THE LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

EXPLORING DECISION-MAKING PROCESSES IN-SITU, IN-ACTU, IN-TOTO

An Empirical Study of Decision-making Processes in Medium Software Development Projects

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DECLARATION

I certify that the thesis I have presented for examination for the PhD degree of the London School of Economics and Political Science is solely my own work.

I declare that my thesis consists of 71,177 words.

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ABSTRACT

Organisational projects, a multifaceted socio-technical phenomenon that evolve in plural contexts often characterised by a high degree of interconnectedness, have become ubiquitous in strategy delivery. The traditional project management literature emphasises the significance of project and organisational objectives to project success, yet it is not clear how these objectives guide action at project level. Aiming to fill the gap, this empirical research studied project decision-making in two organisations with strong rational orientation that communicate strategic direction through objectives hierarchies, and define and manage projects by objectives.

To study decision-making practices in project praxis, this thesis introduces the concept of a "decision site" as an area shaped by a triad of mutually constituting practitioners, sociomaterial context and decision-making practices, as well as the concept of "praxis domains" used to analyse entwinement between decision-making practices and sociomaterial context. The environment and participants' perception was analysed based on semi-structured interviews with practitioners, review of existing organisational documentation, and daily project meetings were audio recorded through silent observation. Twenty eight decision episodes were identified and described in their organisational project context. Two process representations aided analyses of decision episodes, one tracing discursive reference to praxis domains, and the other diagramming decision-making activities which manage a decision site. Decision-making practices of "Neguesstimation" and "Querying Praxis Domains" were defined and differentiated by schemes and degree of entwinement with praxis domains.

The thesis findings do not support the notion of project and corporate objectives as being instrumental in project decision-making. Instead, one of the observed practices queries praxis domains as proxies for complex hierarchies of organisational objectives and constructs decision site imbued with local practical logic. The thesis argues that practical logic could be successfully employed in aligning project level activities to complex and dynamic organisational context and suggests potential for development of practice based decision-making approaches.

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Chapter 1 INTRODUCTION

The development of modern Western management practices is closely related to the engineering foundations of the early period of the industrial revolution. The concepts that proved successful in engineering endeavours, such as the disassembly of mechanical parts that can be standardised and made interchangeable, seeped into ideas about managing people according to which workers were seen as parts of an administrative machine and its processes. Engineering procedures and scientific methods were adapted to manage large manufacturing operations, and the field of management evolved into a new profession, adopting and codifying existing practices, which eventually became a de-facto standard (Shenhav, 2002). As mass production gained in popularity, the scientific approach to management, highlighting the importance of planning and division of labour, was widely promoted (Morgan, 2006).

In this climate, a stream of thinking emerged that is nowadays referred to as classic management theory, with two of its major proponents being Frederick Taylor in the United States of America, and Henry Fayol in Europe (Hatch & Cunliffe, 2012). This phase of industrial development and engineering dominance occurred during a period that was strongly influenced by utilitarian ideas advanced by the works of Adam Smith (cf. *The Wealth of Nations* published in 1776) and Jeremy Bentham (cf. *The Principles of Morals and Legislation* published in 1789*),* which stated that the correct course of action is the one that maximises an individual's utility and assumes all individuals always act in self-interest. Prioritising pursuit of personal gain at the expense of other values (e.g. traditional, religious), eased the path toward novel ways of organising which gave rise to a new form of organisation.

It is against this intellectual background that modern project management evolved, founded in scientific management approaches (Cicmil, Hodgson, Lindgren, & Packendorff, 2009; Söderlund, 2011b) and drawing on research in management science, organisational behaviour, and practice-oriented management traditions (Kwak & Anbari, 2008a). Over the years, project management has grown into an independent field of management, with thriving international professional associations and a very active research community. The field has matured and diversified greatly since the 1960s, specialising in different areas of application, building a range of methodologies, and establishing numerous professional standards (Bredillet, 2007; Cicmil, 2006). Since the 1990s, projects have become ubiquitous to modern organisation, making organisational project management critical to firms' competitive advantage (Aubry, Hobbs, & Thuillier, 2007; Maylor, 2001), and for many, a vehicle of strategy implementation (Partington, Pellegrinelli, & Young, 2005; PMI, 2013; Smith-Daniels & Smith-Daniels, 2008; Smyth, 2009; Winter, Smith, Morris, & Cicmil, 2006).

Seeing project management closely related to strategy implementation raises the question of how the strategy of a company translates into management of individual projects. One way of aligning projects to corporate strategy is to use strategic objectives, decomposed to operational level, to define programmes of individual initiatives (Armstrong, 1982; Ives, 2005; Maylor, 2001). The objectives cascade through organisational structure from corporate level, to programme, to project objectives, which in turn collectively deliver the overall business objectives (Artto & Dietrich, 2004; Jamieson & Morris, 2004). As a result, the clarity and stability of project objectives have been identified as critical success factors to the delivery of projects (Chapman & Ward, 2003; White & Fortune, 2002; Turner & Cochrane, 1993).

As most organisations run concurrent projects whose outcomes are interconnected, the interdependencies between project decisions, project actions, and project outcomes are not trivial (Bourgault, Drouin, & Hamel, 2008; Williams & Samset, 2010). Indeed, empirical research has shown that individual projects "typically do not reflect the organisation's strategic intent" (Thiry & Deguire, 2007, p. 649). This finding is substantiated by the proliferation of programmes, portfolios[1], and project management offices (PMOs) that attempt to bridge the perceived distance between projects and strategy implementation (Kwak & Anbari, 2009; Smyth, 2009; Sydow, Lindkvist, & DeFillippi, 2004; Thiry & Deguire, 2007).

Despite this pronounced interest in project decision-making (Jamieson & Morris, 2004; Powell & Buede, 2008; Williams & Samset, 2010), belief in importance of clarity of corporate and project objectives (Chapman & Ward, 2003; White & Fortune, 2002) for project success and especially for strategic alignment (Armstrong, 1982; Ives, 2005; Maylor, 2001) it is not clear if and how articulated objectives influence decision-making at the project level. The present thesis aims to address this gap and presents an empirical study that investigates in detail the role corporate and project objectives play in unaided project level decision-making.

For this purpose, it seems advisable to widen the theoretical perspective of this investigation beyond the literature on project management and turn our attention to a

[1] "A *portfolio* refers to a collection of projects or programs and other work that are grouped together to facilitate effective management of that work to meet strategic business objectives", "A *program* is defined as a group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually. Programs may include elements of related work outside the scope of the discrete projects in the program" (PMI, 2013, p. 8).

field of research that has already explored the tenuous link between organisational decisions and organisational actions, namely the sub-field of organisation and management theory that is concerned with organisational decision-making. Historically, this field shares the foundation in classical management theory with project management (Hatch & Cunliffe, 2012) and has had a similarly rapid development resulting in an abundance of diverse perspectives.

Research on organisational decision-making started out with Herbert Simon's seminal work that placed the topic of organisational decision-making at the heart of organisation theory. This was soon followed by research developments that challenged core assumptions underlying Simon's approach, such as instrumental rationality, the linearity of decision-making processes, and the possibility of isolating decisions in organisational settings. As a consequence, a diverse field of research emerged that led to a variety of new, insightful ideas of how to analyse organisational decision-making – ideas that have often been introduced with the explicit aim of challenging the 'rationalistic' engineering foundations of management (Langley, Mintzberg, Pitcher, Posada, & Saint-Macary, 1995; Hendry, 2000; Miller & Wilson, 2006; Vidaillet, 2008; Tsoukas, 2010).

There appears to be a contradiction in the two research perspectives, especially in reference to strategy implementation through projects. While project management literature advocates alignment to hierarchies of strategic objectives, emphasising the importance of objectives to project success and strategy implementation (Partington et al., 2005; PMI, 2013; Smith-Daniels & Smith-Daniels, 2008; Smyth, 2009; Winter et al., 2006), the descriptive research on organisational decision-making reports of apparent 'irrationality' of organisational decision-making (Langley et al., 1995; Hendry, 2000;

Miller & Wilson, 2006; Vidaillet, 2008; Tsoukas, 2010). This inconsistency leads to the question of what do project participants actually do with strategic and project objectives and how do they reconcile the apparent contradiction between the prescriptive tools of project management, and experienced reality (Thomas, 2006).

The aim to understand project level activities by engaged practitioners and their relation to the articulated objectives shifts the research focus of the current thesis to practice based research (Flyvbjerg, 2001; Whittington, 2006b; Jarzabkowski & Whittington, 2008; Sandberg & Tsoukas, 2011; Tengblad, 2012; Thomas, 2006; Sydow, 2006; Nicolini, 2013; Feldman & Orlikowski, 2011). Both project management and organisational decision-making research streams have recently started to explore the so-called "practice theoretical" approaches. These innovative research approaches are based on a family of social theories that take the concept of "practices" as the basic building block for explaining social phenomena. In this view, practices are conceived of as patterns of routinised behaviour that are based on commonly shared "schemes of perception, thought and action" (Bourdieu, 1990, p. 54) and are characterised by the pragmatic orientation in which actors carry out practices. Practice theories have recently been engaged, for example, in researching strategy as practice (e.g. Jarzabkowski & Whittington, 2008; Vaara & Whittington, 2012), in analysing projects as practice (e.g. Blomquist, Hällgren, Nilsson, & Söderholm, 2010; Sydow, 2006), and in investigating organisational decision-making as practice (Becker, 2013; Bolander & Sandberg, 2013; Cabantous & Gond, 2011; Tsoukas, 2010). It is precisely this perspective provided by research on organisational decision-making as practice that will turn out to be fruitful for exploring if and how corporate and project objectives influence project decision-making.

Given the prominence afforded to project objectives in the project management literature, expected importance of project level decision-making for strategy implementation, and limited understanding of the influence of objectives on project level activities, this research project's aim was to understand if, and how, objectives take part in project decision-making activities. The empirical study conducted here particularly explores project level activities that manage organisational issues in project-based organisations designed to promote instrumental rationality (Cabantous & Gond, 2011). Specifically, the research endeavoured to establish if the participating organisations were designed to promote the logic of instrumental rationality and whether project practitioners espoused prescribed project management perspectives in which corporate and project objectives occupy the dominant position (Thomas, 2006). If indeed, the participating environments are oriented towards instrumental rationality, the research intended to explore if project practitioners utilise corporate and project objectives in project level decision-making and how they incorporate the multitude of interconnected, and possibly conflicting, corporate objectives.

By describing how project teams incorporate corporate and project objectives in their decision-making, we could begin to understand how unaided decision-making is carried out by experts in organisational contexts when issues are framed by explicit objectives. The research results could thus elucidate how project level decisions impact strategy implementation when strategy is communicated in objective hierarchies. Furthermore, exploring how objectives are used in "real-world managerial decision situations" could contribute to understanding barriers to wider implementation (Wallenius et al., 2008) of rational decision-making practices (Cabantous & Gond, 2011), potentially contributing to development of better models of decision support systems (Kasanen, Wallenius,

Wallenius, & Zionts, 2000). Investigating use of objectives in project decision-making could help to understand some of the difficulties in implementing multi-criteria project evaluation frameworks and possibly lead to suggestions for advances of such models (Barclay & Osei-Bryson, 2009; Fincham, 2002; Maylor, Vidgen, & Carver, 2008; Milosevic & Srivannaboon, 2006; A. J. Shenhar, Dvir, Levy, & Maltz, 2001). Such research could help us reduce the gap between 'abstract prescriptions and concrete practices' in project management (Thomas, 2006, p. 105).

In order to explore project managers' decision-making in their native environment with as little interference as possible, the research was designed to observe projects *in-situ, in-actu, and in toto* (Langley et al., 1995) using a ''*multiple case (embedded) design*" methodology (Yin, 2009, p. 46) where the data was collected via the "*observer as participant*" approach (Robson, 2002, p. 319). The study involved two established software development organisations where nine projects were followed over four months. More than 150 project meetings were recorded in actu, resulting in 90 hours of meeting proceedings data. Interviews with participants and existing project documentation augmented the data set, providing insight into practitioners' perception of the context and their praxis.

The primary units of analysis in this research were decision episodes, the concept introduced by Hendry & Seidl (2003) and defined as an observable process of decision-making characterised either by the discussion of alternatives, or by the participants labelling the event as a "decision". Decision episodes were identified during the transcription process. Episodes were demarcated by the point when an issue has been recognised to require some action, through to reaching an agreement on how to proceed. Ten meetings were specific estimating sessions during which multiple task

estimates were decided upon and the other 18 decision-making episodes were of various types, for a total of 28 episodes.

