica* – that is, of acting, leading, involvement with others and with duty.

The Greek word *stratos* is possibly the origin of the Latin word *strâtum* of the verb *sterno (strâvi, strâtum)*, which meant to spread out, to spread smoothly, to spread abroad, to stretch out, to extend (ibid.).[217] The Latin word *strata*, a noun, meant a paved road or way (LD:1758, Crane 2001), a *via publica* (GMIL:608), a highway (RMLW:454). These meanings were those that identified the extensive Roman roads on which ancient Rome relied to move its armies, communicate, and base its empire (Murray et al 1994).

Strata and *sterno* have close meanings to the Sanskrit words *star- strnâmi* (Crane 2001, LD:1757), and *strtás* (Partridge 1966:673), from which they possibly originated. According to Cappeller (2001) the central meanings of these words, and of others with the *str* root, were to strew, to spread out, to throw down, to overthrow, to expand, to lay or pour over, to smear, to cover or wrap with, to scatter, to stretch out, to expand, to diffuse, to amplify. In all these meanings there is a common and grounding notion of stretching out, of potentiality,

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[216] This suffix *êo* is possible the root of the word *heo*, which meant "to set a going, put in motion", and of the word *eoi* a form of the verb *eimi*, to be, to exist (Crane 2001).

[217] Other meanings attributed to the verb *strâtum* are to scatter, to strew, to lie down, to extend, to extend, to prepare, to arrange, to make, to pave, to overthrow, and to demolish (ibid.).

and of preserving and projecting. As far as we were able to trace back the original meanings from which the word strategy has evolved up to now, it is correct to say that these older Sanskrit meanings were those on which the ancient Greek words *stratêgia* and *stratêgos* were based. This enables us to enter a richer analysis of the meanings of those ancient Greek and Roman words.

In ancient Greece and Rome the contemporary distinction of the civilian and the military did not exist as such. "In classical Greece and Rome (…) governmental and military institutions were intimately intertwined. The Athenian *polis* debated strategic policy and regulated elected generals *(strategoi)* from its own membership" (Murray and Grimsley 1994:19; parentheses from the original). "The Romans created a society of warriors based on the citizen soldier" (Bernstein 1994:61). "The identity of citizen and soldier permitted Rome to draw on its entire population and thus to field large and thoroughly trained armies almost continuously" (Murray and Grimsley 19-20). This state of affairs cannot be understood by simply drawing a parallel with the strictly political or military institutions of our times. The civil and military aspects are *ex-post* distinctions that would preempt us from capturing what is fundamentally at stake in *stratêgia*. One has to experience the Greeks and the Romans through their own lenses, ones in which there was only the *political* as a whole.

This perspective brings us very close to the Clausewitzian notion of the fundamental union of policy and war in strategy. What is at stake for the Greek *stratêgos* was the survival and prosperity of the community they served as a united society, in the sense of the autopoietical concept of having an organisation in a structure, that is, an identity. They were a community, had a way of life, a mode of thriving in a world that mattered the most to them. The actions the *stratêgos* undertook, their *stratêgia*, in a world often involved in wars, were their vital choices in terms of preserving their own identity. The fundamental notions of the Sanskrit word *strnâmi,* of stretching out and spreading, seem to be extremely relevant if we wish to grasp the essential characteristics which underly the meaning of the ancient Greek word *stratêgia*. In order to survive and thrive, as they are for themselves, both ancient Greece, namely the Athenian empire, and the Roman empire entered into strategies of spreading out, amplifying, and stretching their presence in their known worlds.

This phenomenological account of the etymology of strategy, although focused to a considerable extent on military realms, suggests nonetheless that the military element at the centre of the ancient Greek notions of *stratêgia* as well as in Clausewitz's *On War* is not essential to the phenomenon of strategy. The essence of strategy should possibly be found in some other elements that ground the ancient Greek, the Roman, the Chinese, the Clausewitzian, and the contemporary management articulations of strategy. This analysis indicates that the military contours of strategy might be accidental, that is, non essential to the phenomenon, which is entirely supported by the current use of the notion of strategy in many fields of human activity. We claim that our argument, namely concerning the Roman

and Sanskrit connections of the Greek words *stratêgia* and *stratêgos*, is relevant for a significant clarification of the essence of the phenomenon of strategy.

5.5. The Essence of Strategy

We should ask from the beginning: which one of the perspectives on strategy presented above deserves to be considered the most valid? The answer is none and all. None, because each of them is only an appearance of a phenomenon that emerges in different epochs and contexts. All, because although a human impossibility, the totality of perspectives – "the house [i.e., strategy] from all perspectives" (Merleau-Ponty 1962:69) – is what the phenomenon of strategy is in its essence.

The essence of strategy shows up in the appearances, Clausewitz's theory of war, management strategic theories, Sun Tzu's *Art of War*, or even the ancient Greek and Roman uses of the words *stratêgia* and *strata*, 'as that which itself is not' (Heidegger 1962). Those appearances of strategy are articulations of a phenomenon, common to all of them, that lies hidden behind those same appearances. The essence of strategy is not the theories on strategy as such – just as the essence of a tree is not a tree, or the essence of IT is not an IT device - but that to which all those theories refer.

The term strategy entered the English language in 1810, only twenty years before Clausewitz coined its most fundamental meaning up to now: "the use of engagement for the purpose of war." Let us now present a summary of the key findings of the sections above, so that we may establish, first, a common ground, and then move into the unique and decisive element of their essence.

In management, strategy theories address the survival and the long term profitability of the company. The proposals of the three main schools of strategy – design, positioning, and resource-based – have their *raison d´être* in a company's well being, thus in its present and future profits. The profit potential, its optimisation, is the chief concern of strategic management. History, particular contexts, throwness, and the particular and unique situation that each and every company faces, ground these, and many other, different proposals on strategic management.

The three main schools of strategic management are firmly based on Cartesian epistemologies. Thus the optimum fit of the design school, the correct options of the positioning school, or the leveraging and stretching of resources of the resource-based approach, all are ways of working out the fundamental assumption of making sense though a framework of means and ends. Design and planning are just the means to the end of higher profits, as knowledge as a strategic resource is the means to the development and growth of the firm in Penrose's (1959) proposal. By concentrating on a few key goals (intermediate ends), stretch (means) leads to higher profits (ends). Either by designing goals

and plans or by leveraging and stretching, the firm is intentionally directed towards the future: a future that strategy should guarantee of higher profits.

This stretching, thus projecting of the firm into the future, embodies a totalisation of the company. Strategy in management addresses the company as a whole. Using the techniques and methodologies of each school, strategy aims at providing a clear view of the path and environment in which the company is. This clarity seems to appear, particularly in the resource-based approach, from managers' genuine involvement in the company's fate, by their embodiment and constant pursual of a desired future state, or vision. This union that strategy is, achieves, or aims at achieving, is manifest in managers' plans, objectives, and actions.

Either plans or emergent actions are a result of the company's character or identity, and of how it understands its own behaviour in the environment in which it assumes it is operating. Andrews (1980) suggests that the essence of corporate strategy is this realised pattern, either intended, planned, or just emergent. This is in line with Mintzberg's (1987) analysis of the process of the formation of corporate strategy, in which he detected five different meanings central to the notion: plan, pattern, position, ploy, and perspective. If this is so, then by logical necessity all these notions should be linked by, or grounded on, a common intent or idea that unifies them.

The brief review of literature presented above pointed out the two vital aspects and the key perspective relevant for opening up the essence of strategy. The two aspects are the actual and long term profitability of the firm, and its necessary coupling, either optimum or stretched, to an environment assumed to affect and be affected by the company's behaviour. The grounding perspective is the necessary unity and coherence of the firm's actions, either planned, emergent or both. Andrews (1980:51-2) addresses this latter and central issue in the following way:

> "It is the unity, coherence, and internal consistency of a company's strategic decisions that position the company in its environment and gives the firm its identity, its power to mobilize its strengths, and its likelihood of success in the marketplace. It is the interrelationships of a set of goals and policies that crystallize from the formless reality of a company's environment a set of problems an organization can seize upon and solve. What you are doing, in short, is never meaningful unless you can say or imply what you are doing it *for*" (italics from the original).

This is the aspect that Clausewitz (1976) stresses most in strategy when analysing the phenomenon of war. Policy, that is, the pursuing of a state's interests and objectives, gives the meaning to war. Strategy is that effective meaning: *how* policy and war are effectively linked by a state; how the state's interests are pursued; where, when, who should fight with what objectives? This is Clausewitz's account of the vital linkage between policy and war, i.e., of strategy itself. Strategy accounts for the significance of the engagements. It is that, on the basis of which, the world in which one is involved is disclosed. This emerges against a background of self-interests, conflict, and desired and expectable outcomes.

Strategy addresses all of the engagements, unified under the pursual of the same objectives. Tactically the aim of an engagement, its end, is to win: victory. However the "real *significance*" (Clausewitz 1976:142; italics from the original) of the specific victory can only be provided by strategy. Tactical victories are the means of strategy. As means, victories – and defeats as well – gain sense against the final objective they serve. Strategy therefore concerns the engagements and their possible results.

On the grounds of an overarching purpose, strategy determines what the engagements and their possible results mean to the whole they form. Because strategy opens up the meaning of a war before it actually happens, it exerts considerable influence on the outcome of war (ibid.:194). While linking war and policy, strategy points to a final balance. Either in business or in war, as Clausewitz (ibid.:182) wrote, it is the overall result that counts. Thus, strategy gains its relevance from a concrete articulation of an entity, either a state or a company, in the future.

Strategy is thus an establishing of references between single engagements (as specific *in-order-to*'s), a succession of engagements (as something *toward-which* the war moves), and a primary *for-the-sake-of-which* (that is the grounding signification of a war). This primary *for-the-sake-of-which* is the political perspective; the one that accounts for the signification of a war and of the destructive means it employs. "Nothing is more important in life than finding the right standpoint for seeing and judging events, and then adhering to it. One point and *one only* yields an integrated view of all phenomena; and only by holding to that point of view can one avoid inconsistency" (ibid.:606; italics from the original). Hamel and Prahalad (1994:129) are in favour of the same argument: "A strategic intent (…) implies a competitively unique point of view about the future". Strategy thus relies on a clear perspective and on the capacity to adhere to that view; Clausewitz (1976:180) refers to this aspect, for instance, when commenting on the resoluteness and boldness of Frederick The Great: "it required the King's boldness, resolution, and strength of will *to see things in this way*, and not to be confused and intimidated by the danger that was still being talked and written about thirty years later" (our italics).

This comes into line with our theoretical development into information and knowledge (Chapter 3). The avoidance of inconsistency would only be decisively achieved when the one perspective referred to above is authentically experienced, that is, embodied. Only when the commander has turned that kind of perspective, that is, all the information that characterises it, into a ready-to-hand entity, into knowledge, would he be able to act consistently, and thus gain the major benefits of a genuine authentic approach to strategy. In these kinds of situations strategy loses its character of a present-at-hand theory and enters the commander's involvement whole as a transparent and ready-to-hand being. Relying on this transparency as a background, the commander intuitively and instinctively takes the appropriate course of action. This is acknowledged by Clausewitz (ibid.:578) when referring to the central role of experience and friction: "When all is said and done, it

really is the commander's *coup d'oeil*, his ability to see things simply, to identify the whole business of war completely with himself, that is the essence of a good generalship".

For Clausewitz (ibid.:606) good generalship relies on the political perspective. Political perspective is bound to be given precedence over every other, because it is simply the trustee "of all aspects of internal administration as well as of spiritual values, and whatever else the moral philosopher may care to add" (ibid.). Thus, strategy, while unifying policy and war at a higher level of meaning, has the role of totalising a country, much in accordance to its etymological root, the ancient Greek word *politeia* (Crane 2001). Strategy is thus a gathering whose clarity is revealed in the way war links to policy, engagements are used for the purpose of war, and the political purposes ultimately link to the operational objectives (Clausewitz 1976:579).

One final aspect, implied in the synthesis above, deserves to be stressed. Strategy is never a body of principles, a set of rules, or a plan to be followed. Strategy is a guiding and essential intention that dominates in every battle and in every war. It is the degree to which strategy is embodied, that it serves the commander's intuitive or analytical judgment on the more adverse, dangerous and surprising conditions, that enable one to "being clear" about what one intends to achieve with a war, so as 'to make the right decision at every pulsebeat of war' (ibid.). Because strategy deals with conflict, therefore with unpredictability and chance, it has to enter the field of battle, "emphasizing the essential and general, leaving scope for the accidental and individual" (ibid.:177).

The review of Clausewitz's *On War,* presented in section 5.2 and synthesised above, points out some crucial aspects of strategy which seem to be relevant for an opening up of its essence: strategy rests on a primary *for-the-sake-of-which*, the pursual of a state's interests and objectives; while linking policy and war, it determines the significance of past, present, and future engagements and outcomes; and, finally, all of these aspects, in their turn, gain their relevance, from a concrete and total articulation of the state in the future.

The ancient Chinese, Greek, or Roman articulations of the notion of strategy, reviewed above, are appearances in the phenomenological sense. As such they are somehow different from Clausewitz's account of strategy. This is so for two main reasons. First, either in ancient China, Greece, or Rome, there was no separation between political, military, and civilian lives. Thus, one would only correctly access the phenomenon of strategy if one were able to disregard this contemporary and fundamental distinction. A correct way of doing this is to account for the phenomenon of strategy as pertaining to those societies as wholes. Secondly, and only as far as the Chinese approach to strategy is concerned, the perspective in which the word *shi* is based reveals an ontology not shared by Clausewitz's theory of war nor by most current management proposals.

In ancient Chinese societies people had two fundamental activities: agriculture and war (Sun Tzu 1994b:17, 23). The states of ancient China were focused on preserving, enriching,

and strengthening their power at the expense of their actual and potential enemies (ibid.:22). Warfare was a way of life not only of the armies, but also of society as a whole. This state of affairs could be seen in a fundamental question: how could one profit from a changing reality?

The word *shi* is grounded on the perspective that every kind of reality may be perceived as a particular deployment or arrangement of things to be relied on and worked to one's advantage (Julien 1999:15). *Shi* has both spatial and temporal connotations, and in many cases should be understood as something like opportunity or chance. Thus, the issue for ancient Chinese societies is whose opportunity is this? Who profits from chance?

What matters most is the situation as it happens and the kind of advantage one takes of it. With the word *shi* Chinese culture attempts to account for "the source of efficacy that is at work everywhere in reality and the best way to profit from it" (ibid:262). The challenge is not how we plan and implement our options, but how we retain our capacity to function. The situation always leads. The outcomes cannot be foresighted. One ought not to try to change the situation but to profit from its own propensity and disposition of things – "go with the flow of things, adopting the line of least resistance" (ibid.:40). This view was not strange to Clausewitz. On the contrary, his appeal to experience and friction aims at, from the start, preventing the commander from trying to turn a war into something that is alien to its nature (Clausewitz 1976:88). He considers this the most basic and comprehensive strategic question of all (ibid.:89).

In the light of the Chinese *shi* approach to war claims that victory would come from the potential born of disposition and not directly from the fighting men – in death ground, fight! Chinese strategy aimed to use every possible means to influence the potential inherent in the forces at play *before* the actual engagement, so that the engagement would never constitute the decisive moment (ibid.:35). Strategy is a kind of operative perspective of the natural process of change that would evolve to our advantage if we made opportune use of its propensity. (Julien 1999:34). Strategy was thus the art of making victories pre-determined by adapting to the circumstances and profiting from chance. One must try in advance to arrange the kind of circumstances that might lead to favourable situations.

It is this perspective that led to the tendency towards non confrontation in Chinese strategic thought of the time of Warring States. This was not prompted by any moral concerns, but by a resolute and pragmatic attitude towards being victorious – "[a]ll that matters is to act in a way to ensure one's victory, by making it predetermined" (ibid.:27). So in one respect *shi* and Clausewitz's (1976) theory of war do agree: strategy is vital and primary to the battles themselves.

In attempting now to bring the common and essential elements of strategy from contemporary strategic management, Clausewitz's theory of war, and the Chinese *shi* word, we will use certain etymological findings as they appear relevant.

The phenomenon of strategy always appears against a background of a human conflict of interests – of leading an entity through conflict or a clash of wills. Either in war, trying to defeat the enemy, or seizing an opportunity, in business, trying to maximise profits, or in policy, trying to defend and impose our will upon others, strategy is a way of leading, dealing, acting, and thinking. The ancient Greek *stratêgos* were the commanders and generals of armies and city-states (Crane 2001, OED). In ancient Rome *stratêgia* meant the dignity of being at the command of the *res publica* (Crane 2001), leading and caring for the citizens of the empire. The ancient Greek word *stratos*, from which *stratêgia* and *stratêgos* are derived (Partridge 1966), contain the meaning of 'something exclusive of the chiefs', which is something the word strategy still preserves.

This kind of action identified in the notion of strategy, first addressed by the combination of the ancient Greek words *stratos* (an army, spread army) and *agein* (to lead, to drive) (Partridge 1966), is a 'being clear', a deep grasp of the circumstances, explicitly grounded in the future. Central to the ancient Greek and Roman *stratêgia* was the survival and thriving of those communities, as they are for themselves. Either pursuing an empire or a state's interests, attempting to make victories pre-determined in war, or aiming at the profitability of the firm, strategy is a specific way of dealing with our own *existence*[218] as a community within the primordial time that the future is.

Strategy totalises companies and countries because it is an addressing of the capacity to function of an existing entity as a whole, a company, a community, or a state, within its own projection into the future. Uniting past and future, strategy is an expression of the identity of a state or a country. In ontological grounds strategy is an attempt at overcoming Dasein's primordial 'uncanniness' (Heidegger 1962), trying to establish a 'home' (ibid.), a tranquillized familiarity in being-in-the-world – "the concept of a base is a necessary tool in strategy", wrote Clausewitz (1976:135).

According to Clausewitz's (ibid.) theory of war, strategy unifies policy and war in projecting the state's identity, therefore its base/home into the future. This is the original meaning of the ancient Greek *stratêgia*; policy and war were *a priori* united in the work of the *stratêgos*. To the Chinese perspective of *shi* strategy relies on a deep grasp of the situation as it occurs so that one can act 'before' and take advantage of future outcomes. In management, strategy is obviously focused on the firm's capacity to shape, or accommodate to, the future.

This resolute projection of the entity is clearly examplified in Clausewitz's (ibid.) principle of war which asserts that only offensive action, taking the initiative, can achieve the desired results, impose our will on the enemy and maintain our freedom of action. The suggestion here is that both in war and in business, resoluteness is decisively linked to initiative and offensive action. Initiative, freedom of action, and projection are meanings central to the

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[218] In the Heideggerian (1962) sense that only Dasein *exists*.

ancient Roman *strata*, the far-reaching roads on which Rome based its empire (Murray et al 1994). According to the Chinese *shi*, the particular deployment of things, its potentiality and tendency, should be worked to one's advantage, that is, one should take the initiative whichever situation one faces (Julien 1999). In business, strategy is related to the effectiveness of the actions of the company, that is, to the way in which the initiatives the company takes might be related to its long term profitability.

On the grounds of the gathering that strategy is, the present choices gain their meaning explicitly from the future because it is against possible and probable outcomes that they are made. The specific character of strategy comes from the logical necessity that the explicit projection of an entity into the future implies for the actions and choices being taken and made in the present. The Clausewitzian strategic principles of warfare referred to above constitute as much an example of how strategy tries to access the probability of the outcomes, as do the models, principles and insights of the strategic management theories reviewed above.