In summary, this thesis brings together research in the fields of organisational project management, organisational decision-making and practice-based theorising as a basis of an empirical study. The theoretical framework developed for this empirical investigation encompasses contextual and dynamic aspects of organisational projects (Engwall, 2003), the concept of web of issues as the core of organisational decision-making (Cohen, March, & Olsen, 1972; Langley et al., 1995) and adopts the practice perspective of routinised and reflective action in praxis (Tsoukas, 2010). The concept of a *decision site is* introduced, which defines a multi-dimensional area constituted by decision-making practices and horizons of meaning of participating practitioners in current sociomaterial context.

Two visual representations were designed to trace decision-making processes. A flow-chart diagram followed different steps in decision-making activities, and a swim-lane diagram was used to describe the entwinement between project level decisions and their organisational context. By tracing the development of decision processes through changes in focus of participants' conversation, clusters of organisational concerns emerged. In the present thesis, these clusters of concerns are referred to as *praxis domains*. *Praxis Domains* are nexuses of organisational practices that practitioners reflect on when addressing issues (the "operations praxis domain", for example, encompasses all organisational activities that are part of, support or surround, organisational 'operations').

In contrast to what one might expect in view of the engineering spirit and the strong

idea of instrumental rationality that historically led to the emergence of management theory and project management, the results of the data analysis do not support the notion that project and corporate objectives are influential in project decision-making. Although the encountered project decision environment was designed to promote rational choice, decision-making activities turned out to be, first and foremost, meshes of practices, and where praxis of rational choice was not observed.

However, organisational project participants did not act irrationally either. In constructing decision sites through other decision-making practices, practitioners appear to encapsulate some objectives, possibly even sets of coherent, although partial, objective hierarchies, thus making praxis domains a kind of proxy for objectives. Moreover, some practitioners achieve such an appraisal of project situations by employing a particular type of practice. The diagrams used in analysis helped identify two distinct practices of decision-making. The practice of estimating and negotiating complexity of software development tasks, named here the practice of *neguesstimation,* is specific to the domain of software development and is entwined with project management domain. The second practice is called the practice of *querying praxis domains* and appears to be specific to project management in a plural organisational context, which can be described as a type of organisational decision-making practice that facilitates the interplay of other organisational practices when organisational issues are being managed in the flow of project praxis. For this practice, praxis domains, serve as points of reference and implicitly convey organisational aims in the context of a particular decision episode. Rather than referring directly to the stated corporate or project objectives, practitioners engaged with project situations by interpreting issues against the background of organisational praxis domains. By considering the project

situation with respect to praxis domains, practitioners bring forth domain-specific practices that enable them to create, modify and evaluate relevant alternatives.

The findings of this thesis suggest that practices of organisational decision-making construct and manage decision sites in different ways. The practice of querying praxis domains constructs a transient decision site formed in the interplay between praxis domains, issues and alternatives, while the practice of neguesstimation starts with a predetermined site and modifies it according to very specific rules, while still engaged in the underlying practice of software development. Contrary to the instrumental rationality of practices of rational choice (Cabantous & Gond, 2011), which focuses on precise dissection and analysis, these practices embrace organisational reality in a more holistic way, and construct decision sites imbued with deep practical knowledge.

Furthermore, the findings suggest that the degree of entwinement between practices required to carry out decision-making practice could be used as a means of differentiation between different practices of organisational decision-making. While the practice of neguesstimation is very closely entwined with the practice of software development, the practice of querying praxis domains requires less specific practical domain knowledge and more awareness of participating praxis domains and their interaction. This leads to a suggestion of a spectrum of organisational decision-making practices organised along the degree of detachment between underlying practices and decision-making practice.

The thesis is organised as follows. Chapter 2 introduces the relevant research in project management with the focus on organisational projects and discusses the Value Focused Thinking (Keeney, 1992) framework as a possible aid in project decision-making.

Chapter 3 provides a brief overview of research on organisational decision-making. It starts with describing the underlying perspective of Herbert Simon's ground-breaking research on decision-making and then discusses later developments in the field against the background of Simon's approach. Chapter 4 brings forward several new perspectives on organisational decision-making and discusses the contributions and limitations of these innovative conceptualizations. This chapter specifically addresses ideas related to seeing decision-making as an organisational practice. An introduction of practice theories and some of their major concepts (in so far as they are relevant for the present thesis) follows in Chapter 5. The literature overview and the theoretical foundations presented in chapters 2 to 5 lead to the formulation of the research problem in Chapter 6. This chapter also describes research design, methodology used and the data collection approach, addresses limitations of the research undertaken here, and presents a description of participating organisations, projects, and data collection process. On this basis, chapter 7 gives a detailed account of the data analyses carried out. Finally, chapter 8 presents the findings of the research project followed by a discussion of the findings in Chapter 9. Contributions and conclusions are presented in the final Chapter 10. Appendices A, B and C contain detail descriptions and an analysis of the participating companies (Appendix A), the projects (Appendix B), and the decision episodes (Appendix C) investigated. Appendix D presents details of the data analysis process and Appendix E contains supporting documentation.

Chapter 2 ORGANISATIONAL PROJECTS' DECISION-MAKING CONTEXT

"Project organization is a key industrial activity and a key corporate process (Winch, 2000) and management without sound knowledge of projects misses a great deal of what management of contemporary firms is about" (Söderlund, 2004a, p. 185).

This chapter introduces project decision-making context. It first provides a brief overview of project management research, leading to a working definition of an organisational project, which is described by project objectives, project team, and project organisational context. Identifying a gap in research on decision-making in projects, the chapter opens an inquiry into project-level decision-making with a specific focus on the value-focused-thinking framework and its possible application in organisational projects.

2.1 INTRODUCTION

Project management is a dynamic sub-field of management, with a progressive research and professional community (Morris, 2011). Developing at the cross-roads of multiple disciplines, it is not surprising that the field has over the years become fragmented, offering a spectrum of views on what projects are, how best to research them, and how best to manage them in practice (Söderlund, 2011b). This chapter provides a brief introduction to some of the research debates, spanning from the traditional views of projects as functional units, to viewing projects as socio-technical phenomena, and to more recent interpretations of projects in practice perspective. The discussion leads to a working definition of organisational projects used in this research, defining projects as goal-oriented organisational activities, delivered by teams of reflexive practitioners.

Organisational project environment is characterised by organisational embeddedness and is subjected to the influences of multiple streams of activities changing at varying paces (Engwall, 2003). Decisions made in such a dynamic and organisationally embedded environment, are intricately connected to other organisational actions, and are not contained within the project alone. Although the importance of project decisions has been recognised in research and within the practice of project management, decision-making activity within projects has not been investigated in much detail (Powell & Buede, 2008; Williams & Samset, 2010). It has been suggested that using decision-making methods could aid decision-making at the project level, therefore ensuring project alignment with corporate strategy (Jamieson & Morris, 2004). By contextualising project decisions as an embedded organisational activity, this chapter sets the scene for the subsequent exploration of organisational decision-making.

The chapter starts with an overview of the discipline of project management that concludes with a definition of a 'project' as it is defined for the purposes of this research. This is followed by an elaboration of decision-making in projects as a goal-oriented activity embedded in organisational context. In turn, this provides the basis for an inquiry into project-level decision-making practices, focusing on the Value Focused Thinking framework and its possible application in unaided project level decision-making. Specifically, the Value Focused Thinking framework (Keeney, 1992) is evaluated for its potentially beneficial way of identifying and structuring objectives relevant to a specific project situation.

2.2 PROJECT MANAGEMENT AS A DISCIPLINE

Project Management is a sub-discipline of Management that builds upon multiple theoretical foundations, with a shared focus on a "particular cognitive problem" (Cole 1983: 130)" (Söderlund, 2011b, p. 37). Broadly speaking, there are two main theoretical traditions in project management research, one firmly rooted in applied mathematics and engineering with a functional focus on tools and techniques, while the other has its intellectual foundations in social science, specifically in organisation theory and psychology (Söderlund, 2004a).

The underpinning of project management discipline is in rationalistic tradition within organisation theory and operations research, which evolved from the attempts to solve practical problems with the use of techniques like Gantt charts, task decomposition (e.g. Work Breakdown Structures), and planning. These techniques developed primarily with pragmatic concerns of improving efficiency and the success of project work and management researchers played an important role in promoting the tools and methods

via articles and textbooks. Initially, the research focus was on scheduling and planning techniques, but that soon expanded into the areas of cost control, resources allocation, and resource management (Söderlund, 2011b). True to its foundations, project management research has largely been functionalist and prescriptive (Cicmil & Hodgson, 2006; Cicmil, 2006; Söderlund, 2004b).

Four distinct periods in the history of modern project management can be differentiated by their use of project management tools and practices: (1) prior to 1958 described as "Craft system to Human Relations Administration"; (2) between 1958 and 1979 titled "Application of Management Science"; (3) between 1980 and 1994 "Production Centre: Human Resources"; and (4) since 1995 to present, called "Creating a new Environment" (Carayannis, Kwak, & Anbari, 2005, p. 2). Söderlund identified seven distinctive schools of project management, each with an increased divergence from the operations research roots of the 1950s, and the growing influence of organisation and management theories (Söderlund, 2011a). Schools are differentiated by their research questions, methods of inquiry and research aims, and diverse perspectives on the project management field – what it is and what it should be. There are seven recognised schools: (1) Optimization School, (2) Factor School, (3) Contingency School, (4) Behaviour School, (5) Governance School, (6) Relationship School, and (7) Decision School (Söderlund, 2011b). Other perspectives that have emerged explore (1) projects and strategic direction, (2) project context and contingent capabilities, (3) projects as information-systems, and (4) project management from the critical management perspective (Winter et al., 2006). Diversity and discussion about the 'schools of thought' and project management paradigms are comprehensively covered by Smyth and Morris (2007), who conclude with the acknowledgment of the continuing prevalence of

positivist or empiricist traditions, and the proposal to apply critical realism in future research (Smyth & Morris, 2007). Other detailed accounts can be found in Morris (2011), Carayannis, Kwak and Anbari (2005), and Söderlund (2011b).

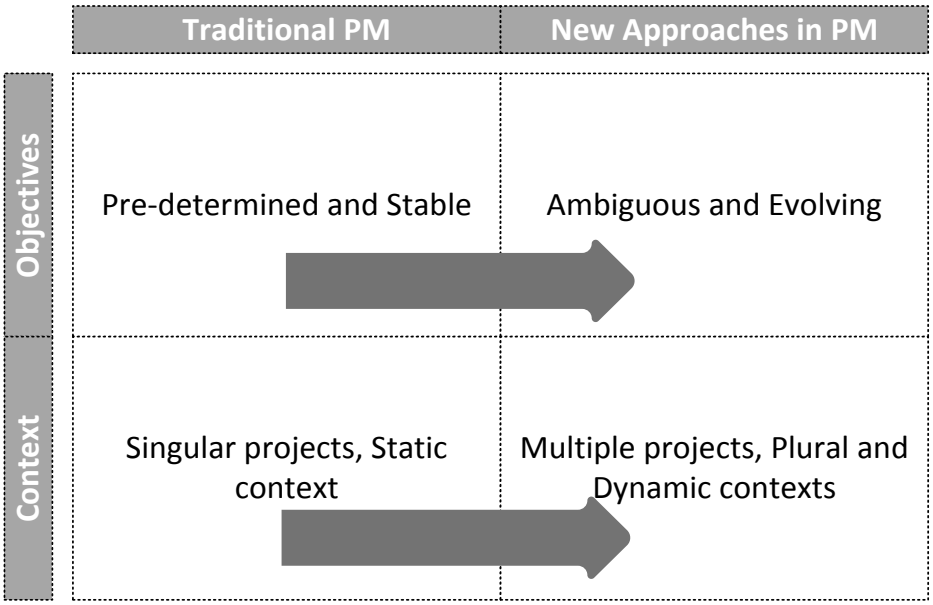

FIGURE 1 - CHANGING VIEW OF PROJECTS IN PROJECT MANAGEMENT[2]

Research streams in project management differ in their key assumptions about action and rationality, their focal research questions, and their theoretical foundations (Söderlund, 2011b). Not surprisingly, definitions of projects range from the functionalistic view of pre-determined projects with fixed goals and methods, to those acknowledging socio-technical nature and organisationally constituted project phenomena. The development in project research could be traced moving from assumed stable project goals towards recognition of changing and uncertain objectives,

[2] This presentation is only an analytical framework, and does not imply where, on continuum between these ends, projects in practice are to be found.

and from a view of a singular and isolated project to organisationally embedded and interconnected projects (depicted in Figure 1).

The traditional project management paradigm retains functional focus on projects, perceiving projects as unique, usually high-risk undertakings, initiated to reach specified goals within the predefined triple constraints of time, cost, and scope. Within that tradition, projects have been defined as 'tools', 'endeavours', or 'ventures', aimed at 'achieving higher-level ends', or 'dedicated to the specific purpose'. Projects have been described as 'unique', 'novel', 'high risk', 'expensive", 'large, and 'temporary' characterised by having a 'beginning and an end' (Chapman & Ward, 2003; Packendorff, 1995; PMI, 2013; Williams, 2002). The Project Management Body of Knowledge (PMBOK), published by the US professional project management association, Project Management Institute (PMI), defines a project as a "temporary endeavour undertaken to create unique product, service or a result" (PMI, 2013, p. 5). These definitions emphasise the "central role of objectives" that can be quantified. They also highlight project temporality, uncertainty and uniqueness and commonly refer to "human, material and financial resources" (Chapman & Ward, 2003, p. 3).

Packendorff (1995) contrasted the 1987 PMI definition of a project to "a temporary organization" (p.321), shifting the focus from decision to action, where all kinds of organisational performances are considered as "different kinds of action" (Lundin & Söderholm, 1995, p. 438). Other researchers have moved the focus to processes, context, politics, improvisation, communication, and other influences (Söderlund, 2002). Diverging further from classical views, researchers have suggested project management practice to be "seen as a social conduct, defined by history, context, individual values and wider structural frameworks" (Cicmil, Williams, Thomas, & Hodgson, 2006, p. 676),

calling for the development of alternative understandings of organisational activities at the project level, and a view of projects as a "temporary organisation, an aggregate of individuals, temporary enacting a common cause" (Cicmil & Hodgson, 2006, p. 117).

Sensitised by critique and development in other management fields and social sciences, researchers in project management started to devote more attention to practice perspectives (Blomquist et al., 2010; Hällgren & Söderholm, 2011). Some of the ensuing studies changed the research focus from models, tools and techniques, and from processes and context, to actual activities of project practitioners in organisationally embedded projects, as exemplified in research by Hällgren and Söderholm (2011) , Blomquist (2010), Maaninen-Olson and Müllern (2009), Besner and Hobbs (2006), and Engwall (2003).

The proponents of practice perspective in project management research argue that analysing projects through a practice lens, may contribute to a better understanding of project management as an organisationally contextual and individually reflexive activity, without contradicting previous findings. It has been suggested that the very nature of projects, especially the temporality of project existence, impacts how practices are shaped, perceived, and carried out, and what structures are relevant (Blomquist et al., 2010). In contrast to process approaches, the project practice perspective focuses on activities within projects themselves and their local meanings, with the aim of understanding the practice with reference to the three key concepts of practice theories: practice, praxis and practitioners (Hällgren & Söderholm, 2011).

> "A practice approach treats the project as the constantly renegotiated sum of the activities of the individuals involved, whereas a process approach tends to treat a project as something that the organization has" (Hällgren & Söderholm, 2011, p.

502).

A research turn toward the study of projects-as-practice is manifested in the expanding concept of projects from a singular, instrumental organisational activity, firmly grounded in the positivistic paradigm, to the study of actions in projects that are subject to project participants' perception and multi-dimensional organisational influences (Cicmil & Hodgson, 2006; Engwall, 2003; Smyth & Morris, 2007; Sydow, 2006). This reorientation to the practice perspective has been observed in numerous disciplines, specifically in organisation studies. The key concepts (practice, praxis, and practitioners) will be explained in more detail later in section 5.2.1 [page 83]. The following sections introduce the definition of organisational projects as used in this research.

2.3 Defining Organisational Projects

Most project definitions agree that projects are unique endeavours that (1) are goal oriented, time- and budget- constrained, (2) employ a group of people temporary brought together for the project purpose (project team), and (3) are an organisational activity. The following sections explain each in turn.

2.3.1 Goal oriented, Time- and Budget- Constrained

Though definitions of projects vary, it is widely agreed that the fundamental principle of project management is to manage projects toward achieving project objectives (Turner & Cochrane, 1993; Williams, 2002). Traditionally, the clarity and stability of project goals was considered a key success factor in project management (White & Fortune, 2002). Turner and Cochrane summarised the five key project objectives as Time, Scope, Cost, Quality ("golden icons") and organisational objective to achieve 'beneficial change' (Turner & Cochrane, 1993, p. 95). They also stated that project goals and

methods are sometimes labile, and proposed a framework for evaluating projects based on the uncertainty surrounding project goals and project methods. The Goals-and-Methods matrix identifies four types of projects, each requiring a different project management approach (Turner & Cochrane, 1993). The 'golden icons' are often referred to as a 'triple constraint' (Budget, Time and Quality/Scope), and have been the most prominent feature of project management education and professional practice, often used to assess project performance. It has also been acknowledged that some project objectives evolve and may change throughout a project's duration (Chapman & Ward, 2003; Turner & Cochrane, 1993; Williams & Samset, 2010), which in turn would necessitate continuous evaluation of project goals (Pollack, 2007).

In summary, although projects could be pursuing multiple and dynamically changing objectives, they are always constrained by delivery schedule (time), available resources (budget), and the agreed scope and quality or as they are often referred to, by the project triple constraint. Thus, the first parameter of project definition states that a project has a goal to accomplish and is bounded by a triple constraint, although project goals, methods, and triple constraint could change through the project duration.

2.3.2 PROJECT PRACTITIONERS

Traditionally, project participants have been perceived as implementers only, and treated as interchangeable assets. Project participants are labelled 'resources', and activities related to assignment and coordination of people's responsibilities are called 'resource allocation' and 'resource levelling'. Resource management often includes other assets such as hardware, buildings, machines, etc. In recent years, this view has been evolving to recognise project teams as groups of practitioners organised for a temporary enterprise (Cicmil & Hodgson, 2006), where project participants are reflexive

individuals, not only involved in a project field, but also engaged within the project networks, organisation, and wider society (Sydow, 2006).

In an organisational project environment, project practitioners are subject-matter-experts (SME) from various disciplines, each one coming into the project environment with his/her own sets of practices. Although projects have a certain formal arrangement manifested in a project team-organisation (e.g. roles and responsibilities), activities' sequence (e.g. project schedule), meeting regularity, etc., project structures are constituted by the project participants, those on the project team, and those surrounding the project. In other words, the project, the project's participants, along with the organisational environment are mutually shaping (Giddens, 1986). This constituting and re-constituting of project reality means that projects, like other organised human activities, are in a constant state of flux (Cooke-Davies, Cicmil, Crawford, & Richardson, 2007), where participating project practitioners are creatively engaged as project co-creators.

In this research, the project team is defined as a group of competent and reflexive practitioners, actively participating in the delivery of the project. They have a shared responsibility for project success, and they make interdependent decisions about how to proceed (Gersick, 1988).

2.3.3 Projects as Organisational Activity

Projects within organisational settings are no longer seen as isolated activities independent of organisational influences, but are conceptualised as evolving constructs, embedded in organisational domains (Engwall, 2003) and characterised by their "inherent organizational dynamics" (Söderlund, 2011b, p. 49). Organisational projects

are embedded in the flow of organisational activities, developing and mutually shaping them (Engwall, 2003). Each project is intricately interdependent with the whole of the organisational environment, which includes not only project participants, but also organisational and project history, organisational routines, parallel intra- and inter-organisational activities, and the participants' ideas about future states. All these factors influence the interior process dynamics of a project.

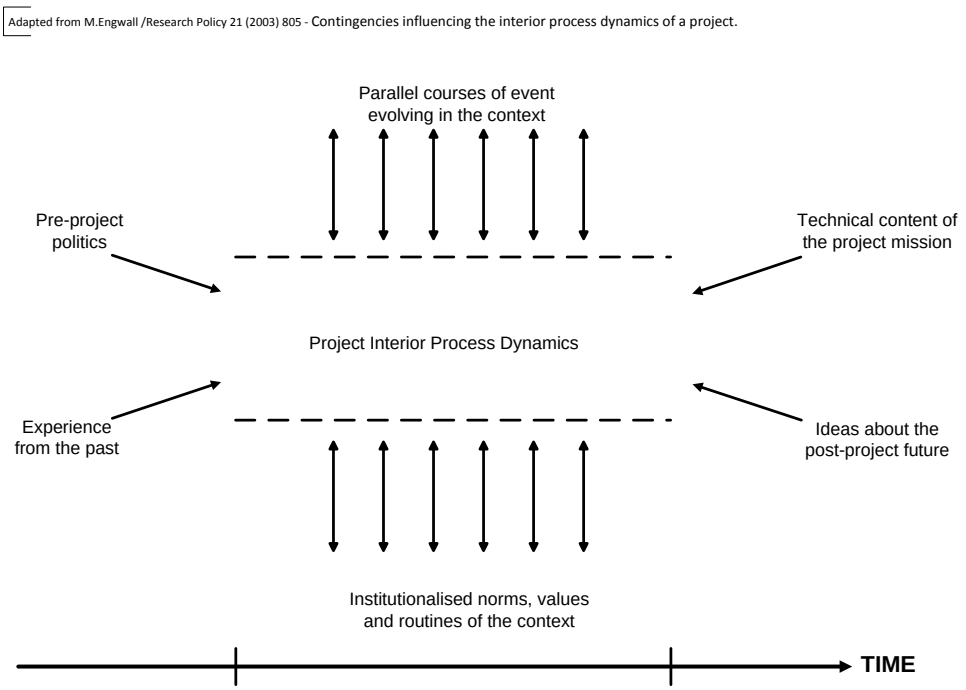

FIGURE 2 - INTERIOR PROCESS DYNAMICS (FROM ENGWALL, 2003, P.805)

Figure 2 depicts the project dynamics which are embedded in the flow of organisational activities and the existence in time, where an

> "individual project only constitutes one of many different projects, activities, ventures, undertakings, problems, issues, decisions, and solutions that gradually pass through the history of its organizational context" (Engwall, 2003, p. 804).

The project interior process dynamics are displayed within the dotted lines (Figure 2), with open ends, implying porous borders subjected to influence of parallel activities

(other projects, operations, etc.), as well as to the always present influence of cultural norms and routines, while the project evolves during its lifecycle. These influences shape the reality of projects, and form the environment where project activity takes place, leading to perceiving projects as "contextually-embedded open systems, open in time as well as in “space" " (Engwall, 2003, p. 790). Therefore, projects are defined as purposeful organisationally embedded activities, mutually shaping and being shaped by organisational context, and subjected to intra- and inter-organisational influences.

2.3.4 Working Definition of an Organisational Project

For the purpose of this research, an organisational project is defined as a goal-oriented organisational activity, bound by the triple constraint, delivered by a team of competent and reflexive practitioners, and embedded within an organisational environment. It is in this type of enterprise that I investigated decision-making activities.

The next section shifts the focus to research in decision-making, relative to project management practice, and introduces some of the concepts later used in the analysis of project decision episodes.

2.4 PROJECT DECISION-MAKING AS A GOAL-ORIENTED ACTIVITY

"Is there anything more important to the success of a project than making good decisions? (Schuyler, 2001, p. xi).

Although project managers face numerous decisions during project execution that could critically impact project success (McCray, Purvis, & McCray, 2002) it appears that research has not given much attention to decision-making during project delivery (Bourgault et al., 2008; Powell & Buede, 2008; Williams & Samset, 2010). The range of perspectives on project management influences the view of decision-making in projects.

The functionalist, and still dominant view of projects, assumes that project managers are not required to make strategic decisions, however, they would be expected to make project-level decisions, which should be framed by project and organisational objectives (Cicmil et al., 2006). Standard project governance recommends that project decisions, where expected outcomes are within the set triple constraint, be the responsibility of the project manager, and the decisions whose impact exceeds the constraint, are to be escalated to a project steering committee (or equivalent) (PMI, 2013). This view reflects the perception of the linear and rational decision-making process, with relatively distinct phases of the decision-making being guided by project objectives and the triple constraint (Sengupta, Abdel-Hamid, & Van Wassenhove, 2008).

Projects are often aligned to strategy implementation with reference to strategic objectives hierarchies to define programmes of individual initiatives (Armstrong, 1982;

Ives, 2005; Maylor, 2001) where "Project objectives are second-order derivatives of broader organisational goals" (Bresnen, 2006, p. 76). Indeed, a large body of research on project management focuses on the definition and clarity of project objectives. Atkinson et al. (2006) proposed that the definition of objectives be made a key part of managing projects, specifically emphasising the importance of performance criteria, the clarification of trade-offs, and the formulation of hierarchy of objectives. The authors point to the necessity of making trade-offs in the course of project delivery, and the significance of building a shared understanding of the risks associated with making such trade-offs (Atkinson, Crawford, & Ward, 2006). In addition to using the triple constraint, multi-objective frameworks have been proposed to aid in project evaluation (e.g. (Barclay & Osei-Bryson, 2009; Fincham, 2002; Maylor et al., 2008; Milosevic & Srivannaboon, 2006; A. J. Shenhar et al., 2001) suggesting potential use of multiple objectives in project level decision-making. Some of the frameworks (e.g. Barclay and Osei-Bryson, 2009) have considered a project objective definition using the value focused thinking (VFT) approach as defined by Keeney (1992).