The Chinese *shi*-based approach to strategy goes a step further. It is not so much focused on specific outcomes, as it is on whatever outcomes might be, as long as they were to our advantage. Thus, it is advisable, in going with the flow, to adopt the line of least resistance so that we might move easily achieve a favourable outcome. This adaptability of ours to the outcomes seems indeed to be the true meaning of the 'outcomes' in Clausewitz's theory of war and in strategic management theories. In Clausewitz's (1976) theory the notion of friction is used to enable the commanders to trying to shift their focus from specific to general outcomes that would be to our advantage, which in many cases are impossible to anticipate – "the strategist must go on campaign himself" (ibid.:177). In management, the emergence of a strand that favours strategy formation over strategy formulation (refer to, e.g., Mintzberg 1987; Mintzberg et al. 1998), namely the reviewed above resource-based approach, is an example of this same shifting focus.

Thus, in attempting an initial summary of the investigation carried out thus far on the phenomenon of strategy, we should identify the few elements that were revealed as common and crucial to the notion of strategy, either in business or in war. The future, or more precisely an explicit and clear account of the future as the grounding meaning of action in the present, is the most evident element of the essence of strategy. This claim will require a careful scrutiny as the ontology on which this investigation is based (Chapter 3 and Appendix A) claims that the future is the primordial time of man, the ontological source of meaning of *all* our actions in the world, not only of those actions that might pertain to strategy.

The second element common and crucial to all the notions of strategy reviewed above is choice. Strategy is a way of choosing, either in war (where, when, who should fight with what objectives? how can we profit from a changing reality?), or in business (what industries, segments, regions, trade-offs, resources, capabilities should we choose, develop,

and commit ourselves?). Thus strategy, while a way into an answer, carries in itself the promise of clarity, of 'being clear' about oneself and about the circumstances in which one is, so as to choose and achieve a desired or an advantageous outcome.[219]

We, as we ourselves are, that is, identity, and circumstances (accounting for the behaviour and interests of others, and for the tendency of the situation), are also elements of the essence of strategy, which emerges within a situation of conflict. Either by trying to overcome the enemy, profiting from the situation, or capturing or maintaining market share, strategy points to the ideas of initiative, of stretching out, spreading, enhancing potential, preserving and projecting – in short, strategy relies on its oldest Sanskrit meaning of *strnâmi* (Crane 2001, LD:1757).

Future, choice, clarity, conflict, outcomes, initiative, potential, self/identity, circumstances, others, are thus elements of the essence of strategy. Further reducing the phenomenon of strategy we can set aside, as non-independent elements, the outcomes, which are included in the grounding notion of the future. Initiative, clarity, and conflict are in their turn included in the element of choice as it emerges in strategy under the perspective of stretching out, of spreading and enhancing potential. Circumstances and the others, finally, are logically implied in the idea of self, of having an identity. Thus, the reduced phenomenon of strategy holds three essential elements: the future, choice, and identity. These elements make sense against a background of pursuing our interests under a perspective of potentiality and stretching out. This surviving and thriving cannot be stripped of the fundamental grounds in which strategy moves, on account of the ontology on which we base this investigation. We recall that man-is-in-the-world, that he is a being-in-the-world (Heidegger 1962), and as such, world and man's way in this world cannot be bracketed out of the phenomenon of strategy.

We have come to identify the three essential elements of strategy. The future, choice, and identity are common and decisive elements in all theories and approaches to strategy that we have thus far investigated.[220] In order for us to push further the opening up of the indivisible essence of strategy, which is the way in which those three essential elements relate to each other, we need to consider the findings on the essence of strategy in the full light of the theoretical foundations on which this investigation is based.

We recall that we are always and already in-the-world; in a world in which we are experts in acting because action as such is primary. Because we are the kind of beings whose Being

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[219] From our Western stanpoint it is interesting to note that the first Chinese character that Sawyer (1994:360) indicates to correspond to the English word strategy is of a stark *clarity* when compared to the huge majority of the other Chinese characters he presents. Here is a not so *straightlined* a reproduction of the Chinese character referred to:

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[220] At this light, a reassessment of the review of the literature on the path of IT in organisations (Chapter 1) might offer in some aspects new clues on the manner in which IT is being absorbed. We will address this issue in the next and final chapter.

is an issue for us, we are essentially ahead of ourselves. We are always and already projecting. In this projecting we are revealed as beings thrown into the world, always with a past and a future in which we are to make something of ourselves. Thus, as a having been in-the-world, we care. Ourselves, others, things, matter to us. As beings-in-the-world we are beings-with-others; a kind of being that firstly and most commonly maintains its average way of understanding as 'the they' (Heidegger 1962). We act, choose, think, live, mainly as 'the they' do it. Essentially we are this tendency of, for the most part, following 'the they'.

Immersed in-the-world we always and already understand the world and ourselves. Intuitively, dealing with beings as ready-to-hand entities, we repeat what worked (Maturana and Varela 1980, 1992) – "in warfare, a certain means turns out to be highly effective, it will be used again" (Clausewitz 1976:171). This shapes our structures, moulds our disposition, affects our attunement, and as such it opens specific possibilities for us to act in the future. "The socially transmitted attitudes, beliefs, and preferred modes of action that collectively constitute culture are neither casual nor random choices. Cultural attributes usually point to ideas and activities that have worked well for a society" (Gray 1994:579).

The structural congruence that leads us to repeat what has worked is the instinctive behaviour to maintain ourselves as what we are for ourselves: projecting and explicitly or implicitly assuming possibilities for being in the future. Always involved in something we take stands, choose, and go along with others, on account of the projections and the throwness we have been. Both the future and the past keep on changing as we keep on projecting, that is, as long as we are alive. The references and relationships of beings/differences we always and already are in-the-world, are the background on the basis of which things matter to us, that is, beings are meaningful to us and we make our choices.

In-the-world, everything has meaning. It is the references between beings, the *as something*, that enables us to distinguish data as such. As a distinction from a background of projecting and having been, data is made present informing either our intuitive or planned actions. As this information turns into a ready-to-hand entity, being embodied, it may be addressed as knowledge, becoming a part of our structure and thus triggering our behaviour in whatever situations we come to be involved with the future. Action and knowledge are thus entangled in an essential circularity directed towards a successful adaptation to our environment, which is something vital only and always accessed in our own terms, that is, according to our organisation in a structure, which is our identity. Identity is thus fundamentally linked to the phenomenon of strategy. Introna (1997:109) considers the development of identity the most important task of management.

The future is the primordial horizon of temporality, which is suggested to be the very context of Being. In-the-world, as a projecting having-been, grounds itself in the future. It is the future, the possibilities for being in which we always and already are projecting ourselves that makes us the kind of beings we are. Thus, the future *per se* belongs to the

essence of man, as a structurally ahead-of-itself being. The future grounds strategy just as it grounds tactics, or any other human activity, even history which gains its meaning within an already going on projection of ourselves.[221] This argument also supports the dismissal of identity as the one vital element of strategy. Being is uniqueness, is having an identity. Projecting, we always and already are experiencing our identity, both as a having been thrown, always with a past, and as an always projecting being with a future. "I am already someone, and I can never eliminate my past. But in turn, my past gets its meaning for me only from my projection of a future" (Polt 1999:96). Identity, that is, myself as I live my life, grounds *the there* of a world in which we are always and already choosers; we are "thrown throwers" (Heidegger 1999b). Thus, when trying to account for the uniqueness of the phenomenon of strategy we are left with *choice*. Yet, paying attention to the way in which we come to identify the future, choice, and identity as the three essential elements of strategy, this choice is one that should be grasped essentially from the perspectives of the future and identity, as primary elements of being-in-the-world. The future and identity are thus the correct context to access choice as the essence of strategy.

On these ontological grounds, by applying the techniques referred in Chapter 2 on the phase IV of the phenomenological method, namely by freely and methodically varying the elements of the future, choice, and identity, we find ourselves facing only the notion of choice as the essence of strategy.

As an essential element of strategy, possibly the most essential one, choice addresses the issues that either in ancient Greece or Rome, in Clausewitz's account of war, in the Chinese perspective of *shi*, or in contemporary strategic management theories, are regarded as vital and decisive. Essentially, strategy is a vital choice. The ontological lenses of identity and of the future account for this *vital-ness/decisive-ness* of choice in strategy.

Our etymological account of strategy provides relevant clues into this central aspect. The ancient Athenian and Roman empires, in order to survive and thrive, thus within a projection of each and for each of them into the future, entered *stratêgias* of spreading (*stratos, stor*), of stretching out (*sterno, strata, strnâmi*) their presence in a world that mattered to them. This is very much in line with Hamel and Prahalad's (1989) claim that strategy is stretch and leverage.

The Roman word *strata*, relying on the meanings referred to above, is an example of this argument. What were the many thousand miles long networks of roads, of *strata*, for the Roman Empire? A short answer is elucidative: those roads were their strategy. They meant the formation of the Roman Empire (McLuhan 1994:90). Those roads that opened the Roman presence from Asia to the Iberian Peninsula and to the North of Africa were the way in which ancient Rome affirmed and enhanced its most fundamental options

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[221] History, it may be said, is a process whose outcome is the future, not the ontic future of the historical times under analysis but the future of those who engage in History.

concerning its own identity in a world then synonymous with the Roman Empire itself (Cícero Agr.2, 13, 33 in Crane 2001). The roads gave the Romans a decisive strategic edge (Knox 1994: 638). The Roman Empire stretched and leveraged itself through their *strata*. Their *strata* was their strategy. They were a fundamental and decisive mode, a vital one, in which ancient Rome grounded the projection of its identity into the future.

This argument deserves a closer look. Were the Roman *strata* in the ancient Roman era strategy as such? Those *strata*, that is, the Roman far-reaching roads, existed in a world where the contemporary notion of strategy did not exist. What is worth noting are the meanings then attached to the word *strata*, spreading, stretching, amplifying, preparing, arranging, and others referred to above. These meanings along with others contained in the Latin, Greek, and Sanskrit words at the origin of the contemporary word strategy, served us to identify a phenomenon, that is, to make a new distinction, we now recognise as strategy. Thus, acknowledging the perspective of an *ex post* analysis, we should conclude that for the ancient Roman empire strategy was not *strata* as such, but a grounding notion, action, or attitude, against which their *strata* acquired that particular meaning that we come to isolate and develop along with other connected meaning as the phenomenon of strategy. If the Roman Empire has relied vitally in other options than on their *strata*, they would have had a strategy as well. This means precisely that the essence of strategy is a vital choice as such.

The essence of strategy is therefore a choice that is vital and decisive in itself, and not on account of what it concretely addresses. The essence of strategy must be found in choice *per se* against a background of projecting our identity into the future. What kind of choosing might this decisive choice be?

We have seen how the kind of choices that strategy addresses, either when accounting for its etymological roots in the ancient Greek and Roman empires, in Clausewitz's *On War,* in the Chinese word *shi*, or in strategic management texts, are deeply connected to the issue of identity. Identity shapes and is shaped to a lesser or greater degree by choice, be it following a plan, taking an opportunity, or intuitively pursuing a pattern of actions. However, identity, as an organisation in a structure, which lives life in mineness, cannot be purely and simply a choice. We are thrown into the world, always and already with a past – as beings-in-the-world, we always and already have an identity.

Yet the past we are makes sense to us on the grounds of an always projecting in which we are engaged. The possibilities we project into the future, thus the choices we make, change the past we have been. Thus, what we are, our identity, moves within a horizon of significance that in the present links our future to our past. Strategic choice moves in these realms. Hence, for that choice to be vital and decisive as such, disregarding whatever issue it might concretely address, it must be a choice that, on the grounds of identity and contextualised by the future as the primary horizon of meaning, is turned onto itself. For us to choose decisively, to account for our future, to make something out of ourselves, which

is what the theories on strategy are effectively about, before any specific choice whatsoever we must have already evaded 'the they', and chosen to choose.

The resoluteness of *"choosing to choose"* (Heidegger 1962:312-4) holds the decisiveness and vitalness of the essence of strategy. That being resolute is deeply entangled with the essence of strategy was something directly pointed out by Pericles, the Greek who led Athens in the Peloponnesian War against Sparta (BC 431-404). Commenting on accepting or not a Spartan proposal for peace, one whose non-acceptance implied the waging of war by Sparta, Pericles told the Athenians: "[D]o not reproach yourselves with second thoughts that you have gone to war for a small thing. For this 'trifle' contains the affirmation and the test of your *resolution*" (in Thucydides 1976 quoted in Kagan 1994:32; our italics). Clausewitz (1976:179-80), commenting on the strategic mastery of Frederick The Great on defeating armies clearly superior in numbers, wrote: "But it required the King's boldness, resolution, and strength of will to see things in this way."

Choosing to choose is vital in itself. It is a transformation of our presence in-the-world, one in which we stand for our uniqueness, limitedness, and resolutely faces the possibilities of being ourselves into the future. *Choosing to choose* is as much a conscious option as a pattern of behaviour. Both are characterised by resoluteness, uniqueness, and by a fundamental stretching of our way into the future. Mahan, a naval officer of the USA West Point Academy in the early 19th century, was the first one, according to Hoskin, Macve, and Stone (1997), "to articulate the essence of modern strategy [as] (…) something that must stretch indefinitely over time and space, continuous, ubiquitous, and constantly under appraisal".

Choosing to choose is essential to strategy because it precedes whatever strategic behaviour one might have, and, as it stretches (*strnâmi*) into the future it affects future behaviour and outcomes. Being resolute, that is, having chosen to choose, the world in which we always and already are opens up for unique and meaningful possibilities. Resolutely, we care for what we are and for what we are doing. We choose to choose, we opt and do not follow, we evade the obvious and pressing comportment of 'the they', and the world opens up for us in significant and unique ways. This is very much in line with Henderson's (1989) conclusions on the origins of strategy: "Unless a business has a unique advantage over its rivals, it has no reason to exist" (ibid:141).

These meanings were to a greater or lesser extent captured by the ancient Sanskrit, Greek, and Roman words referred above. It is this resoluteness, that is, authenticity as such, that guided these meanings throughout history and came to form the contemporary word of strategy. Either in strategic management theories, in Clausewitz's account of war, or in the Chinese *shi* perspective of conflict, authenticity is that indivisible and crucial element that offers the grounding meaning to their respective approaches to the phenomenon of strategy. Authenticity thus appears in strategies as a resolutely leading of oneself, much in the manner Nietzsche (1969:137) advised, "he who cannot obey himself will be commanded".

As authentic things, outcomes, conflict, possibilities, tendencies, others, matter to us in an intense and involved way. Only by being authentic, by resolutely having chosen how the world is meaningful to us, are we able to develop that kind of knowledge, that is, of embodied information, that instinctively as a ready-to-hand entity would assist us in pursuing our strategy. Authenticity is thus action – "As resolute, Dasein is already *taking action*" (Heidegger 1962:347). This accounts for much of the shortcoming of many contemporary Cartesian based approaches to strategy that mainly rely on plans and on their controlled implementation.

The key issue in the light of this investigation, that is, in accordance with the essence of strategy being authenticity, is not the plans but the degree of resoluteness from whence they come. This is the deeper meaning of Eisenhower's sentence "plans are nothing, planning is everything". Even when a company refuses to work out its strategy explicitly, as in the case of Nucor (Mintzberg et al 1998:19), a resolute pursual of who they want to be might open up the benefits usually attributed to the company's following a so-to-speak classic strategic approach:

> "[V]arious articles have described Nucor's disdain for formal planning systems and the firm's reliance instead on a consistency in action at all levels in the organization. Nucor had no written strategic plan, no written objectives, and no mission statement. For Nucor, an absence of many of the supposed elements of strategy is symbolic of the no-frills, non-bureaucratic organization Nucor has worked hard to become" (ibid.).

This passage is a sound illustration of the fact that consistency in action is based upon the internal coherence of the organisation, of how its structure, in the autopoietic sense, accommodates its several elements so as to constitute a unique and consistent whole. Consistency in action depends on the coherence of the system, that is, of its embodied and intuitively shared meaning of what itself is and tries to become. Nucor *has worked hard to become* the kind of company it envisages, that is, Nucor chose to choose, embrace authenticity, and its path is shown to be meaningful and promising. Nucor's pattern of consistency in action is thus its strategy.

Authenticity is thus the essence of strategy. It is vital in itself, and accounts in a fundamental way for the essential elements of the future and identity in the essence of strategy: authentic future and authentic identity. Choice as a choosing to choose implies both an experience of the authentic future and of the authentic present, of the *moment of vision* (Heidegger 1962:387); the world matters to us within a resolute projection of us into the future, that is, within an authentic identity.[222]

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[222] When develping the notion of authenticity was Heidegger calling us to live authentically? Does authenticity imply to engage in a personal transformation? Does "choosing to choose" change who we are? Our answer is clearly yes, as the argument presented shows. When characterising human ways of being as authentic and inauthentic, Heidegger did not intend to attach to them any ethical or moral value. Authenticity is only grasped against Dasein's tendency to be among the they in inauthenticity. Because we are already within the they, whenever we experience authenticity we change and transform ourselves—the world becomes illuminated in new ways, with deeper meanings, and our insightfulness is enhanced. Facing up to mortality, choosing to choose who we are and want to become changes our life. Polt (1999:94) has a position similar to ours. Zimmerman (1986) also claims that

Hence we claim that authenticity captures the kind of phenomenon that has been grounding the emerging and shaping of the theories on strategy for the last two hundred years. *Authenticity is the essence of strategy*. Authenticity is the foundations that, Hamel (1998) argued, the discipline of strategy is lacking.

In spite of the fact that essence of strategy opened up only when considering the ontological bases that grounds our inquiry, and because it shows itself deeply entangled with the phenomena of the future and identity, we should re-enter the inquiry into the essence of strategy by reassessing the meaning of authenticity, either as a manager, a professional, or even as an organisation, from the perspective of the being-in-the-world we are.

A manager can *choose to choose* because he *cares* for himself and his company. His identity as a manager is deeply related to the identity of the company in which he lives a great part of his life, as the theory of autopoiesis explains when accounting for the role of language in human experience (Chapter 3). Left to himself, he can choose to choose or not to choose (Heidegger 1962:312-4). In question is a choosing that resolutely enters the realms of who we are, or instead just lets it happen as it unfolds within 'the they'. Choosing to choose a manager takes on for him the meaning he wants to give to his life.

In day-to-day coping we are always choosing; but we can choose within 'the they', as things go on and on, not taking on ourselves the burden of being responsible for the way in which we are already. Choosing to choose can indeed have no consequence in the kind of ontical actions we are performing, but as these actions are authentically appropriated by us, the world opens up more clearly, and the possibilities we face show up in deeper meaningfulness. We can make a difference because things and actions truly and instinctively matter to us – *we are resolute* (ibid.:343). Things matter, we notice them and we can attend, we are involved, and thus action unfolds in a world where we are responsible for ourselves. This is an indication of why it is important to have grasped that the essence of strategy is authenticity. Only by being authentic do we have a possibility of fully grasping what we intend to make of ourselves in our own future. This projection becomes clear, precisely because we have chosen and things matter to us. Thus, it should be said that clarity, as a notion hinted above being close to the essence of strategy, is a logical consequence of authenticity. By being authentic, by chosing to choose our way, the world becomes clear. So it can be said, that "[h]e who is resolute knows no fear" (ibid.:395), which is an insight that accounts for much of the cases either in war or in business where an entity with far fewer resources overcomes another one with far more resources.

Heidegger's findings demand an existential transformation. Not all commentators agree with this analysis; for instance, Gelven (1989) takes the opposite view of Zimmerman. Heidegger himself denies that he was calling us all to live authentically. He was not dogmatic about his findings, nor did he claim to have proved anything beyond doubt. Heidegger claimed to have articulated certain phenomena for the first time, and to have discovered a way in which these phenomena can be grasped in deeper and more insightful ways (Heidegger 1962:487). At the end of the day, it is up to us, either to choose to choose or not to choose (ibid.:312-4).