Adequately contextualising a decision in an organisational environment may result in recognition of new decision opportunities, creation of better alternatives, and better alignment with strategic goals (Keeney, 1992). Conversely, omission of a key objective from the decision model can lead to inadequate results of the analysis (Goodwin & Wright, 2004). Furthermore, misinterpreting which role an objective has in the decision context, e.g. interpreting an instrumental objective as strategic, could lead into a difficult-to-resolve decision situation and misalignment of portfolio level decisions with corporate strategy (Barcus & Montibeller, 2008).

The commonly accepted function of project management remains "to clarify a means-

ends relationship and, through this, increase predictability, calculability, control and efficiency" (Thomas, 2006, p. 103) and it appears that project participants could benefit from tools that help frame decision situations and aid with trade-offs, especially those that could incorporate complex organisational objective hierarchies.

Positioning project decision-making as a goal-focused activity with known project objectives, would invite prescriptive decision-making methods. Specifically, using the Value Focused Thinking (Keeney, 1992) approach to identify and structure objectives already suggested for project evaluation, might aid in project decision-making (Barclay & Osei-Bryson, 2009). Value Focused Thinking (VFT) has been used in organisational settings as a way of assisting in strategic decision-making by a-priori decision analysis (Keeney & McDaniels, 1992; Keeney, 1988, 2001). For example, Merrick et al. (2005) report on analysis of organisational decisions related to safety policy design conducted through development of three fundamental objectives hierarchies connected by means objectives. Winn and Keller used stakeholders' objectives' hierarchies for ex-post analyses of a single strategic-change decision situation to demonstrate how, in response to exogenous factors, objectives' hierarchies changed over time (Winn & Keller, 2001). They also pointed to four limitations of the VFT framework, listing "little guidance on the modelling process", dependency on the memory of one individual rather than the organisations', the static nature of resulting models, and the scarcity of models of "actual, complex decisions in organisations to make such decisions comparable" (Winn & Keller, 2001, p. 168).

In the Value Focused Thinking (VFT) framework, objectives "make explicit the values that one cares about in that context and define the class of consequences of concern" (Keeney, 1992, p. 30). Within a decision context, objectives are characterised with an

intention or a desire to achieve something, and a "direction of preference" (ibid. p.34) Objectives are further categorised as Strategic, Fundamental, and Means. *Strategic* objectives (Values) are the ultimate reason for being interested in the decision, and are "influenced by all of the decisions made over time by the organisation or individual facing the decision at hand" (Keeney, 2007, p. 113). *Fundamental* objectives are closer to the decision being considered and are measurably impacted by particular decision outcomes; and *Means* objectives are instrumental in achieving fundamental objectives. *Means* objectives have no intrinsic value, they are only as important as they can further achievement of fundamental or strategic objectives (Keeney, 1992). Defining the relationship within sets of objectives, fundamental or means, results in the development of the *fundamental objectives hierarchy* and *means objectives network* (Keeney, 1992).

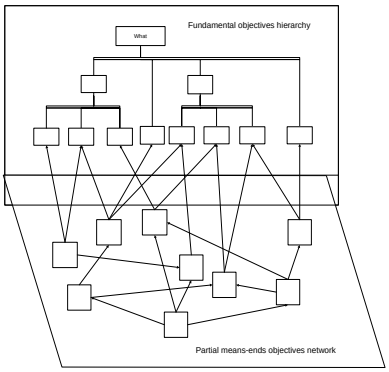

FIGURE 3 -OBJECTIVES' HIERARCHY AND OBJECTIVES NETWORK (ADAPTED FROM KEENEY, 1996, PP. 91)

In the VFT framework, the fundamental objectives hierarchy (vertical plane in Figure 3) is formed by *specifying* the objectives in the order of generality (Buede & Downey, 1986; Harvey, 1991), thus forming a tree where "lower-level objectives should be mutually exclusive and collectively should provide exhaustive characterisation of the higher-level objectives" (Keeney, 1992, p. 78). The lowest levels of the fundamental objectives

hierarchy consist of the operationalised attributes that can be used to evaluate alternatives (Buede & Downey, 1986; Keeney, 1992). Means objectives start with the same high level fundamental objective, and form a *means objectives network* (horizontal plane in Figure 3), as they can influence each other, and each could impact, to various degrees, the accomplishment of more than one fundamental objective (Keeney, 1992). The relationship between means and fundamental objectives is represented in Figure 3. Defining how hierarchies of objectives relate to one another, results in the "*networks of fundamental objective hierarchies*" (Keeney, 1992, p. 89).

The framed decision context can be represented as the following Figure 4, where each plane in the three-dimensional shape, represents one type of objective: plane 1 contains Strategic Objectives, plane 2 contains Fundamental Objectives, and plane 3 contains alternatives. Shaded rectangles A and B, show how selected fundamental objectives assist in selecting a subset of suitable alternatives for the specific decision. The step between planes is a decision in itself (a meta-decision), and selecting the appropriate combination of strategic-fundamental objectives is not trivial.

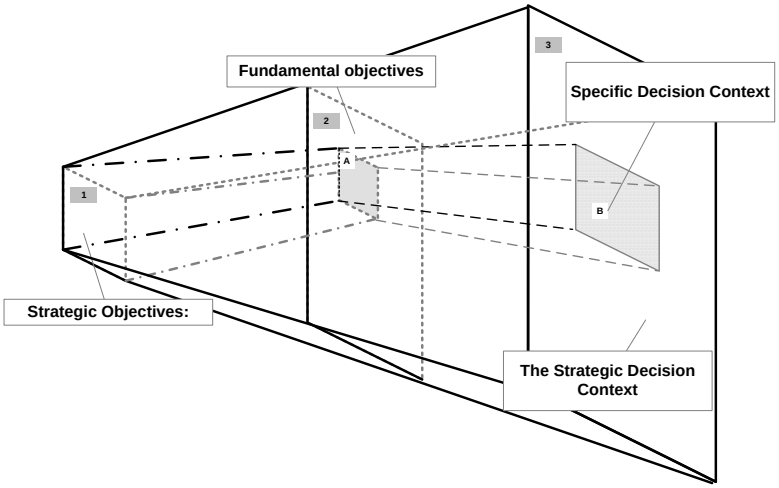

FIGURE 4 – SIMPLE DECISION CONTEXT (ADAPTED FROM KEENEY, 1996 P.45)

The graphical representation in Figure 4 benefits from its three-dimensionality. It is easy to imagine many other objectives and alternatives in the space enclosed by the largest four-sided cut pyramid. If those other objectives were to be used, they would be identified, or activated (Carlson et al., 2008), and a new plane inserted. Then the relationships between the objectives would be re-evaluated. What becomes transparent is the contextual nature of objectives and their structuring (Corner, Buchanan, & Henig, 2001).

> "Whether a criterion is perceived as instrumental or intrinsic depends on the decision context, since what is an end in one context may be a means to a further end in a broader context" (Wenstop & Koppang, 2009, p. 1111).

The relative nature of objectives and their relationships could cause a problem of interpretation in a decision situation. Whose objectives are being used? Are the relationships between objectives adequately defined, and what is adequate? In cases where a decision analyst who facilitates in decision-making is present such questions may still be answered appropriately (Franco & Montibeller, 2010). But where unaided decisions are made in the course of day to day activities, it could be difficult to define the level of granularity required, the relative objectives and their relationships.

> "Decision can be locally rational, since it may be appropriate in regard to specific decision components, but globally suboptimal with respect to the larger performance context in which the specific decisions are embedded" (Glazer, Steckel, & Winer, 1992, p. 213).

This poses a challenge to unaided project level decisions that, while framed by project objectives still need to account for interdependencies between decisions, actions and outcomes (Williams & Samset, 2010). However, despite the stated challenges, it is conceivable that using objectives and the objectives' hierarchy as described by the Value

Focused Thinking (Keeney, 1992) framework, might be a good approach to aid in framing unaided decisions during project delivery.

2.5 Conclusion to Chapter 2

The field of project management is critical to the modern business environment and is an active research area. Traditional project management considers the link between decisions made in projects, decision outcomes, and the success of the project, linear and unproblematic, espousing assumptions which have been questioned by more recent research.

The generally accepted importance of project objectives to corporate and project success, leads to an expectation that objectives from multiple organisational levels would play a part in project level decision-making. However, there are no reports of use of objectives in unaided decision-making in project delivery. Actually, it is not well understood what role articulated corporate and project objectives have at the project level and how they contribute to overall project and corporate success.

Maybe, understanding of organisational decision-making processes from a descriptive perspective could help develop better prescriptive models to support organisational decision-making at the project level (Kasanen et al., 2000). Hence, the next chapter turns the focus toward organisational decision-making research and introduces some of the current debates in the field.

Chapter 3 ORGANISATIONAL DECISION-MAKING

"Most researchers and practitioners would readily agree that projects are particularly sensitive to how decisions are made within organizations" (Bourgault et al., 2008, p. 99).

This next chapter introduces research on organisational decision-making. The chapter starts with a brief overview of Herbert Simon's Theory of Organisational Decision-making, followed by a description of research advances and resulting divergence in the field. The chapter refers to five theoretical concepts that concentrate the following discussion: (1) the concept of an organisational decision, (2) the perception of the link between decision and actions, (3) the interpretation of organisational decision-making processes, (4) the models of rationality, and (5) the treatment of decision makers.

3.1 INTRODUCTION

To help contextualise the empirical research on practices of organisational decision-making in organisational projects, this chapter introduces the stream of research on organisational decision-making. It starts with the seminal work of Herbert Simon, who placed organisational decisions at the centre of research on organisations (Simon, 1948). Five theoretical constructs serve as pillars for the ensuing debate, and help distinguish the streams of research that followed Simon's influential work. These are (1) the concept of an organisational decision, (2) the perception of the link between decision and actions, (3) the interpretation of organisational decision-making processes, (4) the models of rationality, and (5) the treatment of decision makers.

These areas, individually or in combination, have been interpreted differently over the years. The very concept of the organisational decision was initially conceived as an unproblematic point of choice, a concept similar to the one in the rational choice theory. Following Simon, this idea has been questioned, and further research has offered diverse interpretations of organisational decisions, ranging from the rational choice, ex-post interpretation of past events, game playing, sense-making, decisions as commitment to action, to almost a negation of the very existence of organisational decisions (Tsoukas, 2010; Miller & Wilson, 2006; Hendry, 2000).

Furthermore, the assumed linear link between organisational decisions and actions was almost immediately refuted by empirical studies reporting, among others, the Garbage Can Model type of processes (Cohen et al., 1972). Subsequent research contributed multiple interpretations on how organisational decisions and organisational actions are related. Organisational decision-making processes also attracted research attention

identifying numerous ways of approaching and proceeding through organisational unaided decisions. Simon's innovative concept of bounded rationality, that emphasised limitations of intendedly rational decision makers, inspired prolific research with multiple foci and offered numerous interpretations of human rationality and the role organisational decision makers carry.

These, and other issues, have been extensively explored with a variety of foci and methods resulting in a dynamic and diverse field of organisational decision-making research offering a multitude of interpretations of organisational decision phenomena. This chapter begins with Simon's perspective and then outlines the ongoing debate in the field of organisational decision-making research with reference to the five points of contention.

3.2 THE ORIGINS: HERBERT SIMON'S THEORY OF ORGANISATIONAL DECISION-MAKING

Following the advent of hierarchical organisations and the inception of classical management theory, research on organisational decision-making arrived on the scene with the groundbreaking work by Herbert A. Simon, first published in 1945. Sharing the aim with classical management theory to make administrative work a more scientific endeavour, subject to rigorous inquiry, Simon's innovative treatment of managerial behaviour challenged some of the accepted management principles of the day (Simon, 1948). Inspired by Chester Barnard's seminal work, "The Functions of the Executive" published in 1938, which already emphasised the significance of decision-making in organisational form and functioning, Simon shifted the focus of management theory

from organisational action ("getting things done") to choices leading to action ("deciding") (Simon, 1948, p. 1), thus making the subject of organisational decision-making pivotal to the study of a firm.

Motivated by prevailing economic theories, classical management theories assumed that decision makers are utility maximisers, able to adapt their actions to their goals and the situation at hand (H.A. Simon, 1978). Simon contrasted the assumed 'perfect' rationality of classic economic theories (e.g. Von Neumann & Morgenstern, 1944) with advances in psychology and sociology[3] stating:

> "All human behaviour has a large rational component, but only in terms of broader everyday sense of rationality, not the economists' more specialized sense of maximization" (H.A. Simon, 1978, p. 2).