In resoluteness the manager no longer exists as a falling *they-self,* but he experiences an intense seizing of his future and of his throwness. Being-in-the-world he becomes illuminated, and the possibilities he projects for his life become brighter and deeper; this is what Heidegger (ibid.:343) calls *moment of vision*. This moment of vision enables the manager to make decisive choices and to take vital actions, which would need to be reinforced again and again because of Dasein's structural tendency to fall into 'the they'. Only by continuing to be authentic, that is, only within an authentic identity, can strategy, as an authentic intention, plan, or pattern, come to be a fulfilment of the possibilities the manager and the company aim at for their future. Strategy thus relies not only on a moment of vision, but also on a constant experiencing of an authentic identity. Only authentic identity opens up an authentic future.

However, we should note that the manager does not choose his possibilities from nowhere. He already is in a shared world, and grasps the possibilities furnished by 'the they' and makes them his own. Yet while resolute, his life becomes something which is not characterised by following 'the they', but by leading himself within 'the they'. "'The they' evades choice" (ibid.:443), the resolute choose to choose.

Resoluteness involves recognition both of having a past, and of the limitations of possibilities of us and of the organisation in which we are. Thus, resoluteness is entangled with *anticipation.* "When we make our choices in full recognition of these limitations, we take authentic, clear-sighted stances" (Polt 1999:95). Potentially-for-being is grasped in the kind of meaningful possibilities we involve ourselves with while structurally ahead-of-ourselves.

Always-ahead-of-itself-already-in-the-world-alongside-the-others a manager or an organisation, that is, a community of professionals, being authentic, discloses its own identity in the terms of its authentic future. When taking into account the kind of involvement Dasein is in-the-world either in inauthenticity or in authenticity, that is, as 'the they' or as a resolute entity, the disclosure of authenticity as the essence of strategy shows the relevance for strategy of a deeper meaning of identity, of having an authentic identity.

Authentic identity, being resolute about oneself, if considered exclusively for the case of an organisation, should indeed be pointed out as the kind of difference between having a strategy and having no strategy. Once the community that an organisation forms is resolute, the essence of strategy is present and either by following Porter's positioning theories, design school's SWOT analysis, formal long range planning, or a stretching of resources and developing core competencies, it should be said that it follows a strategy.

However, if a company is not resolute, if it follows by being immersed in 'the they', it seems that it cannot be said that it has no strategy… This is so, for example and besides our intuitive grasping of the pertinence of this fact, in terms of Porter's positioning theories – "Every firm competing in an industry has a competitive strategy, whether explicit or

implicit" (Porter 1980:xiii). Differentiating, competing on low cost, focus on niches, or being 'stuck in the middle', the firm always has a strategy. However this latter position is what Porter implicitly considers equal to having no strategy. "Being stuck in the middle is often a manifestation of a firm's unwillingness to make *choices* about how to compete" (Porter 1985:17; italics from the original). The "firm must choose the type of competitive advantage it intends to preserve in the long run" (ibid.:19). Choosing no type of competitive position equals above average performance if not worse (ibid., Porter 1980).

Choosing, resolutely, the firm makes options matter to it. It is no more experiencing the future as awaiting but as anticipating (Heidegger 1962). It commits itself, and focuses its resources on pursuing a possibility for itself, whose essence, as previously argued, is authenticity, and whose deeper meaning is authentic identity. In strategy thus what a company gains is its authentic future *from* its inauthentic future – it has gained itself from 'the they'. "Dasein, existing authentically lets itself come towards itself as its ownmost potentiality-for-Being – that the future itself must first win itself, not from a Present, but from the inauthentic future" (ibid.:386). This opening up of authenticity as the essence of strategy is acutely captured in the saying of Nietzsche (1974:219, n.270) that opens this chapter: *"What does your conscience say? –* You shall become the person you are." This same insight was early on stated in a slightly different way by the ancient Greek poet Pindar (Boeotia, Greece c. 518/522 – c. 446/438), while praising the Herion from Syracuse, who had just won a chariot race. Yet, we leave this other quotation for the end of this chapter as we think it is a much proper place for the Pindar's passage.

Having established the essence of strategy as authenticity and its hidden meaning as authentic identity, we need to enter upon a final clarification of the implications of this last claim. What does strategy's hidden meaning of identity means? The answer is twofold. First, that the hidden meaning of strategy is identity, an authentic identity, signifies that on grounds of the ontology we base this investigation the most primary and decisive reference that strategy has is to identity. It is having an authentic identity that gives the full meaning to strategy. Strategy is that kind of distinction, either in management or war, today or in ancient times, that contextualises itself fundamentally against the background of identity. Only by an already pursuing of an authentic identity is strategy possible. Second, we should ask, what is identity? To answer this last question of our inquiry into strategy we will develop the notion of identity from the theoretical bases of autopoiesis, as reviewed in Appendix B.

In autopoietic terms identity is organisation in a structure, i.e., a specific living being of particular class. Identity relies as much on a being's organisation as on its structure. There is no identity without both. Autopoiesis in spite of the strength provided for the understanding of the phenomenon of living as a unitary one, does not enter a full clarification of the relationships between identity, organisation, and structure. In general identity is synonymous for the organisation of a particular living being. Stafford Beer in the

Preface of "Autopoiesis: The Organisation of the Living" (Maturana and Varela 1980:66) considers "the system's own organisation" its identity, adding that autopoiesis "solves the problem of identity which for two thousand years of philosophy have succeeded only in further confounding." Identity, contrary to organisation, is not a technical notion of autopoiesis but rather a corollary, a dimension, of the concept of organisation itself. In these paragraphs of our investigation we will try to contribute to the clarification of this issue. We submit that a rewarding way to clarify in detail this issue of identity is to address the realm of metamorphoses.

In metamorphosis the living system goes on living while it changes its organisation. "If the organization of a system changes, then its identity changes and it becomes a unity of another kind" (Maturana and Varela 1980:xx). Still it is the *same* being that transforms. The reason for us to understand the very notion of metamorphosis is that the fundamental changes that characterise this idea are related to the same living being. There is something that enables us to identify a metamorphosis. What the being was before the metamorphosis and what it is after the metamorphosis are united in that they refer to the same being. It is in this unity that a more profound meaning of identity emerges.

Maturana and Varela wrote '<u>its</u> identity changes and <u>it</u> becomes a unity of another kind" (our underlining). The 'it' is what makes the metamorphosis process possible; the 'it' is what enables an observer to distinguish a changing in *organisation* of a particular being. The particular being is the <u>same</u>, in that its structure was not terminated but rather its evolution shifted from the realisation of an *organisation* to the realisation of another *organisation*. Structure, the maintenance of an evolving structure, is, thus, what underlies the process of metamorphosis.

Structure, its maintenance while evolving, is thus what underlies the process that Maturana and Varela (1980) identify as a 'changing of identity'. We claim that this can only be valid from an observer's perspective. The being in metamorphosis changes its organisation and its structure adapts to it. It becomes a living being of another kind. Yet, from the being's life lived, from its own perspective, the permanence of its living structure maintains it as the same being, as Maturana and Varela's passage above implicitly accepts. From a being's own perspective, and not from that of an observer, identity is thus *my* organisation as it is *mine*. This *mineness* of identity relies on structure. It is my structure that gives an organisation the mineness. This suggests that in identity structure does not rely on organisation but rather the other way around: organisation is dependent on structure; this dependence originates identity. That this is so is demonstrated by acknowledging that whenever there is a living structure there is an identity. Yet an organisation can be conceived formally without a structure, thus without an identity. This shows the relevance of structure to identity.

As an evolving structure, accommodating a metamorphosis, the *mineness* of the living being is maintained. It is an evolving structure and a metamorphosical organisation united

in that they are mine—that is, from a life lived experiencing standpoint *mineness* remains. *Mineness* is the 'it'. It is life lived, which from a being's own perspective, is evidently *mine*. This permits us to conclude that this *mineness*, a phenomenon lightly approached by the original theory of autopoiesis, is a key aspect to be taken into account when addressing the issue of identity. From an observer's perspective, metamorphosis is primarily the end of an identity and the beginning of another. From a being one's own perspective, metamorphosis is above all the maintenance of *mineness*, that is, the maintenance of its very own identity on its own terms.

In metamorphosis the organisation of the living being changes. Yet it is the same living being because its structure, in spite of its evolution, remains. That the living being does not die in a metamorphosis means that the living structure is not interrupted. The structure of the living being undergoes rapid alterations because it is adapting to its new organisation. The being, as it transforms, keeps its autopoiesis, and undergoes a process of generation and selection of the components towards a particular direction and at a much higher rate than before the metamorphosis started. The components now chosen are the ones that better fulfil the needs of the new organisation. The autopoietic process is maintained, the being keeps itself alive, while its structure undergoes a faster than usual evolution. Still, it is always the same structure because it does not disintegrate; the being does not die, its structure just changes, adapts, to its new organisation, at an intense pace. For something to go into metamorphosis there must be something that remains through all the process of metamorphosis, otherwise we would not be able to identify a metamorphosis. This something that remains is a living structure. This sameness is what from the being's own perspective of living its own life is mineness, that is, its identity.

Thus, *identity* at its more profound level depends on an actual *structure*. To have an identity means to a have a structure-that-is-mine. Mineness is what for each and every particular being gives it its identity, its sense of *mineness*. It holds when the structure changes, and it holds in the more exceptional conditions of the changing of organisation as well. Structure, as it is what makes a particular being itself, is what gathers being's identity. It unifies the being's mineness against changes in structure and changes in organisation. As long as the living being relies on a structure, a relatively permanent one or a rapidly changing one, the mineness of the being is its identity from its own perspective. As long as a structure of a living being survives, either undergoing slight or intense changes, the being is the same— that is, it has an identity. This clear meaning of identity, although not relevant from an observer's perspective, who characterises a being that goes into metamorphosis as a different one from the being it was before the metamorphosis, is what matters for a being in its own perspective. Thus, identity depends on structure. The meaning of identity is maintaining *my* structure.

These claims come to clarify our findings in that the hidden meaning of strategy is identity. Because identity is essentially the maintenance of my structure as it is mine, the hidden

meaning of strategy of an organisation, a community, or of a country is revealed as the maintenance of its structure, of its mineness. At this deeper level we reach the hidden meaning of strategy, that is, the way in which its essence guides it to be what it is in-the-world, which is the maintenance of the mineness of the structure of the entity that engages in strategy. This means that strategy, firstly is apparently intended to preserve the actual structure, that is, its components, properties, and relationships.

In many organisations one can easily witness the kind of no change strategy that in spite of all the plans, meetings, and consultants' exercises ends up by being implemented. Autopoiesis closure of the organisation, that is, the kind of entity the organisation most implicitly is for itself, imposes limits on the degree of structural variation it accommodates. Because the actions of an organisation are always dependent on its structure, that is, they are determined by its structure, strategy, as a phenomenon based on authenticity, emerges as aiming at improving structural variation. On account of the essential preservation of its mineness, that is, its functioning much in the way the Chinese perspective of *shi* addresses the issue, the entity which engages in strategy aims at improving its structural possibilities of dealing with whatever situation in which it finds itself. This is the meaning of Clausewitz's (1976) stressing of the need of having an actual experience of war and of fully understanding theory so that one has the analytical and judgmental structures that would enable one to take the right course of action at each moment. The nurturing of resources and the development of core competencies that the resource-based approach to strategy advocates for a firm to survive and thrive, that is, the development of its knowledge base as a resource (Penrose 1959), are also strategic patterns of action intended to improve organisational structural variation. Angell and Smithson (1991) and Introna's (1997) accounts of strategy and of the management process of decision-making respectively, both relying on the law of requisite variety (Ashby 1957), also are in favour of the findings of this investigation into strategy.

The improvement of structural variation enhances the possibilities of an entity to preserve its mineness. We have seen how the limits of this preservation are not indeed change but metamorphosis. Yet, on grounds of empirical evidence this should be considered the exception rather than the rule. Most organisations, just like most living beings, do not have the structures that enable them to change their autopoietical organisation. Thus we should say, in accordance with strategic management theories that criticise the pursual of an optimum fit between the company and its environment, that strategy should develop a reasonable degree of non-adjustment, of friction, and of unfitness so that the structure of the company would be prepared to maintain itself in whatever situation or surprise that might eventually come about. Only in this way can innovation be absorbed as novelty and not as annihilation (McLuhan 1994:69).

At the point of action, strategy comes to be the structure itself. The way of acting of an organisation is the element of its structure – its components, respective properties, and the

relationships between them. Thus, immediately and in the long run, strategy is the structure. Only by affecting the structure is it possible to alter the strategy. The structure while engaging in strategy evidently and primarily aims at maintaining itself. As a closed system, either the manager, or the organisation reacts to whatever differences they distinguish, in their own terms, which as particular situated living beings they first and foremost aim at keeping their respective autopoiesis, i.e., keep themselves alive. They aim at maintaining a structure that keeps on adapting and evolving not just because aim at maintaining their organisation but because fundamentally they aim at maintaining their identities. This can only be achieved by thriving on the *same* structure. Strategy is primary aimed at maintaining mineness. At an essential level strategy follows structure. When understood against a background of future possibilities and of having an authentic identity, this preservation of the mineness of the structure shows up as the hidden meaning of authenticity, as the essence of strategy.

"Become such as you are, having learned what that is."
Pindar
Pythian Odes, II, 73 (1997:239)

5.6. Recapitulation

In Chapter 1 we identified the guiding question of this investigation: *How does IT affect strategy?* We claimed also the need to make explicit the ontological and epistemological assumptions of the investigation. This opened up a way for a phenomenological account of IT and strategy against an ontological background based on Heidegger's (1962) findings and on the theory of autopoiesis,

In Chapter 2 we introduced phenomenology, characterised its key concepts, and presented the method of investigation to be applied in Chapter 4 to IT, in Chapter 5 to strategy, and in Chapter 6 to the relationships between IT and strategy.

In Chapter 3 we developed the theoretical foundations of this investigation – Heidegger's (1962) findings and the theory of autopoiesis (Maturana and Varela 1980, 1992) – in respect to action, meaning, data, information, and knowledge.

In Chapter 4 we established that the entanglement between IT devices and being-in-the-world is the reduced phenomenon of IT. This entanglement is shown to be an ontological revealing, in which the unfolding of IT within 'the they' and its readiness-to-hand are fundamental for enframing (Heidegger 1977) to enter language and thus becoming replacement. In these basic conditions the ready-to-hand of IT grounds our age in that it

becomes the ontological background against which that which is appears. Our notion of replacement, as the essence of IT, brings *Ge-stell* (ibid.) and being-in-the-world (Heidegger 1962) coherently and consistently together.

In this chapter we conclude that the essence of strategy, whether in war, business, or politics, does not rely on plans or intentions but on the degree of resoluteness from which those plans or intentions come. This resoluteness appears in a choosing to choose that is vital in itself, amounting for a transformation of our presence in-the-world in which we stand for our uniqueness, limitedness, and resolutely face the possibilities of being ourselves into the future.

Choosing to choose is essential to strategy because it precedes whatever strategic behaviour one might have, and, as it stretches (*strnâmi*) into authentic future, it affects future behaviour and outcomes. Being resolute, one's world opens up into unique and meaningful possibilities. Resolutely, we care for what we are and for what we are doing. We choose to choose, we opt and do not follow, and we evade the obvious and pressing behaviour of 'the they'. Choosing to choose is as much a conscious option as a pattern of behaviour. Both are characterised by resoluteness, uniqueness, and by a fundamental stretching of ourselves into the future, that is, by authenticity.

In resoluteness we no longer exist as a falling they-self, but we experiences an intense seizing of our future and of our throwness. Being authentic, things, outcomes, conflict, possibilities, tendencies, others, matter to us in an intense and involved way. Resoluteness enables us to make decisive choices and to take vital actions, which would need to be reinforced again and again because of Dasein's structural tendency to fall into 'the they'. Only by continuing to be authentic, that is, only within an authentic identity, can strategy, as an authentic intention, plan, or pattern, come to be a fulfilment of the possibilities we aim at for our future. So strategy relies on a constant experiencing of an authentic identity. Authenticity, vital in itself and accounting in a fundamental way for the future and for identity, is the essence of strategy.

Only by being authentic, by resolutely having chosen how the world is meaningful to us, would we be able to develop that kind of knowledge, that is, of embodied information, that instinctively as a ready-to-hand entity, would assist us in pursuing our strategy. As it unifies an entity on the grounds of a projection of itself, authenticity achieves consistency in action. It leads to a coherent behaviour that relies on an embodied and intuitively shared meaning of what an entity is and desires to become. This is why at the point of action authenticity, that is, strategy, becomes the structure itself. How an organisation acts relies on the elements of its structure – its components, respective properties, and the relationships between them. Thus, immediately and in the long run, strategy is the structure.

Strategy aims at maintaining a structure that adapts and evolves, not just for the sake of maintaining its organisation but because it fundamentally aims at maintaining its identity.

This can only be achieved by the *same* structure thriving. At an essential level strategy follows structure because authenticity has to take into account the will, the possibilities, and limitations of the very structure as it is for itself. When understood within a horizon of future possibilities and of having an authentic identity, this preservation of the mineness of the structure shows up as the hidden meaning of the essence of strategy.

Chapter 6
Conclusions

Zu den Sachen![223]

To the thing, themselves!

Às coisas, elas próprias!

We have our central findings in place. This investigation has come to its final turn. We claimed as apodictic that the essence of truth is the truth of essence (Chapter 2). This means that the being we ourselves are is always and already an embodiment of essences. Thus, it is the grasping of replacement on the grounds of language and human structural coupling that IT in its essence is. It is the recognition of authenticity under a context of striving for being oneself, as one is projecting oneself into the future, that enables one to recognise the phenomenon of strategy.

The essences of IT and strategy were opened on the grounds of an ontology that accounts for Being as the difference within the context of temporality. The difference between the Being of a being and nothing, as it appears to us, is what a being is in its essence. Thus, being is entangled with our way of being-in-the-world, always and already acting towards something for-the-sake-of-another-something.

The making present of a distinction we come across, that is, information, turns into a ready-to-hand being and thus shapes constantly our actions, triggering further distinctions, moods, and perceptions. As such information is knowledge, a part of us. It is that against which new distinctions are made.

These are the ontological bases on which, on the one hand, authenticity, as the essence of strategy, emerges and gains its meaning as a phenomenon that once it is experienced has the potential of changing us, by opening new meanings of our past and new possibilities into our future; and, on the other hand, IT was opened up essentially as a ready-to-hand being, whose nature addresses human structural coupling as such, and thus claims to constitute itself a background against which what matters to us shows up.

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[223] "To the things, themselves!"—*Zu den Sachen!* in the German original—has its origins in the ideas of both Husserl and Heidegger. Spiegelberg (1975:15, fn.1) writes that the closest Husserl came to using the *motto* was in his *Logical Investigations*, where in the Introduction he stresses "not mere words but the things themselves", and in his article "Philosophy as a Rigorous Science" where he claims that research starts "not from philosophies but from the things and problems". Yet, Spiegelberg (ibid.) noted that "it was only the later Heidegger who asserted that "To the Things" was the basic maxim of phenomenology". *'As coisas, elas próprias!'* is our Portuguese translation of the phenomenological motto.

This much has been presented and soundly supported, or so we hope. Thus, the issue that deserves to be addressed now is what do our findings mean or imply for our assumed empirical world? What are the empirical consequences of the findings presented? That is to say, what is the legitimacy of phenomenology in tracing back its findings to the empirical world?

These questions are answered in the following sections of this chapter. First we present the position of phenomenology concerning the empirical relevance of the findings of phenomenological investigations. After that we claim, in accordance with the theoretical bases on which this inquiry relies, and to the method of investigation applied, that the most important impact of our findings on the empirical world is the potentiality of their readiness-to-hand. Next, in order to address the empirical implications of our investigation thoroughly and correctly, we enter a final phenomenological task of analysing the relationships between the essences of the phenomena of IT and strategy, as they show up in consciousness. This analysis is performed without the need for empirical verification, as prescribed by the phenomenological method of investigation. Nonetheless, in the light of the objectives of this chapter, we will analyse the findings in the realms of their most important empirical implications.

Finally we will review briefly the examples of empirical consequences of our phenomenologies of IT and strategy, as they were presented in chapters 4 and 5 respectively while conceding that those examples would clarify the notions and relationships in question. In this section we will also add new details and new examples of the empirical relevance of replacement as the essence of IT, and of authenticity as the essence of strategy.

6.1. The Relevance of Phenomenology for the Empirical World

Having presented our investigations into IT and strategy we now address the legitimacy of phenomenology in tracing back its findings to the assumed existing empirical world.

Phenomenology is nowadays an intellectual movement and a method of investigation spread throughout the world and used in a diversity of areas of human interest, including information systems. It has been used, for example and to mention phenomena in one way or another related to the areas of inquiry of this research, to investigate the foundations of knowledge (Husserl 1964, 1970, 1970b, 1982, 1995), perception (Merleau-Ponty 1962), technology (Heidegger 1977), organisations (Harmon 1990), war (Clausewitz 1976), living systems (Maturana and Varela 1980, 1992), the ideas of coercion, appeal, symbol (Hamrick 1985), experience, approval, 'we' (Spiegelberg 1975), the process of decision-making (Introna 1997), and many other phenomena. All these applications are devised to address the empirical world.

Phenomenology is primarily a method of investigation. It can be applied to whatever phenomenon we think we are facing. Its object is what is in consciousness, independently of its source. Phenomenology is not an answer in itself but rather a way of questioning. The foundational basis of this thinking, of the method, is evidence and logic. This means that evidence and logic are the understanding within which we are who we are. Evidence here must not be confused with evidence in the empirical sense. Here evidence is that which is *evident in itself*, that which is impossible to conceive otherwise, that is, that which is self-evident. In other words to deny it would be to deny the very source of any empirical judgement already presumed.

Only because consciousness is already evident for itself can consciousness logically conclude its own self-evidence. And it concludes logically because logic is the understanding within which consciousness is as such. When Husserl concluded that pure Ego, surviving the *bracketed out* world, is the apodictic—self-evident and primary—source of knowledge, he was also implicitly conceding that evidence and logic were the very initial criteria on which that source bases itself. Thus, for Husserl evidence and logic are the indisputable grounds of thinking. Evidence and logic are in themselves self-evident, absolutely primary, only relying on themselves to appear as themselves in the ways they are in themselves, that is, as necessary truths.

Like any other method, the phenomenological method of investigation is realised through a methodological circle, however phenomenology strives to accept and to proceed only within the primary and foundational circle of human understanding: consciousness and its *a priori* rules and procedures.

We should note that *To the things themselves!* means the turning of our own being to the world as it is already experienced. The phenomenological motto points to a turning away from concepts, symbols, theories, and hypotheses, and a return to the concrete references of experience (Spiegelberg 1975:58). This experience is the one of consciousness, which in its turn takes the empirical encounter as valid as any other kind of encounter. In its aim to address the things themselves, we claim that phenomenology is an intellectual movement second to none. The most primary and decisive destiny of phenomenology is the world as such, where we are what we are. There is nothing more intuitive in the maxim of phenomenology *To the things, themselves'* than precisely *the return* to the things themselves as we experience them.

The question of the empirical world is a part of our own terms. We, as we ourselves are, always are in-the-world, which we understand as a possible empirical world. What is at stake here is the showing that phenomenology only appears, and only is what it is, because it can in its essence refer to the empirical world; it was devised precisely for that, to return to the things themselves!

The challenge of phenomenology is to uncover in consciousness what we are in the world, how we are experiencing it, and, ultimately, what this world *is*. Thus, the application of phenomenology to the believed empirical world is not only a possibility but a necessary feature of phenomenology itself – "phenomenology readmits us to a world in which everything has a claim to recognition, as long as it presents itself in concrete experience" (Spiegelberg 1975:59); this 'concrete experience', although not only 'empirical' experience includes it on the same grounds as whatever would be experienced.

Phenomenology is always and already a human activity in the world. We are in the world, and it is as we are in the world that we come to be, to know, or to act in that same world, becoming acquainted and involved with objects and other beings. Our familiarisation with an object results "from experiencing it many times, which is a process that performs an unconscious induction all along" (Schmitt 1996:141). It is our acting and involvement in the world, the *being-in-the-world* in Heidegger's (1962) terms, the *life-world* in Husserl's (Husserl 1970), or the form of life in Wittgenstein's (1967) words that familiarise us with objects and events. This familiarisation happens on our terms, that is, indubitably in consciousness and according to its rules.

Because empirical objects and empirical events are recognised in accordance with the structure of consciousness—which they presume—they must be logically consistent and must be supported by evident foundational concepts. As intentional objects they rely on data from sensory experience and are a source for phenomenological investigation. But what is more, is that at the core of the phenomenological way of proceeding is the capacity of consciousness to vary from examples to common-ness, from particulars to the general, from existences to essences. This reasoning always occurs in both directions, from essences to actualities and vice-versa. It is precisely this variation that allows consciousness to identify what is shown in each domain. No satisfactory essential insight is possible without backing it by specific examples as their intuitive foundation. Intuiting essences requires constant reference to concrete examples - "Contrary to common belief, essential insight will not lead us to indulging in empty abstractions but to shuttling back and forth between the concrete and the abstract" (Spiegelberg 1975:63). "[A]ll phenomenology has to be concerned about verification" (ibid.:117).

Hence the findings of a phenomenological analysis should be projected onto those 'matters of fact' in which it has its sources, both as a coherent possibility and as a new horizon to understand human action in the world. Its results can be applied to specific situations, enhancing its understanding, and clarifying what is at stake. An important possibility of this method, in fact, is the possibility to relate the investigation developed to an 'actual world'.[224]

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[224] Given this understanding the traditional distinction between theoretical and empirical researches blurs. The distinction between theory and practice does not stand on phenomenological grounds (Heidegger 1981, 1984). Whatever the research method used, the investigator is always dealing with differences in consciousness; always

Phenomenology may help us to uncover what is essential or necessary in particular happenings or events, separating it from that which is merely accidental or contingent. To understand what is essential, not being diverted by incidental features, is a relevant achievement in our own activity in the world. Essences, as they are what they are in consciousness, are the way in which we relate ourselves in and to the world.

Phenomenological descriptions, as descriptions of intentional objects, are descriptions of our own being in the world; thus, their most fundamental meaning must be experienced in their own application to the things themselves. Because we ourselves are a being-in-the-world our experiencing of the things in themselves is unavoidably an experiencing in and of the world – a world with others in which its believed empirical character has a decisive role.

The question for the relevance of phenomenology for the empirical world should still be addressed from a different starting point. The aim of phenomenology is to describe phenomena. One can say that it makes little sense to describe something for oneself. A phenomenological description is a bringing to the foreground of that which is already assumed, experienced, embodied as we are in the world. It is primarily destined for others, not for oneself – "the primary function of a description is to do something for others, to write (*scribe* in Latin) something off (*de-*) the phenomena which they can then "'read' off" (Spiegelberg 1975:125). Description happens in language and language is in its nature intersubjective; it is our own structural coupling; there is no such thing as a private language (Wittgenstein 1967). Thus, the phenomenological description always presupposes others, always refers to others. That the prime objective of phenomenology is to describe phenomena can only mean that its basic intention is intersubjective, thus directed to affect the behaviour of others.

We should note that phenomenology is often taken as a philosophy or as a science concerning the subject matter to which well known phenomenologists have applied it. Strictly speaking, that is not the case. Although the works of Husserl and of Heidegger, among other phenomenologists, clearly ending up on ontological and epistemological

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within his structural determination from his own perspective and throwness, always assuming a world always already there. Heidegger (1981:60) commented on this aspect, in the *Der* Spiegel interview, as follows: "Thinking is not inactivity, but is itself by its very nature an engagement that stands in dialogue with the epochal moment of the world. It seems to me that the distinction between theory and practice comes from metaphysics, and the conception of a transmission between these two blocks the way to insight into what I understand by thinking". This means that the distinction between theoretical and empirical research can only emerge against a background that previously has opened up the world as *res extensa*, an object, upon which the detached researcher, the subject, assumed to take effective causal and intersubjective action. Apart from that there would lie theoretical reflection, which *a contrario* would account for a non or a less effective, causal, and intersubjective action. Husserl's (1982) claim "we are true positivist" is to be understood within this context, which ultimately bases all knowledge on the subject's experiencing of the world. On the other hand, a phenomenologist is always in the world as well. He deals with data from and in that world. The kind of analyses he performs upon that data obey the rules of logic while assuming the self-evidence of particular claims, which is also the way any other method of research proceeds. A key difference between phenomenology and other methods of research might be the fact that phenomenology does not engage itself in generating new data, but it takes for its object data already available in the world, which as itself is, is what already enables a particular phenomenon to be recognised as that which itself is.

grounds, they do not commit phenomenology to their results. [225] However, the phenomenological path that lead to those results, in its rigor, logic and evidence, can serve as theoretical foundations for further phenomenological investigations, as long as the new findings stand full scrutiny on the grounds of the phenomenological method of investigation.

Because existence remains bracketed in phenomenological reflections, statements about the essence of the phenomenon should not describe something observed in the actual world, "nor are they true because they are warranted by a series of observations of particular objects or events" (Schmitt 1996:141). They are true, as it were, because they are statements about the necessary conditions an object must have to be a certain kind of object, and because these statements are built on evidence and logic, only accepting those elements and relations that are absolutely necessary for the recognition of the phenomenon in question to take place.

All that phenomenological statements assert, is the necessary properties or features a phenomenon must have to be that same phenomenon. Phenomenology wants to reach phenomena as they are in consciousness, on which all further knowledge, given from sensory experience or from logic, are to be developed. Because the notion of essence is an *a priori* feature of consciousness, it is apodictic, it is possible to eliminate all the personal varieties of experiencing and admit a common and intersubjective ground of being in the world. This argument refutes any attempt to condemn Husserl's phenomenology to solipsism, which Husserl strongly opposed from the start.

Phenomenological statements are only formulated after each and every element and relation of the phenomenon have been fully scrutinised on the grounds of the phenomenological method. This is the reason why, through logic and evidence, phenomenological investigations are falsifiable. Every phenomenological statement, reasoning, argumentation or suggestion is always open to further scrutiny. There is always the possibility for new investigations to take the phenomenon researched and show that some particular development or some specific conclusion cannot be fully supported by logic or by evidence. For example, let's take a hypothetical phenomenological investigation into the phenomenon

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[225] Husserl (1964, 1970b, 1982, 1995) used phenomenology as a method to find the indubitable, primary and self-evident basis of knowledge. He applied it to research consciousness, that is, to investigate the subject who was performing the *epoché*. He designed and applied the phenomenological method of investigation to himself, the subject who is performing that same methodological application, culminating his investigations in the *pure Ego*, and proposing the well-known theory of 'transcendental idealism'. Heidegger (1962) applied the method to describe the world we live in. He applied phenomenology to the question of Being, using the Being of man as a clue and as a way for the investigation into the meaning of being. Heidegger's (ibid.) work reveals that phenomenology regarding its subject matter addresses the being of entities, i.e., the *is-ness* of entities, their essences. While applying phenomenology to investigate the meaning of Being in general – *what does it mean to be?* – Heidegger (ibid.) came to the conclusion that phenomenology becomes "fundamental ontology" (ibid.:61). Heidegger's (ibid.) conclusions differ fundamentally from Husserl's (1964, 1970b, 1982, 1995) because, on the one hand, the phenomena under investigation are different, and on the other hand, Heidegger (1962) found it impossible to 'reduce' consciousness to a *pure Ego* in Husserl's manner, which in turn reveals man's 'being-in-the-world' as an irreducible foundation for knowledge.

of table, concluding that the essence of table is a material location, standing on one or more legs, which one can sit close to in order to perform some activity. Now, further investigations can show these findings to be incorrect. It might be proved that a table qua table can stand without legs, or that it might still be a table without being appropriate for people to be seated at it, and so forth.

Because a phenomenological investigation is one of evidence and logic there is always a possibility for it to be questioned on these same grounds. New investigations into the same phenomena can show the impossibility of taking a particular proposition as evident, or can show that there are logical errors in some of the steps of the investigation, thus, placing its results in doubt.

With this in mind we develop in the following three sections the theme of the empirical relevance of this phenomenological investigation into IT and strategy.

6.2. The Readiness-to-Hand of the Findings

The essence of IT is replacement. The essence of strategy is authenticity. The way in which these phenomena relate to each other is shown in the previous sections. The essences of IT and strategy and the ways in which they relate to each other are the central findings of this investigation. The pertinence of these findings was shown, we hope, on the grounds of the phenomenological method of investigation we applied. Accordingly we claim that the persuasiveness of the explicit articulations of the essences of IT and strategy is supported not only by the rigour of the method, which we think this investigation respects, but also by the actual evidence and intuitiveness of our findings for those who are familiar with both phenomena.

According to the theoretical bases on which our inquiry relies, presented in chapters 1, 3, and reviewed in the Appendices to Part I, and to the phenomenological method of investigation we applied, presented in chapter 2, the most important impact of our findings is the potentiality of their very readiness-to-hand.

Our central findings should not be taken as definitions in strict terms. That is neither the aim nor the possibility of phenomenology. The things that phenomenology is after are those of the ante-predicative life of consciousness (Merleau-Ponty 1962), those differences around which the words move throughout history and take different forms and meanings in different contexts and situations.[226]

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[226] A sound example of this argument is the words used for presenting the phenomenological motto, *To the things, themselves!*, when opening this chapter. Those words, either in German, English or Portuguese, identify the motto but they are not the motto as such. That the *thing* is referred to in three different languages, with very different words from one language to the other, is a clear indication of how words are never the thing as it is. The thing is that which can be referred to by different languages, and formally uncovered in its diverse meanings, implications, references, and possibilities. This argument holds as well for indications of a phenomenon in diverse historical moments, either within the same or different languages.

As we try to capture the essence of the phenomena of IT and strategy we come upon richnesses and complexities that escape straightforward definitions because of their entanglement with the being-in-the-world we are, which is throwness and projecting, always within an autopoietic structural determination that is unique to each human being. Our ongoing action is an always changing and shaping of the references in which we always and already are involved. World is what matters to us and how it matters. It is from this perspective that the articulations we presented on the phenomena of IT and strategy should be taken.

The critical question we have to answer now is: What do these findings mean for our ongoing action in a world that is our unique, singular, and changing involvement whole? Our answer can only be provided on the grounds of the ontology on which we base this investigation. This signifies that what matters the least are those kinds of conclusions or implications that might be referred to as definitive present-at-hand entities. As a *who* that relies on a background of readiness-to-hand, man's involvement with IT and strategy should be accessed from the perspective of our own being-in-the-world, of the stands we take on our possibilities for being.

The natures of IT and strategy belong to the ongoing action of man in-the-world. IT was uncovered essentially as a background with ontological contours. Strategy was pointed out as a way of man to address his own beingness in the fundamental mode of Dasein being authentic. These phenomena address the whole experience of a man, a community, or an organisation. On this account the key findings of this investigation have their chief empirical relevance centred on the kind of effects they might bring to action as it unfolds intuitively and instinctively, that is, according to the readiness-to-hand of our findings, either when later on we consider their major or minor effects, or just within our ongoing non-thematic transparent action in-the-world which might never be reflected upon directly but only assumed as a background.

Grasping and sharing the essence of a phenomenon does not lie fundamentally in its direct articulation in language, but in an embodiment that affects and shapes our actions and the appearances of phenomena, as we become involved with them. Our action in-the-world always and already relies on a non-thematic grasp of essences, for which phenomenology is not relevant at all. However a phenomenological uncovering of essences does play a role in our dealing with phenomena. The making explicit of the essences of IT and strategy has the potential of assisting effectively the embodiment of phenomena, that is, of smoothing or triggering in those for whom our findings make sense the absorption of the essences of the referred phenomena.

All of man's activities, either mental or physical, are always and already based upon the phenomenon of being-in-the-world (Heidegger 1962, Merleau-Ponty 1962).[227] We are thrown into the world, always with a past (Heidegger 1962). The structures we have/are, in the autopoietic sense, determine the world in which we are at each moment. Each distinction is determined in accordance with our own identity. What we know anew depends on what we knew. What we do depends on what we have done and on the particular tendency we experience at each instant in accordance with the constant and embodied realisation of who we are. The human being is thus an historical system (Maturana and Varela 1980, 1992). It is a permanent search for patterns that are coherent and consistent with what we are for ourselves. In repeating what has worked, we are throwers, triggers of effects, always and already acting-in-the-world. Reflections are a particular way of being human, whose linkages to action are unpredictable on account of the uniqueness and of the structural determination at each particular instance of each particular individual.

The predictability of human action is a notion grounded on the perspective of the observer, which is not the one pertinent to the domain of living beings. Thus, there is a fundamental impossibility of one living being accounting rigorously for the future behaviour of another living being. Moreover, a human being cannot consistently predict his own behaviour, as his actions rely mainly on a background of understanding of what has functioned, which as a background cannot be brought to the foreground of his attention and reflection, and made explicit, but can only be *a posteriori* accounted for. As (Nietzsche 1969:65) wrote, "the thought is one thing, the deed another, and another yet is the image of the deed. The wheel of causality does not roll between them."

The ways in which action and thinking relate to each other, which is a very relevant theme for addressing the impact this investigation might have on the empirical world, can be found at the essence of Dasein. Dasein in always already acting in language. Language is what Dasein *is*; it is its world. Because of the ontological character of language, addressed in chapters 1 and 3, and also because of the domain of the Cartesian subject/object paradigm, referred to in chapters 1, 2, and 3, many contemporary analyses and researches into the complexities of human action tend to assume some kind of a linear correspondence between what we say and what we do. Yet, it is evident that things do not work thus easy: the best performer is not usually the best explainer; the manager in many cases, if not in most of them, has already acted when he is looking for justifications in language; the person who knows best how to describe how a car functions is not the one who knows best how to drive a car. These examples point to the central issue of embodiment, which is

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[227] Moreover, always already in-the-world, living, action, learning, changing, knowing are the same phenomena (Maturana and Varela 1980, 1992, Introna 1997). It is only in language that these notions become accessed as diverse phenomena. Only humans distinguish those phenomena, which essentially are united in the basic phenomenon that a living being is.

accounted for by the two different meanings of the verb 'to know' – *knowing how* and *knowing that* – as detailed in Chapter 3.

In action what is decisive is knowing how – action *is* knowing how (Maturana an Varela 1992; Heidegger 1962). To know that has not a straightforward relation to action. Action influences action itself, just as reflection influences reflection. The linkages between these two modes of knowing, of acting in-the-world, are established in the domains of structural determination and structural coupling. For knowing that to become knowing how there is a necessary embodiment and most often an actual experience of the distinctions in question.

Relying on the readiness-to-hand of a background, dwelling on the familiar, we spot the differences in accordance with our throwness/structural determination and with our projections/self-referentiality. We maintain autopoiesis, tending to do what has worked. What are stressed in acting, becoming entangled with who we are, are ready-to-hand entities. The future possibilities of ours always already assume a background of readiness-to-hand that firstly and fundamentally supports our action. Thus, as we immerse ourselves in reading, hearing, and thinking about what functioned or not in the past, it triggers compensations in us devised to maintain the structural coherence of autopoiesis. While aiming at maintaining identity, the constant interplay of perturbations and compensations opens new contours, meanings, and possibilities. Coherence of our autopoiesis is stressed and we adapt, change, as we spot distinctions and respond, that is, as we act and learn.