Questioning the ability of decision makers to fully exercise rationality in their choices, he postulated that decision makers lack the experience and the capability to be perfectly rational, as they do not have complete knowledge or the capacity to anticipate all possible consequences and alternatives, or the skill to choose between them. Though decision makers may wish to be fully rational, they are simply not capable of coping with complex organisational situations. Whereas the previous decision theory considered rationality independent of decision makers, Simon put the mental activities of decision process at the centre of his study, hypothesising that a model of rationality is to be found in that process and not externally (Tsoukiàs, 2008).

[3] with reference to Freud 1925 Vilfredo Pareto 1935, Tolman 1932, William James 1925, and John Dewey 1930

The resulting perspective on organisational decision-making retained the view of decisions as identifiable points of choice where means and ends can be considered separately, but changed the view of decision makers from the "economic" fully rational man, to the "administrative man" of "bounded" rationality (Simon, 1979, pp. 118–119). The following five aspects, which will serve as a conceptual point of departure for what follows, summarize Simon's original view on organisational decision-making.

3.2.1 Organisational Decisions

In Simon' view, decisions are distinguishable points in time when a choice between alternative courses of action is made. A 'choice' means a selection of a course of action when other courses of action are possible where "[e]ach decision involves the selection of a goal, and a behaviour relevant to it" (Simon, 1948, p. 4). This concept includes "any process of selection", not only deliberate selection between explicit alternatives, but also those where decision processes may appear 'unconscious'. For example, a typist reflexively hitting a key while typing a letter, is a 'choice' event conceived "in some sense at least, to be rational (i.e. goal-oriented)" (Simon, 1948, p. 3).

Organisational decision-making is conceived to be the essential function of administration, where each decision is a part of a *Hierarchy of Decisions* in which the lower levels support the implementation of the goals set at the "immediate level above" (Simon, 1948, p. 4). Although Simon acknowledged that no decision in an organisation is ever made by a single individual but is instead a "composite" decision, a result of a multitude of organisational decision-making processes, he advocated that it is useful to consider organisational decisions from the point of view of an individual decision maker (Simon, 1948, p. 307).

3.2.2 LINK BETWEEN DECISIONS AND ACTIONS

Within the established view of organisations as purposive and hierarchical systems with undisputed organisational goals, the implicit assumption of Simon's theory was that organisational action is always a result of some previous decision. Even with the acknowledgement that the pursuit of organisational goals may be conscious, deliberate, or unconscious and habitual, the ends of such unconscious pursuits, in Simon's view, could be derived by the actions taken, implying that all action is goal-driven and based on an evaluation of means over ends (Simon, 1948). In his perspective, organisational decisions always precede organisational actions, decisions are always followed by actions, and a choice point can be reconstructed from the actions taken. Consequently, "organization behaviour is a complex network of decisional processes" (Simon, 1948, p. 305) and organisational strategy is a series of decisions.

3.2.3 DECISION-MAKING PROCESS

Simon's conceptualisation of decisions was open to include a wide array of decision processes that can take place in an organisation. Though Simon documented how different types of organisational decisions could follow different processes, where more repetitive and routine decisions can be 'programmed' whilst others, being more novel and complex with uncertain consequences, cannot ('non-programmed decision') (Simon, 1960), he remained true to the notion of decision-making as a cognitive process decomposable into a series of programmable steps. The decision-making process is perceived as a logical and linear progression, with possible variations in the steps taken, where means and ends are separated at some point in time.

3.2.4 RATIONALITY

At the root of the traditional decision-making theory was the concept of "instrumental rationality" or "deliberate planning" (Weber, 1922, p. 63). "Instrumentally rational" action is described as an action "when end, the means, and the secondary results are all rationally taken into account and weighed" (Weber, 1922, p. 26)[4]. The Economic man in neo-classical economic theories was assumed to be a self-interested utility maximiser of omniscient rationality: he has a complete and consistent system of preferences; is aware of all available alternatives; and there are no limits to the complexity of the computations or probability of calculations that he can perform. Simon pointed out that the theories referring to the Economic man (e.g. game theory and theories of decision-making under uncertainty) have "little discernible relation to the actual or possible behaviour of flesh-and-blood human beings" (Simon, 1948, p. 87), emphasising that the traditional view of rational human actors has been "decisively refuted by modern developments in psychology and sociology" (Simon, 1948, p. 72).

Simon shifted the attention of administrative theory to the actuality of organisational life, stating that "it is precisely in the real world where human behaviour is *intendedly* rational, but only *boundedly* so" (Simon, 1948, p. 88). The premise of Simon's theory is that all behaviour is purposive and rational, defining rational behaviour as the one that "select[s] alternatives which are conducive to the achievement of the previously selected

[4] Weber distinguished between four orientations of social action: "instrumentally rational" (zweckrational), "value rational" (wertrational), "affectual" (especially emotional), and "traditional" (habitual) orientations.

goals" (Simon, 1948, p. 4). In actual performance, the hierarchy of goals is usually a "tangled web" of only weakly connected elements (Simon, 1948, p. 74) and subject to a set of constraints.

Given the complexity of the organisational situations they face, isolated individuals, although intended to be rational, are limited in their capacity for a "high degree of rationality" (Simon, 1948, p. 92). Incompleteness of knowledge, difficulties of anticipation and a narrow scope of available "behavioural possibilities", all limit an individual's ability for rational decision-making (Simon, 1948, p. 96). Simon attributes the limits of rationality to "the inability of the human mind" (Simon, 1948, p. 117) to consider all the relevant factors, knowledge, and alternatives, and introduces the concept of *bounded rationality*.

> "Rationality, then, does not determine behaviour. Within the area of rationality, behaviour is perfectly flexible and adaptable to abilities, goals, and knowledge. Instead, behaviour is determined by the irrational and nonrational elements that bound the area of rationality. The area of rationality is the area of adaptability to these nonrational elements" (Simon, 1948, p. 323).

The nonrational and irrational elements arising from habit or routine, ("out of the area of conscious attention" (Simon, 1948, p. 102)), are still conceived as the result of some previous rational decision.

> "The habitual portion is not, of course, necessarily or even usually irrational, since it may represent a previously conditioned adjustment or adaptation of behaviour to its ends" (Simon, 1948, p. 102).

Routine or habitual action is defined as the "embodiment of 'once and for all' decisions, and applying them in particular circumstances is a decision, albeit often itself a routine one" (Simon, 1948, p. 89). Even intuition is perceived as "analyses frozen in time"

(Simon, 1948, p. 139). Simon actually never gave up the idea of a rational individual, only adjusted it to a boundedly rational individual still attempting to maximise his utility (Clegg, Hardy, Lawrence, & Nord, 2008). Although subject to environmental influences, affect, and stimuli, Simon's decision makers always remain cognitive processing machines, limited in their capacity, but always of "cerebral rationality" (Langley et al., 1995, p. 260).

Simon also distinguished between substantive and procedural rationality, defining behaviour as substantively rational if it is "appropriate to the achievement of given goals within the limits imposed by given conditions and constraints" (Herbert A. Simon, 1976, pp. 130–131), and procedurally rational when the behaviour is a result of "appropriate deliberation" (Herbert A. Simon, 1976, p. 131).

In subsequent editions of Administrative Behaviour (4th edition), Simon elaborated on the concept of bounded rationality adding satisficing decision-making strategy employed by decision makers "because they have not the wits to maximize" (Simon, 1948, p. 118). The satisficing strategy allows administrators to choose an action within their own limitations, not considering all possible alternatives, and not having the skills to evaluate them.

> "Because they treat the world as rather empty and ignore the interrelatedness of all things (so stupefying to thought and action), they can make their decisions with relatively simple rules of thumb that do not make impossible demands upon their capacity for thought" (Simon, 1948, p. 119).

Although the simplification may result in errors, the limitations of human rationality leave no other alternative but to use satisficing strategy and design organisational structures and procedures to overcome the limitations of boundedly rational decision makers.

3.2.5 Decision Makers

With the shift from the "economists' rational man'" (maximiser) to Simon's administrative man (satisficer) (Simon, 1955, p. 118), decision makers were still perceived as interchangeable and impartial information processing actors. No longer expected to be perfectly rational, decision makers are revealed in a more human form than economic "maximisers", albeit more akin to the information processing systems:

> "The indexed encyclopaedia in expert heads provides the basic mechanism for expert behaviour and organizational routine" (Simon, 1948, p. 331).

Although the "administrative man" responds to environmental stimuli, learns and develops habits in purposeful organisational settings, his habits are perceived as 'analyses frozen in habit', and he is presented as an information processing system. Organisational decision makers are imagined analogous to a thinking machine that can be influenced by the organisation of tasks and limitations of focus, systems of authority, and communication. In Simon's words:

> "the stimuli of decision can themselves be controlled so as to serve broader ends, and a sequence of individual decisions can be integrated into a well conceived plan" (Simon, 1955, p. 117).

3.2.6 Simon's Legacy

Contrasting classical economic theory, Simon highlighted the role of decision-making to organisations, the role of human cognition in the decision-making process, and the need for empirical descriptive research in organisational decision-making. By comparing the description of real decision-making in organisations to assumed behaviour of imaginary actors, he

> "obscured a possible distinction between behavioural and normative theories

> of choice, preferring to view differences between perfect rationality and bounded rationality as explicable consequences of constraints" (J. G March, 1978, p. 590).

Simon placed individual decisions firmly at the very centre of administrative theory, with individuals of bounded rationality participating in hierarchical organisational decisions that are intricately interconnected (Simon, 1948). Despite acknowledging various influences in human decision-making, for example, habit and affect, the difference between individual and organisational decision-making was left somewhat opaque (J. G March, 1978). Simon's ideal remained an instrumentally rational organisation, driven by a series of decisions, organised in an hierarchical way, where the administrative organisation takes it upon itself to guide intendedly rational humans to overcome their bounded rationality in order to achieve overall organisational objectives.

Simon's work inspired a generation of researchers, which lead to the development of a wide array of streams with different foci, research aims, and methods. The resulting wealth of research illuminated different aspects of decision-making phenomenon, sometimes with contradictory findings. Furthering research on limitations of human cognition with exploring individual decisions in experimental situations, Kahnemenan and Tversky reported that decision makers often resort to recognisable heuristics and biases (Kahneman, Slovic, & Tversky, 1982), and developed a descriptive Prospect Theory of decision-making. Naturalistic Decision-making (NDM) research also investigates individual cognitive processes, but in real-world settings ("cognition in the wild" (Hutchins & Lintern, 1995, p. 370)). Focused on ill-structured problems in constantly changing uncertain conditions, with multiple, and sometimes ill-defined goals, where decision makers must respond to the changes in the system (Lipshitz, Klein,

Orasanu, & Salas, 2001), NDM explores a wide area of contexts (hospitals, fire-fighters, corporations, e.g. (Alby & Zucchermaglio, 2006; Crandall & Getchell-Reiter, 1993; Klein, 1989; Rudolph, Morrison, & Carroll, 2009)) where high stakes, multiple socio-technical players, and organisational embeddedness are part of the situation (Shattuck & Lewis Miller, 2006). This stream has proposed models of decision-making that further diverge from the rational choice model, for example the Image Theory (Beach, 1990), Recognition Primed Decision-making (Klein, 1993), and Fast and Frugal Trees (Gigerenzer, 2007), each bringing situated decision-making cognitive processes closer to the actions that actors carry out at the time. More recent research in behavioural economics has suggested that there is an inherent 'irrationality' in human behaviour (Ariely, 2008; Thaler & Sunstein, 2008).

These and other research streams are all related to the phenomena of decision-making, some in organisational settings, where knowledge gained in one area often permeates another. Whilst understanding human cognition has been an important aspect of learning about decision making, Organisational Decision-making (ODM) research focuses primarily on "social processes which are heavily constrained by organisational goals and norms" (Gore, Banks, Millward, & Kyriakidou, 2006, p. 929). The following section outlines development along the several key themes found in that field of research.

3.3 DEVELOPMENT

Following Simon's shift in focus from organisational action to administrative decisions, researchers soon started to question if that separation is adequate. Specifically, further research questioned if organisational decisions can be studied in isolation, if the causal

link between organisational decisions and actions can be assumed, and if organisational decision-making processes correspond to linear and assumed rational processes. The ensuing research perspectives addressed some of these questions while offering a broad range of interpretations.

3.3.1 Organisational Decisions

Moving from the idea of decisions as evident points of choice, early empirical research in organisational decision-making questioned if decisions should be conceived as separate events that are isolated from their environment and which carry a clear purpose of making a choice. Challenging the basic assumptions of the traditional perspective, Cohen et al. (1972) hypothesized that organisational decisions could be arrived at randomly rather than rationally, thus offering the "Garbage Can Model'' of organisational decision-making. The model suggested that organisational decisions take place in a tight interaction between "problems, solutions, and participants", where the problems solved "depend on a relatively complicated intermeshing of elements" resulting in "the partial uncoupling of problems and choices" in organisations (Cohen et al., 1972, p. 16) stating that

> "a decision is an outcome or interpretation of several relatively independent streams within an organization" (Cohen et al., 1972, pp. 2–3).

This view led to conceptualising organisational decisions as an integral part of streams of organisational activities, rather than points of isolated choice. Mintzberg proposed a view of multiple centres of organisational decisions and various "logics of action"(Mintzberg, 1994, p. 106), and defined a decision as a "commitment to action" (Mintzberg, Raisinghani, & Théorêt, 1976, p. 246). Other researchers questioned the way decisional events are divided into discrete entities "amenable to systematic analysis"

(Chia, 1994, p. 800), suggesting instead that decisions are ways of retroactively making sense of what happened, and arguing that decisions are reconstructions in the minds of actors (Chia, 1994). Brunsson alerted to the multiple purposes of organisational decisions, asserting that decisions in organisations could be used to choose between alternative courses of action, or to mobilise commitment, or to attribute responsibility, or to legitimatise action, where each role is characterised with a different type of uncertainty, attracting a different decision-making process and a different degree of rationality (Brunsson, 1990).

Political perspectives identified organisational decision-making as a game of power, where parties with competing interests struggle over scarce resources, thereby perceiving organisations mainly as political entities (Miller & Wilson, 2006; Narayanan & Fahey, 1982). Langley et al. view organisational decisions as sometimes isolated events which are recognised as separate attention worthy occurrences, whilst in other instances, decisions are part of the organisational flow that is merged with other organisational activities (Langley et al., 1995). For Hendry, decisions are "a rationalizing element" of strategic discourse, (2000, p. 971), an important part of strategic process, that could be instrumental, prospective or retrospective. In his view, the communicative aspect of organisational decision-making is what differentiates individual and organisational decisions, highlighting that although neither has to be followed with action, organisational decisions must be communicated (Hendry, 2000).

The very concept of a decision in research on organisational decision-making remains ambiguous: is decision a process or a point, commitment of resources, a commitment to action, action itself, a reconstruction of an event, or something else (Nutt & Wilson, 2009).

3.3.2 Link between Decisions and Actions

The link between decision-making, action and outcomes, assumed in traditional research on organisational decision-making, has not been empirically established (Vidaillet, 2008). Vidaillet identifies two assumptions that influence the dominant views. The first assumes that a decision process, action which implements the decision, and the final outcome of such an action, are sequentially linked. Whereas the second assumes that such a sequential and coherent process can be isolated from other organisational processes to conclusively identify and connect the outcomes to the decision which initiated them (Vidaillet, 2008). By showing the chaotic nature of organisational decision-making and the almost random connections made between problems and solutions, The Garbage Can model questioned both assumptions, sequential process and coherence, and the possibility of isolating organisational decisions from the mesh of other organisational processes (Cohen et al., 1972). Furthermore, it has been reported that some organisational decisions are ignored (Mintzberg & Waters, 1990) while organisational actions could take place without a recognisable point of deciding:

> "It is possible to act without making a decision or talking about it and it is possible to talk and decide without actually acting on it" (Brunsson, 2003, p. 202).

While organisational action does not have to necessarily flow from a discernible decision, and decisions may not always result in actions, organisational decision-making is not an "end in itself", but rather an activity with the purpose to not only "choose the right thing to do", but also actually "to get it done" (Brunsson, 1982, p. 37). Furthermore, Brunsson claims that organisational decision-making motivates action in multiple ways (Brunsson, 1982). Some decision-making processes were found to actively block action, others to mobilise action, and some to legitimise action or

distribute responsibility (ibid.). Narayanan and Fahey agree that organisational decisions could result in a commitment to action, postponement of action, or modification of the issues of concern, including dropping the issue completely (Narayanan & Fahey, 1982). Political perspectives describe how other organisational activities, for example, coalition forming (Narayanan & Fahey, 1982), manipulation and manoeuvring (Crozier & Friedberg, 1980), or bargaining and negotiation (Miller & Wilson, 2006), influence choices of organisational actions.

Sometimes the link between an action and a decision, is retrospectively constructed, possibly finding decision points where there were none before (Vidaillet, 2008). In cases when a selected alternative is initiated, implementation often develops its own dynamic which interacts with other organisational processes and decisions, being further modified along the way, thus making it difficult to establish if the final outcome is a result of the original decision (ibid.).

Although Hendry questions the linear relationship between decisions and action assumed in the traditional approach, he also highlights the specific organisational context which is "typically purposive, structured and often highly politicized" and where decisions, as rationalizing elements of strategic discourse, are " predominantly instrumental, with direct links to both the actions and the intentions of the actors involved" (Hendry, 2000, p. 967). In his perspective, instrumental and sense making roles of decisions could therefore be considered "parallel interacting features of the strategy process rather than as rival interpretations" (Hendry, 2000, p. 972).

In summary, the majority of research on organisational decision-making fails to take into account the complex interrelationships between multitudes of organisational processes,

assuming that "there are no relations among decisions or their effects on organizational outcomes are not significant" (Vidaillet, 2008, p. 427). Coupled with exploration of the concept of a decision, the link between organisational decision-making and organisational actions persists to be a subject of research.

3.3.3 DECISION-MAKING PROCESS

A large body of work on organisational decision-making focused on decision-making processes, drawing early comparison between suggested process models (Nutt, 1984). Contrasting traditional views, empirical studies reported deviations from the presumed linear, sequential process. Lindblom described the existence of different types of decision-making processes that did not match the linear process endorsed by the (bounded) rational decision-making perspective, comparing the "branch method" to the "root" approach of means-ends (Lindblom, 1959, p. 81). The "branch method", aka the "Successive Limited Comparisons", evolves in an incremental, dynamic mode, with periods of re-cycling, iteration, and reformulation, where the selection of goals and courses of actions are closely intertwined. In this method, analysis is limited, and the "good" alternative is the one that most participants agree to, "without their agreeing that it is the most appropriate means to an agreed objective" (Lindblom, 1959, p. 81). Together with the Garbage Can model of organisational decision-making, with its apparent random connections between problem, choices, and action, these models appeared "pathological" (Cohen et al., 1972, p. 16). These findings were further substantiated in a seminal study by Mintzberg, who followed executives in their day-to-day activities and reported a variety of decision-making processes ranging from linear to iterative (Mintzberg, 1971). Organisational decision-making processes were perceived as a "cognitive process, decomposable into discrete steps" (Langley et al., 1995, p. 262),

as well as the "complex linking of multiple processes and people"(Vidaillet, 2008, p. 432)**.** Hendry conceived organisational decisions as a discursive part of strategic practice, bringing decision-making firmly into the flow of organisational activities, where close interaction between decision-making and all organisational practices is observable (Hendry, 2000).

Although the research focused on organisational decision-making processes remains an active field of study (Langley & Truax, 1994; Nutt & Wilson, 2010a; Poole & Van De Ven, 2010), the diversity of findings is somewhat confounding. Dissimilar models of decision-making processes have been suggested, and so far no process pattern has emerged as prevalent. What makes the research on decision-making processes challenging, is the lack of clarity about the concept of a decision and the questions concerning the isolability of decision-making episodes (Langley et al., 1995).

3.3.4 RATIONALITY

Ever since the introduction of scientific management methods, it has been assumed that instrumental rationality is the administrative behaviour ideal and that organisations should be designed and managed to promote it. Separation of means and ends and careful analysis of alternatives in terms of criteria was perceived as the superlative model of decision-making. Remarkably, Lindblom's 'branch' method countered bounded instrumental rationality early on, describing a 'branch' method of decision-making suggesting a different kind of rationality:

> "Typically, therefore, such a means-ends relationship is absent from the branch method, where means and ends are simultaneously chosen" (Lindblom, 1959, p. 83).

However, much of the research into human choice, including organisational decision-

making, continued to assume that there is rationality behind apparently "anomalous human behaviour" (J. G March, 1978, p. 589). March suggested four types of rationality – limited (bounded), contextual, game (political) and process rationality (J. G March, 1978), that share the premise of "intelligent individuals making calculations of the consequences of actions for objectives, and acting sensibly to achieve those objectives" (J. G March, 1978, p. 592). These four 'calculative rationalities' were augmented with adaptive-, selected-, and posterior rationality, grouped as a type of systemic rationality. Systemic rationality evolves over time without a "complete current consciousness of its history", within which sensible actions could be taken without full justification or comprehension (J. G March, 1978, p. 592). The models of adaptive rationality emphasise experiential learning; selected rationality highlights how rules of behaviour survive and grow through a selection process promoted by operating procedures and regulation of social roles; and posterior rationality accentuates "the discovery of intentions as an interpretation of action rather than as a prior position" (J. G March, 1978, p. 593). These non-intentional rationalities result in meaningful actions not as a result of "calculations of the consequences of actions for objectives" but with "intelligence in the suspension of calculation"(J. G March, 1978, p. 593).

Brunsson followed with empirical findings of 'irrational' decision-making manifested in variations in process and purpose, emphasising the action orientation of organisational decisions (Brunsson, 1982):

> "There are two kinds of rationality, corresponding to these two problems [*choice and action*]: decision rationality and action rationality" (Brunsson, 1982, p. 37).

Highlighting the different purposes and "different norms" of decision-making procedures within organisations[5], Brunsson points to the opposition between these two types of rationality, claiming that they are difficult to pursue simultaneously, as each views the other as irrational (Brunsson, 1982, p. 37). Brunsson observes that a "high degree of rationality" could be used not only to make a choice, but also to raise uncertainty about the courses of action, to distance decision and action, to evade responsibility, and possibly legitimatise situations "where inconsistent norms are important" (Brunsson, 1990, p. 57). Although, political perspectives never rejected the basic idea of instrumentally rational actors, but only expanded the set of objectives that individuals are believed to consider in order to prioritise personal over organisational objectives (Crozier & Friedberg, 1980), they accentuated "the need for the appearance of rationality rather than rationality per se" (Narayanan & Fahey, 1982, p. 30). .

However, despite contradictory empirical findings, the dominance of instrumental rationality in organisational decision-making was, until recently, mostly "taken-for-granted" (Cabantous & Gond, 2011, p. 1). Notable researchers have called for inclusion of different views of rationality, acknowledging the difference between "the concrete and embodied material knowledge" and the "observer knowledge" , between the "grounded intelligence of people in their day-to-day accomplishments" and their "intentionality" (Chia, 1994, p. 802). Nevertheless, the view of rationality as “cerebral“ (Langley et al., 1995, p. 262) remained ingrained in most perspectives on organisational decision-making.

[5] "to choose the right thing to do" and "to get it done"

3.3.5 Decision Makers

From the economic man to the administrative man, decision makers did not attract much attention in the study of organisational decision-making, being first seen as instruments of an organisation that "needed to be motivated" (J.G. March & Simon, 1958, pp. 25–26). Although Lindblom (1959) suggested that decision makers' experience, knowledge, and expertise influence their perception of, and the approach taken to decision situations, this idea has not taken root in organisational decision-making research. Further research suggested that the perception of organisational issues by practicing managers is a highly personal and intuitive process subject to environmental influences, past experience, and cognitive style (Lyles & Mitroff, 1980), while March emphasised the dynamic nature of decision makers' preferences that change in response to experience and observation (James G. March, 1991).

Political perspectives introduced decision makers as political actors pursuing other interests (power, resources) within an organisation, giving decision makers individual disposition, while offering a potential explanation for deviating from the strictly rational model of organisational decision-making (Crozier & Friedberg, 1980; Pettigrew, 2001). Although, this view retained instrumental (bounded) rationality at the individual level, it brought forth questions about how decisions interact at the organisational level.

Decision makers were also seen as 'adaptive' (Payne, Bettman, & Johnson, 1990), 'sensemakers' (Weick, Sutcliffe, & Obstfeld, 2009), as well as expert professionals, intuitive and emotional (Clegg et al., 2008). Broadening the research perspective, it was also noted that the process of decision-making appears emergent to the persons involved in it, compared to the independent observers acting as researchers or consultants (Narayanan & Fahey, 1982).