In this constant living learning, that is in our structural apprehending[228] of our future possibilities, the past is continually revealed differently. Thus, what worked gains new ways, meanings and possibilities. Understanding is thus an arresting of new experiences and descriptions that make sense for us in the realms of our life. As these insights make sense for us, as they are considered appropriate in terms of our coherent functioning, we apprehend them and make them elements of our structure. As embodied information, that is, as knowledge, what functioned continually changes as new distinctions reveal new meanings and possibilities. So, to know that, describing, thinking and reflecting, influence action in the degree to which they transform the acting living being, and thus become knowing how – this is why "thinking changes the world" (Heidegger 1984:78)

As we grasp a new difference, as we absorb its essence, our world changes; sometimes in radical ways, as was shown in Chapter 4 in the example of Yavlinsky hearing The Beatles. This signifies that the changing of our world, of our involvement whole, is the changing of ourselves. We always and already are changing as we act. To live is to change. The degree in which we change is dependent on the intensity of the embodiment of differences – of learning – in which we engage.

What is apprehended becomes part of the past experience we are. The historicity on which we base our actions is our embodied understanding of the past. To learn or to apprehend

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[228] Apprehending means both to understand and to arrest (OPDT p.32).

thus means to change the past. Because what we project links to what we have been, in that we always and already are a pursuing of an internal coherency, the changing of the past is a changing of the future. As we learn, that is, as new distinctions make sense to us, we change our past, thus since we are structurally determined beings we alter our pattern of action for the future. The embodiment of a knowing that, which comes from its relevance, usefulness, appropriateness in actual experiencing, usually leads to a new knowing how that tends to affect our actions intuitively and permanently.

As we are able to experience new distinctions in action, new paths and new meanings emerge for us. However, the knowing how cannot be substantively articulated in language because it is what we are as such. Just as an eye cannot see itself (Maturana and Varela 1992), the background, that is, the knowing how on the basis of which the foreground is shown, cannot be brought thematically to the centre of our attention. Knowing how, that is, knowledge as such, as we characterised it in Chapter 3, is that against which distinctions emerge. Thus, embodiment, the absorption of new distinctions, while change our structure, affect our future behaviour. Although this changing behaviour cannot be predicted, it is certain that the pattern of action would always tend to repeat what we genuinely understand has worked.

Thinking and learning while stressing the absorption, i.e., the embodiment, of the essences of IT and strategy, affect action in that they transform the subject. Having shared the essence of IT and strategy, our action in-the-world, which fundamentally is action itself, when entangled with the issues those phenomena touched upon, would emerge accommodating the implications and ramifications that those essences would have in concrete situations in which we would be involved. To put it bluntly and summarising what is being addressed here, we may recall Nietzsche's (1969) insight in that knowledge is fundamentally instinct (refer to Chapter 3). This perspective allows us to grasp clearly Francis Bacon's (1561-1626) words in the effect that *knowledge is power* – it is power because knowledge is doing (Maturana and Varela 1992). In the light of this we may also grasp a deeper meaning of Kurt Lewin's saying that "there is nothing so practical as a good theory". The 'good' character of a theory is thus the ease in which it is embodied and turned into action, becoming the most practical of all knowing. As instinct, knowledge unfolds in action.

Hence, our aim would be for us to say of this phenomenological investigation into IT and strategy what "(…) Robert Theobald has said of economic depressions: there is one additional factor that has helped to control depressions, and that is a better understanding of their development" (McLuhan 1994:6). This is the chief contribution this investigation aims at: a better understanding of the phenomenon of IT and strategy.

This phenomenon of learning/changing/acting can only be formally indicated, attempting to recover the kind of experience each one of us has certainly had. A clear example of the nature of this phenomenon, and of the kind of impact our findings might have in the realm

of action, is the challenge that one sometimes faces when trying to describe some difficult or complex concept in our own words. Often, a student is urged to explain some particular issue 'in his own words', as a way of ensuring that he really and genuinely understood what is in question. This practice, assumed as a decisive test of the student's ability, rests on the evidence that an intuitive and not previously thought articulation in language of the issue in question is the best approximation one might have of the student's knowledge of that same issue. In these cases, traditional definitions and words of gurus are dismissed, as they are considered not appropriate for assessing the student's knowledge of the issue. The crucial point presupposed here is that action as such is always singular, individual, and the individual acts in accordance with himself, with his knowing how. The capacity of someone to articulate intuitively certain phenomenon is taken as an indication of the possibility that he has genuinely understood that same phenomenon. Our argument is that this genuine understanding is the mastering, the full embodiment, the turning into ready-to-hand of the essence of a phenomenon.

Because the essence of IT and strategy were accounted for on the grounds of an explicit ontology, the findings of this investigation not only aim at responding to what these phenomena are, but also and mainly they aim at *corresponding* to them – in the sense that Heidegger (1977:23) urges us to face the unfolding of *enframing* – in a way in which while preserving our own essence, as the beings we ourselves are, we would be able to transparently, thus non-thematically, adjust to these phenomena in-the-world putting into action our knowledge about them while maintaining ourselves as what we are.

The sharing of the essence of the phenomena of IT and strategy is an inward-forming, which as it becomes embodied, turns into ready-to-hand information, that is, turns into knowledge about the phenomenon. This knowledge shapes our actions that directly or indirectly address the issue those phenomena touched upon because it forms part of the background against which our transparent action unfolds and has its meaning. Knowledge affects our ongoing behaviour, choices, and actions, whether they happen transparently and instinctively or are previously thought about and then carried out; yet, in this latter mode the *correspondence* between our actions and the phenomena addressed is not linear because it evades the primary and grounding domain of non-thematic action and enters the domain of reflection and language, which, as presented, influences action in complex ways. In this sense the opening up of the essence of IT and strategy means that we, as we ourselves are, become able to relate *freely* to those phenomena, that is, as that which we are, because the phenomena have been made manifest in their wholeness, thus enhancing our capacity for not being surprised or puzzled by their manifold possible manifestations. Our findings on IT and strategy are thus devised, as they make sense for those who access them, to become part of their structures as human beings, and in that form they enter in the most decisive way, through embodiment, the realms of action.

While acknowledging that in actuality each manifestation is unique, in describing and absorbing the essences of IT and strategy we moved to establish *a free relationship* with those phenomena (Heidegger 1977, 1981, 1966, 1969, Zimmerman 1990, Dreyfus 1995). For our case, this aim was pursued in accordance with Heidegger's (1962) argument acknowledging that IT and strategy would only show themselves as what they are, in their very functioning in-the-world.

To live is to know, and to know is to act (Heidegger 1962, Maturana and Varela 1992). Thus, the opening up of the essence of IT and strategy is in itself the central answer to the question of what our findings imply for the assumed empirical world. The kind of implications presented above is the chief impact this investigation might have on the empirical world. They draw on the readiness-to-hand of a genuine grasping of essences, and they would emerge fundamentally from action, staying in action, and hiding in their obviousness and transparency. The actual experience each one of us has of how these findings assist us either intuitively or reflectively in our going on action in-the-world is a decisive test of their impact and usefulness. Having said that, we will present below an effort of trying to point out some concrete examples, as they might emerge from action, of the empirical relevance of our phenomenological findings.

6.3. Replacement and Authenticity In-the-World

The essence of IT is replacement, and its hidden meaning is immortality. The essence of strategy is authenticity and its deeper meanings are identity and structure. In order to answer our research question – *How does IT affect strategy?* – we need to relate these two essences phenomenologically. How does replacement link to authenticity? How does authenticity affect replacement? How do the hidden meanings of these two phenomena connect? How do these two essences come together in being-in-the-world? Do all these questions have pertinence?

In order to relate the essence of IT and strategy, let us now briefly recall the fundamental contours of both essences. IT has a dual and paradoxical nature. While it is evident that IT is a tool of human action, it is this very toolness of IT devices in all their pervasiveness that allows us to experience the essence of this phenomenon as something that could not be further away from its obvious character of tool. It is because IT devices are ready-to-hand in their typical mode of being, and because IT is what it is within 'the they', in everydayness, that the enframing of modern technology is revealed in IT as replacement. The pervasiveness, both in depth and scope, of IT devices in human activity, and their readiness-to-hand are fundamental for enframing to enter language and thus becoming replacement. In these basic conditions the ready-to-hand of IT grounds our age in that it becomes the background against which that which is appears. Replacement brings *Ge-stell*

(Heidegger 1977) and being-in-the-world (Heidegger 1962) coherently and consistently together.

Essentially IT is an ontological replacement. Technological information allows an embodied conception of that which is to unfold – it shows the real. The ITised referential whole is constantly sighted beforehand in circumspection as a whole and as totality. In this totality the world announces itself. ITised beings are part of an equipmental whole we find in action and we do not thematise.

Replacement is a letting-presence of what appears within an ontological and unique transformation in which the 'letting' itself is let be in a particular way. By affecting the 'letting be', moving in language, the modes in which humans structurally couple themselves to each other and to environment, IT pushes towards the stabilisation of the mechanisms that accommodate its own unfolding. This is first shown in globalisation, which is an appearance of the essence of IT.

The unfolding replacement gains its meanings against that which it is about to replace, a real already grasped in its worldhood. As a background against which what is appears, IT is an ontological *informing* that orders meaning in that it captures it in a system, replacing the real, and letting enframing strengthen its path towards an efficiency whose ultimate aim is the very mortal condition of man.

Beings-towards-death is the real that grounds the primary meaning of replacement. We die, and it is on account of this always and already non replaced reality that replacement always has to have a decisive reference to the non replaced reality. It is in these realms that the hidden meaning of the essence of IT has been shown as being immortality. The conquest of immortality is the concrete articulation in the phenomenon of IT of the hidden meaning of modern technology, uncovered by Heidegger (1977) as *the danger* as such, which is nothing less than the threat of becoming what we essentially are not.

Hence, replacement as an ontological essence under the lens of its deeper meaning of immortality reveals the full breadth of the path of IT-in-the-world, one in which instrumentality is indeed correct, in spite of not addressing IT devices but the real as a whole.

As far as strategy is concerned we concluded that its essence, whether in war, business, or politics, does not rely on plans or intentions but on the degree of resoluteness from which those plans or intentions come. This resoluteness appears in a choosing to choose that is vital in itself. This choosing to choose is a transformation of our presence in-the-world, one in which we stand for our uniqueness, limitedness, and resolutely face the possibilities of being ourselves into the future.

Choosing to choose is essential to strategy because it precedes whatever strategic behaviour one might have, and, as it stretches (*strnâmi*) into authentic future, it affects future behaviour and outcomes. Being resolute, one's world opens up into unique and meaningful

possibilities. Resolutely, we care for what we are and for what we are doing. We choose to choose, we opt and do not follow, and we evade the obvious and pressing behaviour of 'the they'. Choosing to choose is as much a conscious options as a pattern of behaviour. Both are characterised by resoluteness, uniqueness, and by a fundamental stretching of ourselves into the future, that is, by authenticity.

In resoluteness the manager no longer exist as a falling they-self, but he experiences an intense seizing of his future and of his throwness. Being authentic, things, outcomes, conflict, possibilities, tendencies, others, matter to us in an intense and involved way. Resoluteness enables the manager to make decisive choices and to take vital actions, which would need to be reinforced again and again because of Dasein's structural tendency to fall into 'the they'. Only by continuing to be authentic, that is, only within an authentic identity, can strategy, as an authentic intention, plan, or pattern, come to be a fulfilment of the possibilities the manager and the company aim at for their future. So strategy relies on a constant experiencing of an authentic identity. Authenticity is the essence of strategy. It is vital in itself, and accounts in a fundamental way for the elements of the future and identity: authentic future and authentic identity hold together in the essence of strategy.

Only by being authentic, by resolutely having chosen how the world is meaningful to us, would we be able to develop that kind of knowledge, that is, of embodied information, that instinctively as a ready-to-hand entity, would assist us in pursuing our strategy. As it unifies an entity on the grounds of a projection of itself, authenticity achieves consistency in action. It leads to a coherent behaviour that relies on an embodied and intuitively shared meaning of what an entity is and desires to become. This is why at the point of action authenticity, that is, strategy, becomes the structure itself. How an organisation acts relies on the elements of its structure – its components, respective properties, and the relationships between them. Thus, immediately and in the long run, strategy is the structure.

Strategy aims at maintaining a structure that adapts and evolves, not just for the sake of maintaining its organisation but because it fundamentally aims at maintaining its identity. This can only be achieved by the *same* structure thriving. At an essential level strategy follows structure because authenticity has to take into account the will, the possibilities, and limitations of the very structure as it is for itself. When understood within a horizon of future possibilities and of having an authentic identity, this preservation of the mineness of the structure shows up as the hidden meaning of the essence of strategy.

The essence of IT is replacement, and its hidden meaning is immortality. The essence of strategy is authenticity, and its hidden meaning is structure/identity. So, how do these two essences relate? The answer to this question relies on the application of the phenomenological method, as it is described in Chapter 2, particularly in the section on phase IV of the method. In order to uncover the essential relationships between IT and strategy, that is, to explore "the nexus among them in its necessity, possibility, or impossibility" (Spiegelberg 1994:700), we need to scrutinise both essences on the grounds

of their very *is-ness*: if they *essence* over each other, if they resemble each other, if any of them, or both, hide in the face of the other, if they both change while facing each other, if they do not affect each other, if they strengthen their unfolding while facing each other, and so forth. We should open ourselves to the ways in which these two essences might link to each other. The method applied, as presented in Chapter 2, is based strictly on self-evident claims or on logical operations, which can both be made on grounds either of the ontology on which this investigation is based or on the contours and elements of the identified essences of IT and strategy. This phase does not imply any kind of empirical verification. However we will point out some particularly relevant implications of the findings for the empirical world.

We should start our verification by addressing what most intuitively comes to consciousness as a possible and evident relationship between the two phenomena. The ontological character of the essence of IT immediately suggests that, as a background, IT forms that kind of revealing against which each and every context of strategy emerges. IT would be a background of strategy. IT would be the kind of revealing against which are set both the context and the possibilities managers and organisations grasp for themselves. To some extent this relationship is correct. The essential nature of IT is being an ontological revealing. As such, strategy or any other phenomenon we come across in-the-world only appears on the grounds of that same revealing. In part this is indeed so, and we provided several examples of that in Chapter 4, of which the most striking and obvious is globalisation. Yet, as we will show below, this only takes place within 'the they' in everydayness.

A closer look at the elements, references, and paths of the phenomena of IT and strategy lead us into a much more paradoxical realm of relationships. The essence of IT is not an ontological revealing as such, but a kind of unfolding that bears the contours of an ontological revealing. This revealing, which we identify as replacement, gains its most decisive meaning by reference to man's ontological condition of mortality. Replacement as such is an unfolding of itself, never an achievement of its destiny. Thus, as we explained in Chapter 4, IT essentially is a claim for backgroundness, not the background as such. Man, primarily and decisively is a being-towards-death. His grasping of IT, strategy, and whatever phenomena might be, always relies on a primary understanding of worldhood. This gap, so to speak, between replacement and its completion, that is, between the ersatz and that which already is, is what enables us to question the meaning of the claim of IT for its essential backgroundness.

Just as quantum physics does not apply to particles or waves as such but to our knowledge of the particles or the waves, as we referred in the last passages of Chapter 4, so does IT not apply to the real but to the real as revealed by IT itself. That the realness of IT corresponds to the real as such is an epistemological assumption that the ontology on which we base the investigation does not support. Thus, when accounting for the essence of IT we should

consider replacement as what it is, not as its destiny. This is something that is neither evident nor easy to consider because IT-in-the-world, in everydayness, has ready-to-hand as its typical mode of being, and functions for the most part within the unfolding of the structural tendency of Dasein being lost among 'the they'. To conclude this point, we should stress that replacement, as it is, has a way out of itself, which is the difference between a background and a claim of backgroundness. The hidden meaning of IT, immortality, in fact reveals that man's mortality, that is, his ontological condition, is something that grounds *a contrario* the very phenomenon of IT – that is, replacement assumes being-in-the-world.

As a background, IT does not come to our explicit attention; precisely because it is in the background. Either being used, or hidden in the background, ready-to-hand entities do not come explicitly to our attention. IT has these kinds of contours. While using a PC we are focused on something other than the PC itself. While conducting a business meeting we rely on a background of ITness that makes our actions meaningful on account of the possibilities of PCs, mobile phones, fax machines, the Internet, and so forth.

Like any readiness-to-hand, this readiness-to-hand might experience breakdowns. IT certainly becomes occurrent when the company's network does not function anymore, but its breakdown is more intensely experienced when, for example, Dasein is *anxious*, experiencing not being at home (Heidegger 1962), or when he experiences a moment of vision, grasping his own limitedness, taking his past for himself, and taking a stand on his potentiality-for-being by choosing to choose (ibid.). This last example is of paramount relevance because it uncovers directly and unambiguously the essence of strategy. Nothing happens in a moment of vision (ibid:388) but the brightening and changing of all of our past and future. Away from 'the they', in a moment of vision IT disappears; it does not only retreats into the background, but it changes into something a manager or an organisation can count on when pursuing their authentic ways in-the-world.

Hence, authenticity is a being free from 'the they', which is an essential element of the way in which IT unfolds in-the-world as replacement. This reasoning as such does little to clarify the relationships between IT and strategy. This is so because IT is nowadays to a great extent indispensable for us – this much is evident. The readiness-to-hand of IT grounds our age, and as such those who think of plans or patterns of action for an organisation must take it into account in a deep and thorough manner, as to some extent being simultaneously inside and outside replacement. A critique of McLuhan (1994:69) helps to clarify the challenge that runs through this: "[H]ow do whole communities act when conquered and enslaved? (…) They specialize and become indispensable to their masters". Thus, to what extent are the masters not slaves as well?

Nowadays a strategy cannot be effective without relying on the backgroundness of IT and counting on the instrumentality of the IT devices. Being-in-the-world has IT as one of its actual elements. There is nothing necessarily authentic in simply denying the role IT has

been playing in modern societies. Quite the contrary, authenticity implies a genuine recognition of where we stand, of what our possibilities are in-the-world in which we are living. The ontological challenge that falls on man to be authentic is always a possibility for him, in-the-world with or without IT. As long as man is man he is always challenged to be authentic.

This picture shows us a highly paradoxical relationship between the phenomena of IT and strategy. On the one hand, if a manager or an organisation does not share ITness, that is, if they do not involve themselves with IT devices deeply, intuitively and permanently so that the IT environment becomes ready-to-hand, they might never come to share the background, the cognitive schema, that constitute the context within which an ITised world moves. Thus, by being outside ITised possibilities, managers or organisations might place themselves at a clear competitive disadvantage. On the other hand, by fully sharing the IT background, by being immersed in IT devices, environments, and possibilities, one risks being completely engulfed by 'the they', relying on an IT background, which as replacement, essentially falls short of that which is. Furthermore, in this latter case, and we recall an argument introduced in Chapter 3, what is most relevant is the know how of a driver, not that of a mechanic. As one in engulfed by 'the they', doing what *they* are doing and what one 'is supposed' to do, one might lose the possibility of disclosing one's own authentic identity, which means getting involved with an effective strategy.

This paradox lies at the heart of the relationships between IT and strategy. Thus, to some extent the most apparent and fundamental relationship between IT and strategy is a clash. Replacement is a background, a way of a particular domination. Strategy is a strive to be authentic, thus aiming at removing us from any kind of domination. So, it would seem whenever IT were in place as a background, strategy would be preempted from appearing in its own essential contours. On the other hand, it would seem that whenever one resolutely pursued one's future, facing one's possibilities and limitations and taking an authentic stand of one's own, the IT background would not be in place. The impossibility of this reasoning lies in the fact that IT is now an element of being-in-the-world, and as such we are always and already living-in-IT. Our involvement counts on IT as a background.

IT discloses in advance the involvement whole of those whose activities directly and indirectly rely on the readiness-to-hand of IT's ontological revealing. The transparency of IT devices is part of our options, actions, reflections, and mostly of our assumptions that support action. That in which one is involved while acting "is the 'towards-which' of serviceability [for example, a PC as a writing device or a mobile phone as a coordinating device], and the 'for-which' of usability [a report to decide on an issue, or an arrangement for us to meet someone]" (ibid.:116). Any involvement is always outlined in advance (ibid.).