3.4 CONCLUSION TO CHAPTER 3

Research on organisational decision-making contributed greatly to our understanding of decision-related phenomena in organisations. Although the diversity of perspectives on organisational decision-making leaves many questions unanswered, most researchers agree that decisions remain an important part of organisational life (Laroche, 1995). Difficult to define precisely and perhaps not possible to isolate, decision and decision-related activities, whether perceived as points of choice, or processes, or both, permeate organisational life and affect what people do, what they record, what they refer to, and as such, serve many organisational purposes (Brunsson, 1990; Chia, 1994; Hendry, 2000; Langley et al., 1995; Tsoukas, 2010).

It appears that the field has reached somewhat of an impasse, suspended in apparent opposition between rational and irrational interpretations, fraught by ambiguity about the link between organisational decisions and organisational actions, and the failure to integrate the coexistence of linear/iterative/chaotic processes and various roles of organisational decision-making. In response to these contradictions, new ways of conceptualising decision-making phenomena within organisations have been suggested. The following chapter introduces three papers that depart further from the traditional views of organisational decisions.

Chapter 4 Re-conceptualising Organisational Decision-making

"…we shall argue that decision-making must be studied in toto and in vivo, at the individual level to include insight and inspiration, emotion and memory, and at the collective level to include history, culture, and context in the vast network of decision-making that makes up every organization" (Langley et al., 1995, p. 261).

The following chapter discusses three papers that aim to integrate seemingly contradictory findings in organisational decision-making research by proposing new ways of conceptualising organisational decision-making phenomena. In contrast to viewing decisions as isolable choice, these perspectives envisage organisational decision-making as some kind of organisational activity and lead to a proposition of rational decision-making as a specific practice.

4.1 INTRODUCTION

This chapter takes a closer look at several new ideas in organisational decision-making research and sets the stage for re-conceptualising decision-making as organisational practice. It starts with the review of the influential paper "Opening up decision-making – the view from the Black Stool" by Langley, Mintzberg, Pitcher, Posada and Saint-Macary, published in 1995, which identifies several key themes of discontent in the field, and proposes ways to move the exploration forward. This paper called researchers to re-examine their assumptions and the way organisational decision-making phenomena are researched. Langley et al. re-imagine decisions within organisations as part of a stream of issues, and point to the need for closer inspection of real-time activities at the micro-level in order to "trace 'issues' forward, not 'decisions backward'" (Langley et al., 1995, p. 276). The two subsequent papers build on their suggestions, and advocate new conceptualisations of organisational decisions. Tsoukas (2010) presents decision-making as a way of managing an encountered problem where practitioners shift between different types of rationality, knowledge and engagement with the world; and Cabantous and Gond (2011), describe rational decision-making as a *performative* practice.

4.2 LANGLEY ET AL. (1995) INTRODUCE ISSUE STREAMS

The influential paper "Opening up decision-making – the view from the Black Stool" by Langley, Mintzberg, Pitcher, Posada and Saint-Macary, published in 1995, identified several key themes of discontent within the field of organisational decision-making, and proposed ways to advance the research. This paper called scholars of organisational decision-making to re-examine their assumptions and the way in which decision-making

phenomena are researched. Langley et al. re-imagine decisions within organisations as part of a stream of issues, and emphasise the need for closer inspection of real-time activities at micro-level in order to "trace 'issues' forward, not 'decisions backward'" (Langley et al., 1995, p. 276). Their point of departure is a constellation of three problems: the concept of decision, the entrenched 'dehumanising' perspective of decision makers, and the isolation of decision episodes from their organisational context.

Langley et al. argue that the concept of a decision as an isolable moment of choice may not be the best unit of analysis when investigating organisational decisions. Not only are these points of choice difficult to identify, but they may be constructs "in the eyes of the observer", often useful, other times confusing (Langley et al., 1995, p. 265). Furthermore, they ascertain that the concept of 'cerebral' rationality permeates all research on organisational decision-making, imposing a view of sequential and logical decision processes and ignoring individual and insightful contributions of decision makers, arguing

> "that the individual decision maker plays a central role as creator, actor, and carrier, and that organizational decision processes are often driven by the forces of affect, insight, and inspiration of these decision makers acting collectively" (Langley et al., 1995, p. 264).

Langley et al. (1995) believe that actors and organisations mutually give meaning to processes and experiences and question if, in fact, organisational decisions can be researched separately from their context and from one another. This leads to reflection on the link between decisions and actions, and the recognition of the difficulty in tracing the connection, stating:

> "the relationship between decision and action can be far more tenuous than almost all of the literature of organization theory suggests" (Langley et al. 1995, p.265).

To the more traditional process-models (linear, anarchical, iterative), Langley at al. add three more representations of decision-making named "convergence", "insightful" and "interwoven", each characterised with increasing complexity in interactions between decision-making participants and organisational context, and a different process progression (Langley et al., 1995, pp. 266, 269, 275). The resulting 6 models of decision-making are complementary and could together account for the full range of organisational decision-related processes (Langley et al., 1995).

Starting with the acceptance of fluidity of decision points and embracing the variability of organisational decision-making processes, they suggest that these processes, individually or in combination, 'construct organisational issues' and sometimes lead to a decision (Langley et al., 1995, p. 266). The authors argue that the concept of organisational decision as an isolable moment of choice may not be the best unit of analysis, suggesting instead "to work with a new unit of analysis: the "issue" rather than the "decision" (Langley et al., 1995, p. 276).

> "Decision-making comes to be seen here as a complex network of issues involving a whole host of linkages, more or less tightly coupled. Periodically decisions emerge from this network, or at least actions, driven by insights as well as various affective factors in addition to the cerebral rationalities of the actors. The apt analogy here is the moving stream, the context in which the issues float along, sometimes getting washed up on shore as actions, sometimes sinking and disappearing, and often bumping into each other with the effect of changing another's direction, slowing one down, speeding one up, joining two together, or having a single issue burst into several new ones" (Langley et al., 1995, p. 275).

By embracing all process models, proposing ways in which they coexist and interact in

organisations, and including insightful and creative decision makers, the authors have opened up a stage where organisational decision-making could be imagined anew. However, this new conceptualisation of decision-making, leads to enquire how issues streams get created and transformed, and how insightful practitioners engage with issue streams in "prospective, introspective, and retrospective" decision-making (Langley et al., 1995, p. 277). Some of these questions are partially answered by the following paper.

4.3 TSOUKAS (2010) CONCEPTUALISES ORGANISATIONAL DECISION-MAKING AS TYPES OF PRACTICES

Tsoukas responds to the diversity of decision definitions by pointing to differences arising from the point of observation:

> "The confusion between retrospective attribution (made by an observer) and an unfolding empirical reality (as experienced by an actor) has long generated conceptual difficulties in Management and Organization Studies (MOS)" (Tsoukas, 2010, p. 380).

To understand organisational decisions, we first need to understand how practitioners engage with the organisational reality in their practice, recognising that the experience of a decision by an actor in the flow of her practice differs from the perception of a decision by a detached observer or an analyst, thus yielding different conceptualisations. Tsoukas does not dispute the existence of decisions in organisational life, accepting that a decision phenomenon 'of some sort' occurs, but questions what decisions mean, how they happen and how they relate to action, and directs our attention to organisational issues, emphasising how organisational issues cluster in streams. Defining an issue to

be "a concern, a disturbance that *matters* to agents whose identity has been constituted in the context of a particular sociomaterial practice", Tsoukas positions the concept of an issue, an agent, and a sociomaterial practice in a mutually-shaping triad (Tsoukas, 2010, p. 392). To be "a member of a particular sociomaterial practice" is

> "to experience one's situation in terms of *already* constituted distinctions and acceptable emotions, articulated through the discourse that defines the practice" (Tsoukas, 2010, p. 392).

As practitioners internalise aspects of a practice, its domain and goals constitute their reality and their identity "delineating their concerns and the ends to pursue" (Tsoukas, 2010, p. 393). The internalised portion of sociomaterial practice becomes an unquestioned facet of reality, to which the practitioner is accustomed, and which forms

> "the 'inherited background, against which practitioners make sense of their particular tasks" (Tsoukas, 2010, p. 392).

Decisional events take three distinct shapes depending on the actors' type of engagement with the situation, each drawing on a different type of rationality and different type of knowledge. When fully immersed in their practice, practitioners are 'practically coping', responding to developing situations in a spontaneous way of their practice, with a certain orientation towards the implied ends, "acting purposively without having a purpose in mind" (Chia and MacKay 2007:235; Schatzki, 2000:33)"(Tsoukas, 2010, p. 393). This non-deliberate yet purposive action continues in this mode of practical coping until a breakdown of routine is encountered, at which point practitioners switch to a situated awareness in which they act in a 'deliberate' mode. In this type of engagement, "deliberative rationality" is employed, which generates reflexive knowledge in the midst of action "still oriented towards practical ends"

(Tsoukas, 2010, p. 396). This enables practitioners to respond to current issues, whilst continuing with their practice, not changing either the practice domain or its ends. When a practitioner is detached from the flow of action, as in prospective or retrospective mode, and can reflect on a situation, then "practical understanding gives way to quasi-theoretical understanding" (Tsoukas, 2010, p. 396), characterised with thematic awareness of the situation with its practical concerns and abstracted properties. This *in abstracto* mode of thinking is closest to the traditional view of decision-making, where the mode of engagement is thematic awareness and calculative rationality (e.g. considering and evaluating a merger) and a decision 'cuts out several alternatives' (Tsoukas, 2010, p. 397). If decisions are constructed *ex post facto,* interpreting past actions with thematic awareness, abductive rationality ("inference to the best explanation"(ibid.:398)) is employed "seeking to connect particular outcomes or actions to individual or even collective intentions" (Tsoukas, 2010, p. 399).

Tsoukas recognises the pragmatic nature of organisational practice in all modes of engagement with issues. Whilst the type of engagement and the respective rationality varies, all decision makers, in Tsoukas' conceptualisation, are real, human, thinking and feeling beings, being in- and engaging with- the evolving world and taking on multiple roles. By recognising these different modes of engagement, Tsoukas puts organisational decisions and action on a continuum, between practical coping, where deciding and acting is one and the same, and retrospective interpretation, where they are far apart.

And while Tsoukas identifies different types of rationality (practical, deliberate and calculative), different engagement and knowledge associated with the different ways of addressing various streams of issues (practical- and deliberate-coping, and thematic

awareness), he considers them all part of organisational practices, not a practice of itself. Illuminating as it is, it leads one to question how these decisional events occur and how issue streams are managed. These are partially answered by the following paper that conceptualises decision-making as an organisational practice, and is reviewed here ahead of the introduction of the key concepts of practice theories, which follow in the subsequent chapter.

4.4 Cabantous and Gond (2011) describe Rational Decision-making as Performative Praxis

Last in this review is the paper by Cabantous and Gond (2011) which presents rational decision-making in organisations as a (social) practice, with related tools, practitioners, and a specific type of rationality.

> "Building on the practice perspective (Reckwitz 2002) and the concept of performativity from economic sociology (Callon, 1998), we conceptualize rational decision-making as performative praxis; that is, a set of activities whereby organizational actors collectively produce rational decisions and thus grant social reality to rational choice theory" (Cabantous & Gond, 2011, p. 2).

Cabantous and Gond argue that the scholars of organisational decision-making have accepted rationality as a normative ideal and have not adequately questioned its presence in organisations. The research on organisational decision-making, whether belonging to traditional, political or critical schools, reports both rational and various 'irrational' processes but never doubts the very concept of (instrumental) rationality and its persistence in organisational life.

> "Generally, organization scholars have "preserved the axiom of rationality," that is,

> "the idea that human behaviour is intelligent, even when it is not obviously so" (March 1978, p. 589)" (Cabantous & Gond, 2011, pp. 3–4).

As a result, there appears to be a conflict between the normative and the descriptive streams of research.

> "The maintenance of a taken-for-granted view on rationality creates a paradoxical situation: although rationality remains constantly present in organization studies as a reference point, its empirical presence in organizational life remains permanently questioned. That taken for granted view on rationality additionally strengthens the normative-descriptive tension that inhabits the field" (Cabantous & Gond, 2011, p. 4).

From its inception, research on organisational decision-making aimed to improve the processes of decision-making as an "applied and prescriptive discipline" (ibid.: 4). As academic research and theories have disseminated and have been implemented, they left a traceable impact on organisational procedures and processes, contributing to some aspects of observed rationality. Tools and techniques developed by researchers and practitioners of decision analysis have permeated modern day organisations with the precise aim of supporting rationality.

> "Accordingly, we argue that rationality has not disappeared from organizational settings, but has been turned into a "convention," a social norm guiding actions and decisions and "feed[ing] the rhetoric of justification (Czarniawska, 2003, p. 359)" (Cabantous & Gond, 2011, p. 7).