A report *per se* has no involvement whatever. Only because it is a report already belonging to a referential whole, that is, referring to other entities, does it have its specific meaning.

That which an entity is in its readiness-to-hand depends on the totality of references in which it shows up within our involvement whole. IT's readiness-to-hand entity is thus an entity only found within a totality of already in place references (ibid.:107). The involvement IT has is something, in each case, that has "been outlined in advance in terms of the totality of such involvements" (ibid.:116). In an office, for example, the totality of involvements that are constituents of IT in its readiness-to-hand, is discovered before any single item—what a report, a PC, a mouse, a desk, a screen, a pen, and so forth are, is founded on the referential whole to which they belong. None of them is independent from the other. None of them is what it is if it were not discovered in its involvements. What they are shows up against a previous involvement based on IT as a background.

The whole of the office comes before the references the items have to each other. The office makes understandable the items we found in it as usable items towards doing the work supposed to be done. A PC is ready-to-hand in-order-to a working possibility; a report is a towards-which our specific deadline or goal; all of the office equipment makes sense to us, thus has its meaning, its usability, for-the-sake-of our own life as a professional. This last for-the-sake-of-which is, in its turn, dependent on Dasein's fulfilment of a possibility, which is what Dasein essentially is.

Hence, the pertinent question at this point is this: How does the essence of strategy unfold in the face of replacement? The answer is manifold because the essence of strategy relies on a particular mode of man being in-the-world, authenticity. Thus the issue, is not to take into account the essence of strategy as some present-at-hand entity, which as replacement is unfolding would be preempted from showing up as itself is, but to acknowledge that within replacement or not, as long as man is man he always has the possibility of being authentic. By taking an authentic stand on his life, man, let's say a manager, a community, an organisation, sets the ground for the essence of strategy to unfold as it is. This opening up of authenticity still does not remove IT, thus replacement, from our being-in-the-world. IT is now a part of being-in-the-world as long as it is non-thematically recognised as the phenomenon itself is.

This means that strategy is a phenomenon whose possibilities to unfold in principle do not vanish in the face of replacement. However for that to be the case one has to consider being authentic. *A contrario* this means that whenever we are acting within 'the they' strategy, as itself is, does not show up. IT is the background. It is not essentially grasped as replacement, but it is the very way in which what appears, appears. Within 'the they' the essential nature of IT is hidden, and because it is an ontological revealing, it unfolds in all its decisiveness and backgroundness. Any concrete strategy whatsoever, as long as it emerges within 'the they', is just a timid appearance of itself, never enabling an organisation to authentically seize its limitations and possibilities. Within 'the they' the claim of IT for an essential backgroundness achieves its destiny and becomes the real as such. Within a background of ITness it is this very ITness that does not show up. What

show up are just IT devices as such, as tools, instruments, at the service of the actions of our organisation. This obvious and common understanding of IT, as argued in Chapter 4, is what simultaneously makes us absorb the essence of IT-in-the-world and yet prevents us from catching sight of it.

Replacement engulfs the organisation and managers move within a closed system in which everything that appears, the elements of the organisation, its professionals, routines, technologies, structures, partners, competitors, clients, and so forth, are always and already revealed in terms of ITness. Traditional approaches to IT, reviewed in Chapter 1, while taking into account IT as a decisive aspect of the organisation's strategy, fail to grasp the essential nature of this phenomenon, and thus conclude with the pertinence of a clear alignment of IT with strategy. The instrumental notion of IT is the key assumption behind the strategic alignment models. The supremacy of strategy over IT fails to grasp that IT is the very background against which 'strategy' is only attempting to align the organisation. This is the fundamental reason for the shortcomings of the strategic alignment model, mentioned in Chapter 1 (figure 6.1).

Moving within a non grasped replacement, taking IT as a tool only, immersed in 'the they', managers and organisations are mostly followers of the path of IT. The possibilities and limitations of the company's action are not those of itself but those of IT. The organisation

Figure 6.1 – **Strategy and IT within 'the they'**
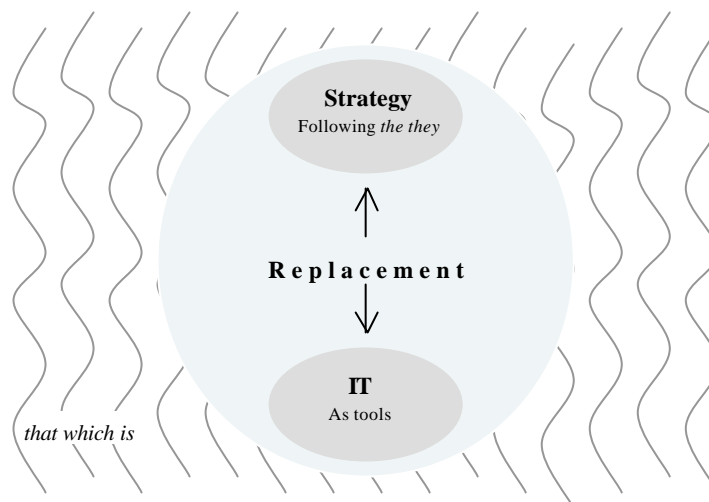
adapts itself to the flow of new developments of IT. It takes them as 'the they' takes their arrival in the markets. Each organisation sees as most urgent what 'the they' sees as most urgent. The organisation has to do what 'the they' is doing; TQM, reengineering, delayering, empowering, downsizing, M&A, SAP, intranets, ebusiness, B2B, B2C, and so forth. 'The they' sets the agenda. The company essentially is a follower. It is engulfed by

'the they', experiencing IT as an effective and non-thematic replacement, and not truly grasping its own possibilities and limitations. The future shows up along the unfolding of replacement. IT devices as such are the strategy (Hamel 2001, Porter 2001); yet, this is only a strategy in a figurative sense because it lacks its fundamental grounds of authenticity. Thus, strictly speaking, strategy is absent whether in plans, patterns of action, intentions, or dispositions. Within 'the they', replacement disappears into the background, thus setting the contours of what appears, and strategy is stripped of its essential authentic nature, which would preempt the company from an effective and intense involvement in its future, and from a correct account of the meaning of its actions in the present – the context is grounded on replacement, and meaning is grounded on 'the they'.

So, how might an organisation escape from this closed system? How might a company, while taking into account the indispensability of IT, account for replacement and strive to be authentic? The intuitive answer up to now has indeed been the right one: within authenticity itself. Authenticity is a basic mode of Dasein. It is an element of a world always and already there. Authenticity is always a possibility for man as long as man is man. Far away from 'the they', standing in the overwhelming presence of IT, recognising its own limits and possibilities, and above all sharing and embodying the ontological nature of the phenomenon of IT, an organisation might embrace strategy and might aim at securing the benefits of an authentic approach to its future. It is precisely the opening up of IT as replacement, its sharing by us, as we ourselves are, that frees us for us to have a genuine relationship with the phenomenon.

Zimmerman (1981) clearly addresses this experience, which is happening to all of us in diverse moments of our lives, in which a deep grasp of a phenomenon calls us to be authentic, and as our self-understanding of the world becomes transformed, our actions acquire new meanings and possibilities:

> "In fact, by depending on theories to explain things, I was able to postpone confrontation with truth. These sayings and theories revealed their proper depth only when I was called on to make decisions which alter my self-understanding. After one such decision, when I had experienced how truth could free me from self-imposed bondage, the real meaning of the Biblical epigram ["And ye shall know the truth, and the truth shall make you free", John 8:32, Bible 2001a] manifested itself through me. I say 'through' instead of 'to' in order to emphasize that the insight did not stand apart from me as a mere concept. It broke in upon me and transformed me. For the first time I understood the difference between easily acquired intellectual comprehension and hard-won insight. The latter is far more threatening because it involves change. In that moment, I was re-integrated with the world. No longer was I an isolated ego amidst a collection of objects. For a time, I was open to myself and to the world. Everything seemed to be renewed and filled with possibilities" (ibid.:xxiii).

This passage brings together two of the most important claims of this investigation; the one that knowledge is ready-to-hand information, and the other that stands for the role of authenticity in the opening up of the full meaning and possibilities of strategy. As hinted these two phenomena are intertwined: authenticity itself is an embodied grasping of our being-in-the-world in its deep limitations and full possibilities. This authentic experience,

which is at the essence of strategy, is the one that has the potential to bring us into a free relationship with IT.

The thematic grasping of the essence of IT, its opening up, articulation in language, and embodiment, surprisingly and paradoxically releases us suddenly from experiencing it as the background it claims to be although it essentially is not. This is a key argument of our phenomenological analysis of the relationships between the essences of IT and strategy. In order to make it clear and to indicate fully the difference the opening up of the essences of the phenomena in question makes to our actions, we will use some help from Heidegger (1977, 1966, 1969, 1981) when he urges us to enter a *free relation* with technology.

Heidegger (1977) claims that the hidden meaning of technology is *the danger*. Not a specific danger, but *the danger* as such. This means that the unfolding of technology is essentially a threat that we become what we essentially are not. This *danger* was shown to be also present in IT, in its hidden meaning of pursuing man's immortality. Thus, in immortality IT shows *the danger* as a threat to the essence of man. Heidegger (1977, 1966, 1969, 1981) argues that this *danger* could be overcome. He recalls a poem of Hölderlin in order to introduce what he is trying to say: *"But where danger is, grows / The saving power also"* (in Heidegger 1977:28). What is this saving power? How does it grow in the danger of becoming what we essentially are not?

To answer these questions, and to use them to clarify the way in which IT and strategy relate, we should stress that our position is neither one of trying to overcome the obvious indispensability of IT for our lives, nor of calling for some kind of control we should have over the pervasiveness of IT. Our quest is one of only trying to account for the phenomena of IT and strategy as they are what they are in-the-world. Having said that, we should add that Heidegger (1977, 1966, 1969), while accepting a central and a beneficial role that technology has in Western civilisation, and acknowledging that it will not be struck down, and most certainly it will not be destroyed (Heidegger 1977b:38), he strives to point out a path for man to live his life, primarily and fundamentally, in human terms and not within the overpowering technological understanding of Being. Heidegger (1977) calls this path a *free relation* to technology.

What precisely does this *free relation* consist of? We recall that the technological understanding of Being is the ontological character of enframing and replacement, which makes *ordering* to stand out, first onto beings and then into language, as the pure character of the subject-object relation of the centuries old prevailing Western epistemologies. Ordering, efficiency, the maximum yield at the minimum expense, are the essential characteristics of the technological understanding of Being. It is against this background that beings, that is, humans, animals, rivers, mountains, land, time, and so forth, are revealed as resources, energy, buildings, measures, and outputs; in short, we would say, that the technological understanding of Being reveals the real as *problems and solutions*.

However, *the danger* is not a simple problem for which we should find the right solution. It embodies an ontological revealing, harbouring within itself, precisely in the problem-solution framework, the clear and calculative subject-object dichotomy. Thus, Heidegger (1977, 1966, 1969, 1981) claims that focusing on problems and solutions is still to act in a technological manner. "Seeing our situation as posing a problem that must be solved by appropriate action turns out to be technological" (Dreyfus 1995:98). Heidegger opened up a different path for us to relate to technology.

While acknowledging the relevance and indispensability of technology, Heidegger (1977, 1966, 1969, 1981) points out that technology is an "ontological *condition* from which we can be saved" (Dreyfus 1995:99). How? The answer is by continuing to be ourselves, the being we essentially are, open to the Being of being and *caring* in-the-world. On its own terms, technology urges us to control it. On our own terms we should *freely* relate to it. Let us transcribe a passage of Heidegger's (1966:64) where possibly he is at his clearest on this issue:

> "For all of us, the arrangements, devices, and machinery of technology are to a greater or lesser extent indispensable. It would be foolish to attack technology blindly. (…) We depend on technical devices; they even challenge us to ever greater advances. But suddenly and unaware we find ourselves so firmly shackled to these technical devices that we fall into bondage to them.
>
> Still we can act otherwise. We can use technical devices, and yet with proper use also keep ourselves so free of them, that we may let go of them at any time. We can use technical devices as they ought to be used, and also let them alone as something which does not affect our inner and real core. We can affirm the unavoidable use of technical devices, and also deny them the right to dominate us, and so to warp, confuse, and lay waste our nature.
>
> But will not saying both yes and no this way of technical devices make our relation to technology ambivalent and insecure? On the contrary! Our relation to technology will, become wonderfully simple and relaxed. We let technical devices enter our daily life, and at the same time leave them outside, that is, let them alone, as things which are nothing absolute but remain dependent upon something higher. I would call this comportment toward technology which expresses 'yes' and at the same time 'no', by an old word, *releasement toward things* [*gelassenheit*]" (italics from the original).

Heidegger did not go much further on this issue. *Gelassenheit*, releasement, is the free relation to technology. However, and before we see how one might achieve this releasement, it is worth noting that Heidegger only witnessed the very initial phase of the unfolding of the phenomenon of IT – telephones, television, and the very first steps in computing. We should say that some of his ideas from above are difficult if not impossible to accept as being pertinent in the ITised world of nowadays. How would we be able to *let go at any time* of our mobile phone, PC, TV, Internet, and so forth? How would we be able to use IT devices, like the ones just referred to, in our familiar daily, professional, and social life, and, *at the same time leave them outside* our lives? That we some times anticipate how to manage in situations where we know we will not have access to a particular IT device, means that in general it is impossible for us to give up IT without introducing considerable perturbations in our daily routines. Nonetheless, releasement and

the way in which one might achieve it, continues to be relevant in our attempt to establish a correct and *free relation* with IT.

Releasement drives us away from the compulsion to control and master everything (Zimmerman 1990:219). This will, as referred to above, is technological in its nature; it is the very unfolding of the technological understanding of Being. Once we apprehend this we have necessarily moved away from that technological understanding of Being. That there is a technological understanding of Being means that we have grasped it from a diverse understanding of Being. "[O]nce we realize – in our practices, of course, not just in our heads – that we *receive* our technological understanding of being, we have stepped out of the technological understanding of being, for we then see that what is most important in our lives is not subject to efficient enhancement" (Dreyfus 1995:102), but to something that is caring, nearness, and choosing; that is a making something meaningful out of our life.

Hence, instead of trying to solve the *problem* we should recognise that technology is an unfolding of Being, and as such it cannot be mastered from inside itself on its own terms. Efficiency, inputs and outputs, problems and solutions, are all modes of the technological understanding of Being; their turning upon technology itself would never release us from technology. So, what shall we do? Heidegger's (1977, 1966, 1969, 1981) insight into this issue is enlightening. We should acknowledge that there is no exit from the *problem.*

Technology is the vocation of the West. By verifying this, if we genuinely understood it, we are freed from the compulsion to master technology – technology cannot be mastered. As we realise the technological essence we set ourselves free to live our lives as we choose. Zimmerman (1990:220) brilliantly synthesis this argument of Heidegger's:

> "Instead of trying to 'solve' the problem of modern technology by furious actions and schemes produced by the rational ego, (…) [we must] learn that there is no exit from that 'problem'. We are cast into the technological world. Insight into the fact that there is no exit from it may, in and of itself, help to free us from the compulsion which characterizes all attempts to become 'masters' of technology – for technology cannot be mastered. Instead, it is the destiny of the West. We can be 'released' from its grip only to the extent that we recognize that we are in its grip: this is the paradox" (ours square brackets).

The opening up of the full essence of technology, that is, fully grasping it as *the danger*, which reveals a particular understanding of Being, is equal to facing technology as that which we, men, are in-the-world. The *danger*, when grasped as *the danger*, opens up to us a free relation to technology (Heidegger 1977, Zimmerman 1990, Dreyfus 1995):

> "The self-same danger is, when it is *as* the danger, the saving power" (Heidegger 1977b:39).

The danger is *the danger* when it is not recognised as such. When it is recognised as such, it becomes the *saving power* because it is grasped in accordance with our own essence, caring for Being, it logically points to, calls, and enhances its contrary. "[T]he coming to presence of technology harbours in itself what we least suspect, the possible arising of the saving power. (…) How can this happen? Above all through our catching sight of what comes to

presence in technology, instead of merely staring at the technological. So long as we represent technology as an instrument, we remain held fast in the will to master it" (Heidegger 1977:32). As we recognise this impossibility, we are free not only from attempting it but also, and more important, from living our own life within the technological understanding of Being.

The grasping of the coming to presence of enframing, as the danger, uncovers a specific understanding of Being, and as such, it has already led us into the realms of our own beingness, of our *home*, which, in its turn, is the meaning at the origin of the verb to save – "'To save' is to fetch something home into its essence" (ibid.:28). So, *the danger* as such, as it necessarily relates to our own essence, uncovers the arising of *saving power*. This is correct for modern technology and it is correct as well for IT, as this latter phenomenon is a kind of modern technology.

Just as enframing, its genuine grasping, points to the *saving power*, announcing a turning of ourselves into a free relation to technology, so does the uncovering of replacement, as the essence of IT, open us a free, effective, and corresponding relation to IT. Replacement, when grasped as replacement, opens to us a free relation to IT because it shows up against a background of a previously experienced worldhood, which, as that which we essentially are, recovers its most basic and fundamental role. Within this position replacement is opened for us to grasp its possibilities and limitations as they might make sense to us on our own terms. In its essential contours, replacement fully reveals us. Thus, we can consider its pros and cons from the standpoint of what we ourselves are. When replacement while already underway does not show up, it effectively and non-thematically has its role of replacement. In this situation IT becomes the background and all that happens is turned into a closed system that makes sense according to the way in which the real is revealed in ITness. That which is, whether Dasein's authentic mode of Being, or the permanent contradictions, surprises, and unexpected challenges of a world always already there, is to some extent lost against a background that only allows to arise not man's potential but the possibilities of IT.

The difference replacement makes to our lives is our own grasping of it. The difference, according to the ontology on which we base this investigation, is Being, and thus, replacement as a distinction that we make, which as such becomes part of our world, and thus triggers in us the kind of compensations that intend to keep us the beings we ourselves are. Distinguished, as it were, replacement removes itself from its essential nature of being a background. This shows us the essential nature of IT and, because IT is replacement, it recovers our reliance on a background of worldhood, which, in its turn, enables the difference that replacement is to feedback into the background of intelligibility in which we are. This happens mainly in our ongoing non-thematic coping in-the-world, that is, as our findings show up in the ready-to-hand mode of being.

This analysis of the *free relation* to technology, that Heidegger urges us to experience, leads us unexpectedly but enlighteningly, as we will show below, into authenticity itself, which is the essence of the phenomenon of strategy. The realisation of enframing and replacement, as the essences of modern technology and IT respectively, frees us from the problem-solution technological framework. This can only happen on the grounds of being again delivered to our beingness in worldhood. Thus, the experiencing of a free relation to IT opens to us the challenge of experiencing not IT's possibilities and limitations, as they emerge within 'the they', but our own limitedness and possibilities as Dasein. This means that the *free relation*, our release from IT, is an authentic stance of ours in our life. The *free relation*, the stepping out of the grip of IT, is a dwelling in authenticity.

Just as the danger holds in itself the saving power, replacement carries in its own unfolding the possibility of being authentic. By now we should ask: How come the essences of IT and strategy show up so closely linked? Is this a coincidence? Of course not. That IT and strategy are fundamentally related is the grounding hypothesis of our investigation. As presented in Chapter 1 the phenomena of IT and strategy have been taken as closely related for the last fifty years. Our research question, while acknowledging that that relation might indeed be correct, is a push to uncover the ways in which IT and strategy relate, if that linkage is confirmed to be the case. This section establishes the basic grounds of the relationships between IT and strategy.

Our last drive leads to a somewhat puzzling conclusion on the issue we are trying to clarify. Once we have grasped the essential backgroundness of IT, its replacing nature, entering thus into authenticity, and having made clear the minor relevance of the instrumentality of IT, we grasp that the indispensability and the readiness-to-hand of IT implies the need of strategy to take into account its own aligning with IT, which after all is precisely what happens when we are within 'the they', coping with a non-thematically grasped replacement, and aligning IT as a tool with strategy! The disturbing conclusion is that by uncovering IT as replacement, we are to reasonable extent urged to align strategy with IT, which according to the ontology on which we base this investigation is what would be mostly effectively achieved when the readiness-to-hand of IT engulfs man in a replacement he does not grasp. Is there a way out of this puzzle?

Our answer is yes. The way out relies precisely on being capable of entering a *free relation* with IT. Authenticity is a changing of perspective, which equals a changing of world. Within authenticity, having grasped replacement as the essence of IT, the kind of alignment strategy should consider to have with IT as a phenomenon with contours of a background, is one in which the possibilities and limitations considered in the projection of ourselves into the future are those of ours, and not those that an unfolding of IT, within 'the they', delivers. In authenticity, the possibilities are ours. Within 'the they', the possibilities are of IT itself. This changing of perspective, much in the way Clausewitz (1976), Julien (1999), and Hamel and Prahalad (1994) consider it essential to strategy, is a fundamental difference

that a genuine sharing of replacement might bring to strategy. Its chief logical consequence is to recover the mystery and decisiveness of *that which is*, and our caution, humility, openness, and authenticity when facing it.

Hence, IT aligns strategy and strategy aligns IT. Yet, this happens in different ways as far as man is experiencing or not its authentic mode of being, and has achieved or not a free relation to IT.

Having a free relation to IT, and either already within authenticity or entering into it, as a manager realises the essential nature of IT, he might correspond effectively to the readiness-to-hand of IT. This implies both an understanding of IT as a context, which opens specific possibilities and limitations for an organisation to act, thus, and to the extent that the IT context would be relevant to the particular activity of the organisation, to consider a substantive alignment of the organisation's concrete strategy with that context, and an understanding of IT as a tool as well, which would imply an effective effort or a turning of IT devices into ready-to-hand entities all through the organisation's structures and with third parties with which it maintains day-to-day relationships.

Having uncovered the essence of IT, in authenticity, a manager is able to account for the fundamental readiness-to-hand of IT, thus, on the one hand for the necessary alignment of the organisation's strategy with the IT context, and on the other hand for the alignment of IT as tools with the organisation's strategy. In this latter case the focus, when analysing IT, is the device as such, the PC, the mobile phone, etc., and their capabilities and functions under the perspective of the strategy of the organisation. In the former case, when IT aligns strategy, IT should be accounted for in terms of a context, trying to spot the distinctions that form the ITised environment, and thus the possibilities either for us, for our clients, or for our competitors to act.

Once one is not experiencing a free relation to IT, that is, when the essential nature of IT, replacement, has not been clearly experienced, while acting in an ITised world, relying on the toolness and readiness-to-hand of IT, one does not realise the kind of engulfing in which one is immersed. Replacement is under way, hidden, and it engulfs the strategy of the organisation. This is extremely relevant because the kind of possibilities and limitations one might experience may not be those of oneself but those of ITness as such. This is certain to happen when one's mode of Being is the they-self, that is, when one is in inauthenticity, evading choice and doing what is obvious, what appears to be urgent and what everyone else – 'the they' – are all doing. "Human life in the technological age bears important similarities to what Heidegger called 'inauthentic everydayness' in *Being and Time*" (Zimmerman 1981:224). In inauthenticity, IT shows up as tools that must be absorbed just in the way 'the they' is absorbing it.

However, within an ITised background one might still experience authenticity. Authenticity is always a possibility in man, within or outside an ITised background. In a moment of

vision a manager might indeed grasp the backgroundness of IT, namely on account of choosing to choose his own possibilities and not those that 'the they' always and already are delivering to him. Yet, the likelihood of this happening seems indeed small, as IT is a phenomenon whose opening up as what it is in-the-world can only be performed against an explicit and assumed ontological background, to which IT does not belong – we address this issue in Chapter 4.

In inauthenticity replacement unfolds, and strategy is engulfed by the absorption of IT within 'the they'. We should say that in this case there is no strategy in the correct sense of the essence we have uncovered. Within 'the they' IT is absorbed in accordance with a structure that does not have authenticity as an element. Thus in inauthenticity IT is aligned not with the organisation's strategy but with its structure as such. This can be seen in established entities, companies or otherwise, that continue to attempt to maintain as they are, while at the same time, and in contradiction with their own behaviour, they acknowledge that a new IT world is coming. They are simply not able to change their structures because strategy is not an element of them.

In authenticity the case is a different one, as presented above. Yet, the relationships between IT and strategy also support the paradoxical case in which IT, while experienced within a free relation, is itself the strategy.

Figure 6.2 – **Authenticity and Inauthenticity in IT and Strategy Relationship**
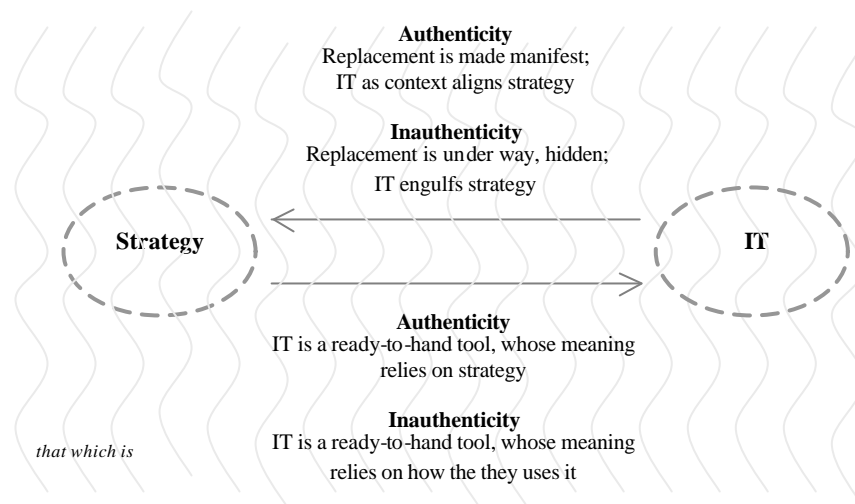
In authenticity, a manager can seize his possibilities by choosing to choose his path into the future, as he himself is, along the path of the very development of IT. In this case, because the manager is in authenticity, which enables him to address the possibilities as his own and not as those of 'the they', he is in a position where he can be involved with, where he can attend to, the possibilities that IT continues to disclose. The difference authenticity makes to this situation when compared to the one when there is no free relation to technology, is

that it turns the following of the path of IT into our own path, in accordance to our own terms, interests and projections of ourselves into the future. To a great extent this was the strategy that led the USA to defeat the ex-URSS in the Cold War. Possony and Pournelle (1970) call it the *strategy of technology*. This strategy is one in which war turns out to be technological warfare: "Technological warfare is the direct and purposeful application of the national technological base [which include, scientists, inventors, engineers, laboratories, laboratory equipment, funds, information flow, incentives, etc., ibid:18] and of specific advantages generated by that base to attain strategic and tactical objectives" (ibid:4). In this kind of war, a strategy of reliance on technological development is authentically chosen, so that "instead of destroying enemy resources, its object is to make them obsolete" (ibid.:ix).

This analysis of ours in which IT and strategy reveal themselves fundamentally linked in Dasein's basic mode of being authentic is intended to contribute to the current research into the relationships between management and IT, in particular when attempting to account for the strategic role that IT might perform in contemporary organisations. To conclude this section, we should stress a key aspect of our analysis. In whatever ways a strategy might rely on IT, its possibility of achieving an intense involvement of the managers and of the organisation in general, so making that strategy highly effective, is dependent on the managers' or the organisation's ability to keep themselves faithful to their authentic stands. This becomes a fundamental strategic challenging not only because IT has in its nature the unfolding of 'the they', but also, and more critically, because Dasein has a structural tendency to fall into 'the they'.

6.4. Further Empirical Implications of the Investigation

Besides the empirical relevance of the relationships between the essences of the phenomena IT and strategy, which has been just presented, we have provided several examples of the empirical implications of our investigation as they were find to contribute to clarify our claims when presenting the phenomenologies of IT (chapter 4) and strategy (chapter 5). We now briefly review these latter examples, adding here and there some new details and pointing out new cases. As stated above these examples should be considered only as illustrative of the empirical relevance of the findings.

We stress that this investigation is focused on uncovering the essences of IT and strategy, and relating them phenomenologically, not on expanding on possible empirical consequences and implications of the findings, which obviously is not only a never-ending task, but in the context of the theoretical bases of this research, to some extent, is also an improper one, as we consider that it has been shown when we addressed the potentiality of the readiness-to-hand of the findings. Bearing this in mind, let us address first the general empirical implications or consequences of our findings, and then focus on the theme of organisations and managing IT.

6.4.1. General Empirical Implications of the Findings

We have shown in chapter 4 how the rightness of IT comes first in the empirical world. The disposition of hardware, software, connections, and people's capacity to handle IT, is what most decisively affects not only what people will understand as possible or not, but also their grasping of facts and events that will be implicitly or explicitly considered relevant. As new possibilities are appropriated on a societal basis they cannot be reversed, but impose new modes of being and acting.

IT reveals more than its devices. It reveals working such as writing on a computer, such as clicking hyperlinks, such as sending emails, and so forth. People are revealed as users, as email interlocutors, as operational resources, as change or no-change agents. Locations are revealed as always reachable, as always close to entities, as signs on a screen, as inputs. In its turn, action tends to be contextualised by one or more specific IT devices, which open up specific possibilities of action. Information/being, that is, the difference, has always been man's world (Borgmann 1999). Because "[t]echnology isn't just something man has acquired as an accessory [but r]ight now it is what he *is*" (Stambaugh 1969:13), in our era IT is what we are. IT is what matters, as it is within it, in its manner, and on account of its backgroundness, that what matters to us, appears.

IT suggests ending the physical necessity of being 'in person' where the action is. IT promises to disembody our capacity for action. The managers do not know the factories. The workers do not know the products. The differences are on the screens. The information system is the real reality, there is not much else on which we base our actions and choices in-the-world. IS is IT-in-the-world. The world, as what matters to us, is being transferred to networks and databases made accessible permanently and totally. We take action disregarding our embodied grasping of the concrete situation, trying to recover what matters for that situation. It is not clear yet to what extent this kind of assumptions might clash with our bodily presence in-the-world and with the tradition in which we human beings have developed.

Given this understanding, it seems sensible to say that the context that is being created by the unfolding of the essence of technology is opening up the terrain for a growing feminisation of society (Douglas 1998, Jenson, Hagen and Reddy 1986, Lowe 1987). Replacement, when accounting for its empirical consequence in that it is replacing the physical force by the intellectual one, might indeed be supporting the rise of women in societal power in way that few or none other events in history have achieved.

The impossibility of thinking about this world of ours as one without IT points out the need thoroughly to consider the kind of possibilities that newer and newer technologies might open up as they enter the comportment of 'the they'. One of these possibilities currently under wider appropriation moves within the realms of structural coupling: the emerging of a new language, global English.

Yavlinsky's world-view changing is deeply linked to the path of replacement, just as certainly many other events of that kind all over the world are. In this world, what matters the most, because it is what changes our lives substantively, is the globe as a ready-to-hand background of our action in-the-world. Human action now moves within a global logic. For example, in economic competition the paradigmatic case is much one for companies instinctively and intuitively to take the whole planet as their market and to locate each function and each process wherever on earth they detect a higher output/input ratio. Globalisation is how man is making sense of the world in each and every one of his empirical activities. Thus, this context of replacement has relevant empirical consequences in that *ceteribus paribus* it favours the very globalisation of power, that is, planetary concentrations of power, either in politics or in business (e.g., Friedman 1996, Held 2000, Kegley and Wittkopf 2001, Lawson 2001, Paul and Hall 1999, Jones 2000, Shaw 2001, Holden 2000).[229]

The drive towards planetary efficiency and the mobility of resources and people, both fundamentally supported by globalisation, as an appearance of the essence of IT, should also be pointed out as being at the basis of further empirical implications of replacement, namely a societal trend towards a progressive lowering of prices of products and services (e.g., Greider 1997, *Economist* 1996a); and, another trend towards lower taxes on a planetary basis as countries and regions strive to become or remain attractive either for living or business (e.g., Angell 2000, *Economist* 1996b, Major 1997).

In these oceans of technological information paradoxically it is not specialisation and detail that is enhanced but mobility, that is, movement as such. In hypertext the content is the browsing itself. Hypertext is the mode in which 'the they' engulfs us in an ITised world: "When did you first believe everyone except you is on the Internet?"... one can read in a media joking picture of someone at the doctor of psychiatry… Actually, IT, as itself is, takes its empirical form as a *new world*, that is, as a replaced world as such. When people are addressing new social realities that link to new technologies it is most often used the expression 'new world'.[230] 'The they' has fallen into this new world, and as such for us all there is always some kind of an urgent and pressing necessity to be engulfed by 'them' and this 'new world'.

In everyday life, the power of replacement can be seen, for example, with regard to our general view of television. While there are many observations that can be made here, we will refer to only one of these. What do we tend to think of people who live, on a permanent basis, without a television in their house? We tend to think of this as strange, possibly even somehow 'dangerous'. A few years ago in the UK a writer and her husband

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[229] Clairmont (1997) refers that by mid 1990s the sum of the sales of the two hundred bigger corporations of the world is equal to one third of world's GNP.

[230] The search engine 'AllTheWeb.com' (November 2001, 14th) finds around 1 million web pages that have the expressions 'new world' and 'IT', 'technology', or 'computer'.

received the visit of the police only to ask them what reason there has been for not having a television set for so many years…[231] Why is this so? Maybe we feel that these people do not live in the same world, that is, in replaced reality. Actually we often refer to this kind of situations as people 'living in another world', for we perceive television as presenting that which is *already agreed* (Introna and Ilharco 2000) as relevant to those engaged in our world. The findings of this investigation provide an explanation for such a view. As Fry (1993:13) puts it, television has arrived as the context, and those people seem to be out of context.[232]

In the aftermath of the September 11th, 2001, terrorist attack in the USA, the White House and Hollywood cinema companies joined in order to extend the reach of Western television into the Arab world (CNN 2001b). What is at stake in here is precisely the context that TV can establish, and indeed the replacing essence of IT as the grounds on the basis of which that can happen: "Rushing to shift perceptions of the United States in the Islamic world, Washington and Hollywood are now brainstorming about how the entertainment business might help convey a wider – and more positive – range of perceptions about America. And no demo is more crucial to the future of Islamic-Western relations than the 15-30 age group. That's where MTV comes in" (ibid.)

The power of television to reinforce what is presented just by the presentation itself has important consequences in our daily lives. "[A]ll that is important is revealed on television while all that is so revealed on television acquires some authority" (Adams 1993:59). But this power does not belong to the essence of television but rather to the essence of IT, namely what concerns its *screen-ness*, as the following example will show.

The kind of data about us that appears on a PC, at the bank, at the office, at the doctor's, or at a public department, is often taken as more valid and trustworthy than ourselves – as many of us have found out to our dismay. That the essence of IT is replacement indeed helps to explain this. It is because the essence of IT is replacement that that data is often taken as more valid and trustworthy than ourselves. That data is ITised, within the real that matters.

However the overall unfolding of replacement gains its meaning from a reference to that which it is about to replace, a real already grasped in terms of worldhood. *Microsoft Office* for example, gets its intelligibility from our experience of the traditional physical office. The overall flow has its meaning in the experience of a reality where we die. It is against

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[231] We were unable to recover the specific details of this story, which we read around 1998/1999 in a major UK newspaper. Still, this issue appears on the news from time to time. For example, Tran (2001) quotes the owner of restaurant chain in the UK who, on the grounds of his personal experience, claims that "[w]hen you don't watch TV for a long time, your way of thinking becomes different, your idea of what is interesting is not the same as what TV people think should be interesting"; Scott (2001), editor at *The Guardian*, comments with some irony that "the common factor to all 20th-century lunatics and serial killers, from Stalin to Lee Harvey Oswald, was this: they didn't watch enough telly".

[232] Hochschild's (1996) complains that it is impossible to have a moment of thinking and privacy in any major US airport; not because of people always surrounding us, but because of the overwhelming presence of TV screens.

this facticity of being-towards-death that IT's hidden meaning is disclosed as immortality. This ultimate aim points to possible forthcoming scientific attempts to extend human life, and thus to huge business opportunities in this field. The recent developments on the human genome are a first move in this area.

Let us turn now to our findings on strategy and their potential empirical relevance. Perhaps the most fundamental achievement in this respect is precisely the uncovering of authenticity as the essence of strategy. Our claim suggests that authenticity is that decisive and common element to all theories of strategy whatsoever, either in management, politics, or war. We believe this finding to be a valuable contribution to the advancement of strategic thought in general, and to strategic management and IS/IT in particular. Our findings, that is, authenticity as the essence of strategy, in short and in empirical terms means that the effectiveness of a strategy, whether for a country, a community, or an organisation, is ultimately not dependent on plans, theories, consultants, or frameworks, but on the degree in which that entity authentically chooses to choose. It is not that Clausewitz's (1976) strategic doctrine, Porter's (1980) theory of positioning, or Hamel and Prahalad's (1994) articulation of core competences, are wrong and our approach is right. What we claim is that authenticity, the resoluteness of an entity, the honest and involved grasp of the organisation's own possibilities and limitations, its ambition to choose for itself what it shall become, explains better the success and failure of that entities over extended periods of time. Authenticity, that is, actual authentic or inauthentic behaviour, might indeed explain why entities following the same strategic guidelines, e.g., Clausewitz's (1976), Porter's (1980), or Hamel and Prahalad's (1994), achieve very different outcomes.

The essence of strategy, authenticity, as it appears against the ontological background of being-in-the-world, addresses the kind of difference it can make for us different theories, frameworks or analyses usually presented to us as strategy. Having uncovered and experienced the essence of strategy as authenticity, a manager, a political leader, or just an individual who is concerned with his life, he finds the ground on which shows up each actual meaning of each particular theory or framework, as an ontical entity. The theories and frameworks about strategy are thus the ontical entities, whose meaning is provided by an ontological difference, which in this context is not less than the essence of strategy, authenticity.

Being authentic, that is, having chosen to choose, the world opens up for us in meaningful possibilities. Resolutely, we care for what we are and for what we are doing. We are effectively committed to our actions. We evade the obvious and pressing comportment of 'the they', and the world opens up for us in significant and unique ways. Things matter, we can attend them, we are involved, and thus action unfolds in a world where we are responsible for ourselves. This enhances immensely the possibilities of our actions to succeed as we are genuinely committed to them, and as such we place in them, freely and willingly, all of our effort, knowledge and capabilities. Identity grounds effective strategies.

This means that the hidden meaning of strategy for an organisation, a community, or a country is the maintenance of its actual structure, as it is for itself: its elements, professionals, routines, practices, culture, technologies, third parties, and so forth. In empirical terms, this means that structure leads strategy, and thus only by being authentic can we make strategy itself to be part of our structure, and as such, and by continuing to be authentic, to aim at becoming a structure driven hopefully by its vital element of strategy.

6.4.2. Empirical Implications of the Findings for Organisations and Managing IT

Taking into account the general empirical implications addressed above, recalling their grounding on the uncover of IT as an ontological phenomenon on the basis of which what matters to us shows up, we now turn to analyse possible empirical implications and consequences of our findings in the areas of organisations and the management of IT.

The manager's world is often the, referred to above, *new world*. IT applications, such as powerful executive information systems or data mining systems, disclose businesses in ways which are completely new and impossible to achieve in any other manner. An obvious empirical appearance of the essence of IT is the emergence of new businesses, what Chakravarthy (1997) called *infocom*, and what the media and the business world in the late 1990s addressed as *new economy*.

For a manager, IT promises to make what matters available permanently. Immaterialised symbols are the trading resources. People and materials tend to be dealt with only on the grounds of the consequences of this symbolic activity. The technological information is what counts for a manager. Surrounded by screens, emails, phones, charts, graphs, reports, TV news, stock exchange indexes, macroeconomic indicators, the manager never escapes from the flow of the technological information. He is always already involved with ITised products, ITised practices, ITised clients, ITised competition, in an ITised world. Technological information *is* his world.

In management, the handling of IT appears deeply entangled with strategy, which has as its chief concern the profit potential of the firm. History, particular contexts, throwness, and the particular and unique situation each and every company faces, ground strategic management approaches. This approach is one of totalising a company, which implies being clear about the company's environment, competitors, and its own identity. On empirical grounds, this means that an entity that engages in strategic thinking must find the perspective from which it accounts for the whole signification of its performance. Only by holding to that perspective can it avoid inconsistency, which would only be decisively achieved when the perspective referred to above is authentically experienced, that is, embodied.

In this kind of situation strategy enters the involvement whole as a ready-to-hand being. This means that strategy is never a body of principles, a set of rules, or a plan to be

followed. Strategy is a guiding and essential intention that dominates how an entity acts in the empirical world, and in this way it should emphasise the essential and general and leave scope for the accidental and individual. A key feature of strategy in the empirical world is thus the ability of an entity to retain its capacity to function. This is firstly achieved, we claim, by taking an authentic stand in our life: by being authentic.

The chief empirical consequence of this claim is that in being authentic, that is, having chosen to choose, the world opens up for us in meaningful possibilities. Authentic behaviour makes us unique, which as such, and in business terms, means that we might gain a unique advantage. Only by continuing to be authentic, that is, only within an authentic identity, can strategy, as an authentic intention, plan, or pattern, come to be a fulfilment of the possibilities the manager and the company aim at for their future. Strategy thus relies on a constant experiencing of an authentic identity.

It is precisely because an organisation is authentic that it can become deeply involved with its future, with what it will become, and as such it is already shaping what the organisation is and does in the present. Theories, framework, the consultants' work, can genuinely matter for the organisation, not because they represent the last buzzword or fashion but because the organisation honestly and genuinely decided to choose what it chooses on the grounds of what it aims at becoming. Once this resoluteness is in place, the organisation has much higher possibilities of achievement because it is involved, engaged, and in action it chose intensely and genuinely to rely on particular theories, frameworks, or technologies and not in another ones. This amounts to the development and reinforcement of the identity of the organisation. Identity grounds effective strategies, because the more identity is reinforced and clarified the more obvious and ready-to-hand are the strategic theories, the frameworks, or the analyses on which the organisation resolutely decided to rely.

A contrario, and because the hidden meaning of strategy it the maintenance of its identity, that is, of its professionals, hierarchies, basic relationships, culture, markets, and so forth, if an organisation is not resolute, that is, if it is in inauthenticity among 'the they', the strategy theories, the frameworks, and the analyses and recommendations of consultants have great possibilities of not being genuinely assumed and carried on. The organisation has a structural tendency to do what 'the they' is doing, and as such as long as authenticity itself is not part of the organisational structure it seems a remote possibility that a strategic theory or a framework *per se* might explain the success or failure of an organisation. Actually, in many organisations one can easily witness the kind of no change strategy that in spite of all the plans, meetings, and consultants' exercises ends up by being implemented – the structure can only change once change is part of itself.

A basic mode in which this change is achieved is by improving structural variation. This means that structural variation is central to strategy because it enhances the organisation's possibilities to preserve its mineness. Strategy should develop a reasonable degree of non-adjustment, of friction, and of unfitness so that the structure of the company would be

prepared to maintain itself in whatever situation or surprise even that might occur. In clear empirical terms, only by affecting the structure, that is, by engaging in education, by changing hierarchies, by hiring new people, by emphasising desired comportment, by entering new practices, by pushing and accommodating a culture of trial and error, by forging alliances, by absorbing technologies, by developing capabilities, by engaging in new contexts, and so forth, is it possible to shape the strategy. In action strategy is the structure.

In what respects the themes of organisation and managing IT, this review sums up the empirical implications of our investigation into IT and strategy as they were presented in chapters 4 and 5, in order to clarify, detail, and enhance the contours of the phenomena under inquiry. We conclude this section by presenting some further empirical implications or consequences of our findings that seem to us relevant to the areas we are addressing now.

Perhaps the most relevant conclusion of the investigation into the phenomenon of IT with respect to its empirical consequences is that for most cases, that is, within 'the they', IT aligns management. The conclusion that the essence of IT is replacement comes to clarify what Ciborra (1998) considered not had to been ruled out – the possibility that technology is aligning management – and Coombs (1997) suggested that IT is creating – a new reality, in which the most critical feature is the picture of the organization that IT requires users to accept. In this investigation we show how this alignment and this new reality occurs: mostly within 'the they'. Our findings suggest a way out of this engulfing situation: by being authentic, and by addressing *freely* the dual nature of IT – as a context and as a tool, in the manner referred to above.

The primacy of that which is on IT or is accessed by/in IT over that which is not ITised, a theme referred to in the section above, seems to be an issue that needs to be taken into account when addressing many areas in the management of organisations. This argument gains a further impact when we consider the questions of change and of the management of change. That replacement is the essence of IT suggests that the key issue when managing an IT induced change is a changing of realities. Local initiates might be doomed to failure on account of not being absorbed by ITised ruling practices. Thus, a general and organisational wide approach to change should be favoured, trying to establish a new 'cognitive scheme' (Ciborra 1997b), which, thus, to some extent is the alignment of management with IT as a context.

IT based change should thrive on a culture that favours individual experience, that accommodates errors, and stimulates immersion in IT environments, while preserving an authentic stance towards the future. Thus, a change by practice approach would be favoured, and possibilities for genuine individual learning should be encouraged. Because the essence of IT is replacement, as long as people do not share the replaced reality there is no great chance of success for an IT-change initiative. Yet this initiative would only

contribute decisively to the organisation if taken on within authenticity, that is, if accounted for within an effective strategy.

Further research from diverse perspectives and methodologies might follow in trying to clarify and theorise to what extent this alignment of management with IT can or should be put under management control. One should note that in the field of strategic management, the one to which IT is deeply related as has been shown, there has been some appeal for new and fundamental proposals in the light of the huge changes that IT is understood to be bringing to the current contemporary competitive environment (Schendel 1994).[233] This case is valid *mutatis mutandis* to the international political scene as well.[234]

The analysis above also seems relevant for thinking about innovation in an IT filled world. What deserves to be questioned, it seems to us, is the likelihood that in an IT intensive environment – that is, in increasingly IT based involvement wholes – the possibilities for innovation would tend to be limited to paths and enigmas, accessible only within the replaced world disregarding its permanent and implicit grounding on the replaced reality. As IT replaces the replaced reality it may hide opportunities for new articulations, new appropriations, and new understandings—which is exactly what innovation is about. Again, the way out of this situation is through strategy, in authenticity.

This kind of entrusting our lives to a world that shows against a background of an always present and running ITness should be considered with care. Once important functions of business are delivered to IT, breakdowns (inevitable given the massive complexity of hardware and software) bring everyone to a helpless halt. When 'the computer is down', there is no help in paper and pencil, in walking and checking, in asking and advising (Borgmann 1999:211). IT must be rolling again for reality to return to its course. It seems difficult to devise a way out of this kind of situation, within authenticity or not.

There is a greater problem though. Up to now no one really knows how to account for the success of IT. "The issue of information systems success is so fraught with problems of definition and measurement that there is still no approach for the determination of such success that has even a moderate level of acceptance across the information systems community" (Introna 1997:177). Moreover IT devices and infrastructures are resources integrated into the structuring of the relations of power (Orlikowski 1992, Introna 1997, Silva and Backhouse 1997, Bloomfield 1992), which means that the success or failure of IT deployment in an organisation is never clear or peaceful; neither is the discourse that

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[233] The 1994 special summer issue of *SMJ* tried to gather contributions under the theme "Strategy: search for new paradigms". The editors appealed in particular for submissions that addressed non traditional or new subjects, using non traditional methodologies, based on non traditional intellectual grounds (SMJ 1994, vol.15, p.12).

[234] The so called *new war* on terrorism, started after the September 11th attacks on the USA, is surrounded on different levels of action and analysis by notions, ideas, and discourses that anchor themselves on the novelty of the relationships between IT and globalisation, as empirical phenomena, might bring us. As Angell (2000) hinted at a year ago, and Ramonet (2001) writes, "this is first time that an empire has gone to war not against a state, but against an individual".

surrounds it. This state of affairs to a greater or lesser extent relies on the fact that IT is fundamentally the background against which the usage of IT devices – this time as tools – are evaluated as facilitators or contributors to performance. Yet, because IT is the background, performance will always depend on the company's intuitively assumed ITised presuppositions. It is not easy to find a way out of this paradox. Nevertheless we think that the experiencing of a *free relation* to IT and the taking of an authentic stand on the organisation's future provide the right perspective for managers to deal with this issue. This brings us back to strategy.

In accordance with our findings, and trying to think of the kind of empirical consequences they should assume, we conclude that a thoroughly approach to strategy should start by having the courage of asking us *if we have the will to be authentic?* This question is the foundation of any concrete strategy in-the-world. The path of the organisation will be different if it honestly answers this question one way or the other. By being resolute, an organisation gains access to a world that matters intensely to it. The organisation effectively attends to its future. Things matter for it, and as such it can spot ever finer distinctions that have the potential for making all the difference in the organisation's performance. How can an entity achieve this authenticity? The answer is obvious: in its professionals. Only authentic people can make authentic organisations. This path is not an easy one as it is by nature under the constant pressure of 'the they'.

These sections – 6.4.1. and 6.4.2. – serve to highlight significant possibilities of the empirical application of our phenomenologies of IT and strategy. These are taken as explorative steps that further research might develop. Nevertheless, it is hoped that these sections are adequate enough to show the potential of phenomenology to enhance and develop our understanding of the complexities, contradictions, and possibilities of the phenomena of IT-and-strategy-in-the-world.

6.5. Concluding Remarks

Our investigation has come to its conclusion. Recalling a comment of Boland[235] (1985:200) we quote in the Introduction of this dissertation, we hope we have shown that "[p]henomenology is a preferred method for the study of information systems not because it is exciting (which it is) nor because it is easy (which it isn't), but because it offers the best prospect for helping us understand their actual operation and significance" (parentheses from the original).

By applying phenomenology in the IS field of research we intended also to contribute in clarifying and showing the possibilities of the traditional phenomenological method of investigation, as it was first designed by Husserl and subsequently developed by Heidegger.

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[235] Richard Boland was probably the first IS researcher to draw attention to the relevance of phenomenology to the IS field of research.

Contrary to what is somehow commonly believed, phenomenology has a comprehensible and detailed method of investigation, which, we hope, we have soundly recovered, appropriately made explicit, and elucidatively applied.[236]

Our phenomenological inquiry is a qualitative one, falling somewhere between the interpretive and the critical traditions of IS research. While acknowledging in the interpretive manner that insight and understanding of human action in the world relies on consciousness, language, shared meanings, and background practices (assumptions referred to or implicit in key IS interpretive pieces, e.g., Klein and Myers 1999; Boland 1978, 1979, 1983, 1985, 1991; Boland and Day 1989; Hirschheim 1992; Introna 1993, 1996, 1996a, 1997; Orlikowski 1991, 1996; Orlikowski, Markus and Lee 1991; Orlikowski and Robey 1991; Orlikowski and Baroudi 1991; Davis, Lee, Nickles, Chatterjee, Hartung, and Wu 1992; Lee 1991; Madsen 1989; Rathswohl 1991; Walsham 1993, 1995; Walsham and Waema 1994), we assume as well, much in the sense of the critical tradition, that this research aims at enhancing the potential of man to realise his own possibilities in-the-world now pervaded by IT (a perspective referred to in important IS works such as, among others, Klein and Myers 1999; Hirschheim and Klein 1994; Klein and Hirschheim 1993; Lyytinen 1992; Madsen 1989; Mingers 1981; Murray 1991; Ngwenyama 1991).

The investigation presented offers an essential account of the phenomena of IT and strategy, as they are in-the-world, in their very ITness and strategyness. It shows, we hope, that phenomenology provides many insights about the *is-ness* of these phenomena that cannot be gained through any other method of investigation. It also shows that although phenomenology is not itself empirical, the results of its application might have many important implications for the empirical world. Finally, we hope that this investigation, and the explicit account we have made of the phenomenological method and of its concrete working, help to bring phenomenology to a more relevant role in the field of IS research.

The strength of our findings rests on the rigour of the phenomenological method of investigation we followed, on the detail in which we have applied it, on the power of the theoretical foundations on which we base the inquiry, and finally on the evidence and intuitiveness in which those findings might appear to those who are familiar with the phenomena of IT and strategy. We do not claim to have articulated these phenomena in the only possible correct way. We would have never embarked in such an attempt. Moreover, our theoretical foundations dismiss that kind of assertions. What we claim is to have

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[236] Phenomenology has its own method of investigation, which does not call for any kind of empirical verification, as we have explained. Yet, because its method is an interpretive and a qualitative one, some of the principles for interpretive field research, as recommended by Klein and Myers (1999), apply in investigations of this kind. The "fundamental principle of the hermeneutical circle" (ibid.) grounds all the investigation, and it is made explicit in a particular manner in Phase VI of the method (hidden meanings). The "principle of contextualisation" is accounted for in Phase IV (essence), and emphasised in Phases II (etymology), V (appearances of the essence), and VI (hidden meanings). The "principle of abstraction and generalisation" is fully respected in that the findings emerge on account of Husserl's phenomenological method and Heidegger's (1962) ontology.

followed a path that belongs to the Western intellectual tradition, and in so doing to have opened the phenomena of IT and strategy in new, meaningful, and useful ways.

Postscript

In the phenomenological manner we believe that in this dissertation we gave sufficient thought to the matters in question, the phenomena of IT and strategy in-the-world. As stated in the *Preface* of the dissertation we do not claim to have articulated the phenomena of IT and strategy in the only possible correct way – in the Western scientific tradition, phenomenology is just one of the many possible ways of phenomena being researched. We also do not claim to have exhausted those subjects from a phenomenological standpoint. We would have never embarked in such attempts. Moreover, our theoretical foundations and the method applied dismiss that kind of assertions. What we claim is to have followed a phenomenological path that, we believe, opened up the phenomena of IT and strategy in new, useful and meaningful manners.

Our thesis aims at reaching IT and strategy as we already have experienced them in-the-world, intuitively and most often in non thematic ways. IT and strategy were phenomenological analysed not as empirical objects, events, or state of affairs, but as intentional objects of consciousness. These were formally indicated from the outset of the investigation as the *ITness* of IT and the *strategyness* of strategy.

Besides the initial account of the boundaries of the investigation offered in the *Preface,* the detailed description of the phenomenological method applied, and of its technical notions and procedures (Chapter 2), set clearly the possibilities and the limits of this effort. We recall that phenomenology is primarily and foremost a method of investigation. It is fundamentally a way of questioning and not of questions and answers. Our thesis is a questioning for the most fundamental grounds of all, within our involvement with IT in a world always and already there. This research, in following the traditional phenomenological method and attempting to show its possibilities in the field of IS research, does not proceed by stating definitive and, we would say, usually assumed objective questions, to which final and decisive answers should be provided. On the contrary, phenomenology is a search in which one can never know what will be found. Its strengths have been stressed over and over again by its tradition and by its many applications in different areas of human understanding.

This dissertation is indeed one of questioning, not of questions. Every answer opens new abysses, wrote Heidegger, but questioning in itself, pushing further and further that questioning in more and more radical ways shows us a path of thinking in which phenomena and our engagement in-the-world can be grasped and experienced in more intense, enlightened and insightful ways. This method of research calls for thinking as that which is the most human of the human activities. As such, as a thinking that thinks, that proceeds by approaching the issue from different perspectives, from different angles, with different agendas, backgrounds and aims, phenomenology hopes at recovering our own personal and primary experience of the phenomena, attempting at improving our

understanding of them, and in so doing aiming at changing us and thus our action in-the-world.

We hope to have shown the ontological relevance of our engagement in-the-world with IT. We have pointed out in sound and substantive ways the fundamental entanglement between IT and authenticity, which comes to be experienced in our living in the world whenever we involve ourselves with the phenomenon of strategy. We believe we have uncovered the relevance of investigating IT and strategy phenomenologically, in significant and pertinent manners to our empirical world.

We believe this investigation makes important contributions to the IS field of research and to strategic thought in general. At a fundamental level we believe our matching of Heidegger's (1962) findings with the theory of autopoiesis, provides a consistent foundation on which future research might be based. We believe we have reconciled the early (Heidegger 1962) with the later Heidegger (1977), while investigating the essence of IT.

Our essential notion of replacement brings being-in-the-world and *Ge-stell* fundamentally and coherently together. On methodological realms, we think our clarification, presentation, and application of the phenomenological method of investigation, integrating the works of Husserl and Heidegger on this matter, substantiates a contribution for research in IS, organisations, and management in general.

As far as we are aware this investigation is the first Ph.D. effort in the IS field of research that applies strictly the traditional phenomenological method without any other complementary approach. We hope this is an important step in strengthening the actual momentum of a growing openness towards interpretive research.

Finally, we believe to have made a relevant contribution to the understanding of the phenomena of IT and strategy, and of the many relationships between each other. We hope to have shown and clarified the kind of implications and consequences this understanding might have.

We hope that our thesis will be taken up as a theoretical foundation for future research into the many challenges that lie ahead for IS. We offer an effort of thinking about possible specific empirical implications and consequences of our findings. That is done much more on account of the actual tradition and concerns of research than on account of phenomenology itself. Phenomenological findings base its legitimacy on the tradition of its approach, on the rigour of the method applied, and on the potential readiness-to-hand of its findings. The central empirical relevance of phenomenology, as it was shown in Chapters 2, 3 and 6, relies on the evidence, intuitiveness and appropriateness in which its findings appear for those we engage in sharing them.

Once found pertinent and appropriate, phenomenological findings make sense for us and thus they might change us. In so doing they shape and transform our action in-the-world, so

that we not only respond but indeed correspond to a much deeper and wider involvement with the phenomena investigated. Having said that, we hope that our phenomenological notions of replacement and of authenticity as the essences of IT and strategy respectively, might in the future be picked up as theoretical foundations for research in some of the actual themes of the IS field. We would suggest that those essential notions would show up particularly relevant for in depth analysis of issues such as e-business, knowledge management, ERP, outsourcing, or IS evaluation. These suggested analyses should be independent researches whose validities stand on themselves, and cannot belong here because of the substantial effort they require, and also because of the extensive writing that would be needed, and, above all and decisively, because they are not the matter of this investigation.

This investigation is one of questioning and searching, of answering and questioning again and again, for the most fundamental ground on which in-the-world we engage ourselves with IT. We believe we have given sufficient thought to the matter.

"What do we discover when we give sufficient thought to the matter? This, that the authentic attitude of thinking is not a putting of questions – rather, it is a listening to the grant, the promise of what is to be put in question. But in the history of our thinking, asking questions has since the early days been regarded as the characteristic procedure of thinking, and not without good cause. Thinking is more thoughtful in proportion as it takes a more radical stance, as it goes to the *radix*, the root of all that is. The quest of thinking always remains the search for the first and ultimate grounds. Why? Because this, that something is and what it is, the persistent presence of being, has from of old been determined to be the ground and foundation. As all nature has the character of a ground, a search for it is the founding and grounding of the ground or foundation. A thinking that thinks in the direction of nature defined in this way is fundamentally a questioning."

Martin Heidegger[237]

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