Rather than seeing decision-making as a process, divisible in the discrete steps of varying degrees of rationality, Cabantous and Gond describe organisational decision-making as something people do, resolutely and intently, a "purposeful effort", in other words, "praxis". This praxis involves a "whole range of organisational actors" who in one way or another contribute to it. Organisational praxis is supported by tools and techniques (e.g. scenario planning, risk analysis) making it a sociomaterial practice with

a very specific type of rationality associated with it (Cabantous & Gond, 2011, p. 5).

Rational decision-making practice has a *performative* aspect to it, which means "that it contributes to the realization of a theory of rational choice (Callon 1998, 2007, MacKenzie 2006)" (Cabantous & Gond, 2011, p. 5). The very embeddedness of the theory's assumptions into actors' beliefs, processes, and tools, enables the manifestation of a theory in daily "routines, discourse and behaviours" giving it a social reality (ibid: 6).

Furthermore, Cabantous and Gond describe how rational choice theory gets converted into the rational decision-making praxis through three mechanisms (Figure 5): (1) conventionalisation of rationality through development of professions (e.g. engineering, management) and corresponding education, (2) engineering of rationality through the specific communities of practice and their use of tools and analytic frameworks (e.g. SWOT analysis), and (3) through commodification of rationality through commercial engagements between academics, decisions analysts, and managers (e.g. consultancy).

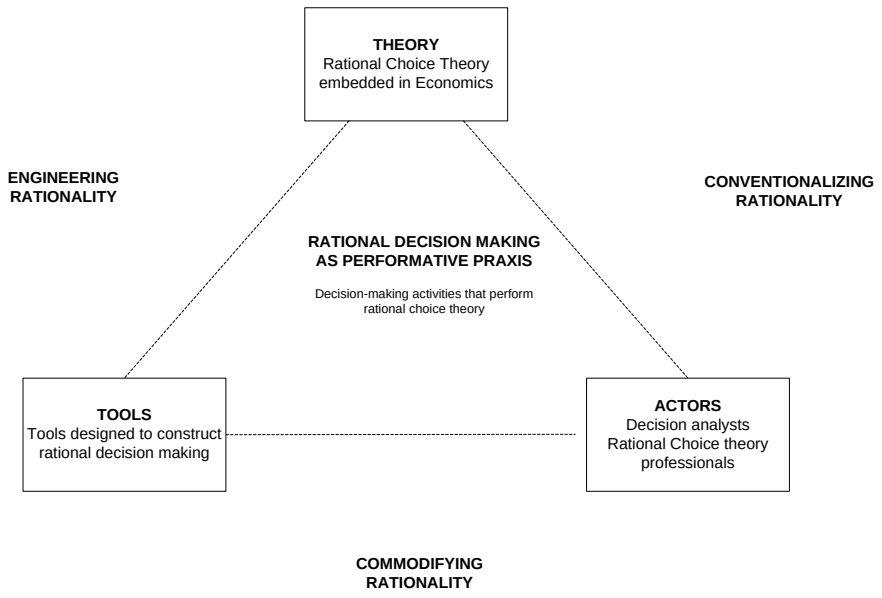

FIGURE 5 - ADAPTED FROM CABANTOUS AND GOND (2011) P.6

Rational decision-making as a practice is characterised by a particular type of rationality, specific routines and behaviours, and identifiable use of distinctive resources. The described type of rationality is of the instrumental kind, aimed to be achieved in a "purposeful effort" (Cabantous & Gond, 2011, p. 5) taught in schools and embedded in practitioners, that becomes taken-for-granted "scheme of interpretation" (Reckwitz, 2002b, p. 247). In the rational decision-making practice, decisions are presumably still points of choice as assumed by rational choice theory, though actors are reflexive practitioners of bounded rationality, believing in the close relation between decisions and actions.

Cabantous and Gond's description of rational decision-making practice is the first truly practice view of organisational decision-making, presenting decision-making as something people do together, following shared routines, using resources in similar ways, and drawing upon the common understanding of the rational choice theory.

4.5 Conclusions to Chapter 4

The three papers presented in this chapter have developed ideas to reconceptualise organisational decision-making as an organisational activity. Langley et al (1995) define decision-making as an activity that in some ways manages streams of issues out of which decisions and action sometimes emerge. Tsoukas (2010) explains how decision-making can be carried out with different modes of engagement and with different types of rationality (Tsoukas, 2010). While Cabanouts and Gond (2011) introduce a specific performative practice based on rational choice theory (Cabantous & Gond, 2011)

Langley et al. (1995) refocus the attention of organisational decision-making research to include practitioners as insightful decision makers that manage organisational issues

embedded in their dynamically interconnected context. To overcome challenges associated with precisely defining an organisational 'decision', they introduced the concept of a web of issues that forms a 'moving stream' from which decisions and actions sometimes emerge but leave unanswered the question of how organisational issues streams get created and transformed. Tsoukas (2010) offers a more precise definition of issues as concerns constituted by engaged practitioners in a particular socio-material context and distinguishes between the ways in which practitioners engage and respond to the issues. He introduces three specific modes of engagement in organisational praxis and envisions them all as types of organisational decision-making. The spectrum of organisational decision-making therefore encompasses prospective and retrospective decision-making, typically characterised by the calculative and abductive rationality, as well as a variety of other decision-making activities carried out by practitioners when immersed in their praxis. Conceptualising organisational decision-making as a spectrum between routine praxis and a thematic awareness but does not address what activities are carried out to manage streams of issues when expert practitioners are immersed in their praxis.

A description of a specific decision-making practice provided by Cabantous and Gond (2011) suggests ways of exploring decision-making as an organisational practice. They argue that rational decision-making is a collective and "purposeful effort", supported by a range of tools and carried out by engaged practitioners that espouse the basis of rational choice theory. The resulting "performative praxis of rational choice" is identifiable in the specific interpretative scheme of the Rational Choice Theory, behavioural routines and specific use of tools.

Seeing organisational decision-making as an integral part of the flow of organisational

activities critical to managing streams of issues these perspectives illuminate, but do not explain, how exactly organisational issues are managed by organisational actors immersed in organisational praxis. Aiming to address this gap and to further develop the notion of organisational decision-making as a practice, the following chapter introduces the key concepts of practice perspectives.

Chapter 5 REORIENTING TOWARDS A PRACTICE-BASED PERSPECTIVE

"Drawing on anthropology, economics, management, psychology, and sociology, researchers are attempting to enrich understanding of the dynamic interplay between the micro processes and practices of strategic actors and the macro sociological and economic contexts of those actors and their practices (Wilson and Jarzabkowski 2004; Hodgkinson and Wright 2006; Hodgkinson et al. 2006; Whittington 2006; Jarzabkowski et al. 2007). Suitably developed, this new line of inquiry has the potential to advance the study of organizational decision-making beyond an impasse that has limited scholarly and practical progress over much of the past 50 years. (Hodgkinson & Starbuck, 2008, p. 15)"

This chapter introduces the family of practice theories and explains the key analytical concepts of practice, praxis, and practitioners, the building blocks for practice-based theoretical framework used in this empirical research on organisational decision-making. The following explains how practices are organised through a triad of shared understanding, rules and teleoaffective structures, and presents dispersed and integrative practices. Further on, the chapter develops a framework which explains how practitioners in their interaction with sociomaterial context form issue streams in praxis and how decision-making practices construct and modify decision sites.

5.1 INTRODUCTION

Recent research in fields concerned with organisational behaviour and decision-making, have taken practice orientation, embracing the potential offered by the social theories of practice, drawing on social theory and other social sciences (anthropology, sociology, economics, psychology, management) (e.g. Jarzabkowski & Whittington, 2008; Clegg et al., 2008; Jarzabkowski, 2004, 2008; Jarzabkowski, Balogun, & Seidl, 2007; Whittington, 2006b). This chapter introduces the family of social theories, frequently referred to as the "theories of social practices" (Reckwitz, 2002b), by connecting first to their diverse intellectual foundations. The key concepts of habitus (Bourdieu, 1977) and structuration (Giddens, 1986) are explained, thereby establishing social phenomena as a continuously dynamic "network of practices" (Nicolini, 2013, p. 8).

To better understand how theories of practice could be used for analysing social phenomena, the analytical concepts of practice, praxis, and practitioners are explained. Furthermore, the second part of this chapter describes how practices are organised by a triad of shared understanding, rules, and teleoaffective structures, distinguishes between dispersed and integrative practices (Schatzki, 1996) and introduces a perspective on organisations as a collection of "practice-arrangement bundles" (Schatzki, 2005, p. 478). This theoretical setting provides the background against which we can envision how activities of organisational decision-making result from practitioners carrying out specific types of practices.

5.2 THEORIES OF SOCIAL PRACTICES

Social theories aim to understand and interpret social phenomena, revolving around

three specific questions: "what is action?; what is social order?; and what determines social change?" (Joas & Knöbl, 2009, p. 18). Theories of social practices are a specific type of social theory that appeared against the background of the two well established, mutually opposing, theories of action and social order. On one side, stemming from the Scottish utilitarian ideas was a *purpose-oriented theory of action* that explained human action by individual intentions and interests. Opposed to this, was a *norm-oriented theory of action,* going back to the social theories by Durkheim and Parsons (c.f. Joas & Knöbl, 2009), that explained action as a result of individuals' respect and obedience to collective norms and values (Reckwitz, 2002b).

In contrast to these theories, theories of social practices belong to a class of social theories that can be referred to as "cultural theories" (Reckwitz, 2002b). This type of social theories takes a "constructivistic" stance towards social phenomena (Becker, 2005, p. 216) and refers to interpretive schemes, symbolic codes, and cognitive routines in order to understand how the social world is constructed via processes that create meaning. In this perspective, social phenomena are perceived as the process and outcome of "ongoing human production" (Berger & Luckmann, 1967, p. 51). What is specific about the family of practice theories is that, unlike other cultural theories, they use the concept of '(social) practices' as the basic building block of all other social phenomena:

> "Practices are not only pivotal objects of analysis in an account of contemporary Western society, but also the central social phenomenon by reference to which other social entities such as actions, institutions, and structures are to be understood" (Schatzki, 1996, pp. 11–12).

The family of practice theories has heterogeneous foundations that embrace a wide

array of ideas. Aristotle's view of "praxis" as a "separate form of knowing with its own logic and legitimacy", for example, has made a significant impact on the ideas of philosophers and social theorists of the practice-based strand of theorizing, as well as philosophers and sociologists such as Heidegger, Foucault, and Bourdieu (Nicolini, 2013, p. 24), whose work underpins the development of the recent 'practice turn' in social theory (Schatzki, 2000).

Other important contributors to the practice field stem from the later works of the cultural theorist Michel Foucault (1977), from the tradition of ethnomethodology (e.g. Michael Lynch (1997), Laurent Thévenot, (2001)), from anthropology (e.g. Ortner, 2006), the social philosophy of Charles Taylor (e.g. 1993) and Bruno Latour's science studies (e.g. 1986) (cf. also Nicolini, 2013; Tengblad, 2012; Feldman & Orlikowski, 2011; Reckwitz, 2002b). One of the philosophically most elaborated approaches has been offered in Theodor Schatzki's *Social Practices: A Wittgensteinian Approach to Human Activity and the Social* (1996), which provides a solid philosophical foundation to various key concepts of the practice-based strand of theorizing (Becker, 2005, 2013; Reckwitz, 2002b).

Despite often divergent interpretations of concepts in use, the concepts of practice-based theories have progressively gained prominence within management and organization studies. Notable examples in various sub-fields of management and organization studies can be found, for example, in research on information technology (Orlikowski, 1992, 2000), project management (O'Leary & Williams, 2013; Hällgren & Söderholm, 2011; Blomquist et al., 2010; Sydow, 2006), strategy management (Vaara & Whittington, 2012; Golsorkhi, Rouleau, & Seidl, 2010; Jarzabkowski & Whittington, 2008; Jarzabkowski et al., 2007; Jarzabkowski, 2004), organizational routines (Feldman &

Pentland, 2003; Feldman & Rafaeli, 2002), sociomateriality (Orlikowski & Scott, 2008), organisational learning (Orlikowski, 2002, 2006), and organisational decision-making (Bolander & Sandberg, 2013; Becker, 2013; Cabantous & Gond, 2011; Cabantous, Gond, & Johnson-Cramer, 2010). The following section introduces the three key concepts of practice theories, practices, praxis, and practitioners, which must be seen as mutually-constitutive elements of this particular brand of social theorising.

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"The longer Levin mowed, the oftener he felt the moments of unconsciousness in which it seemed not his hands that swung the scythe, but the scythe mowing of itself, a body full of life and consciousness of its own, and as though by magic, without thinking of it, the work turned out regular and well-finished of itself. These were the most blissful moments.

It was only hard work when he had to break off the motion, which had become unconscious, and to think; when he had to mow round a hillock or a tuft of sorrel. The old man did this easily. When a hillock came he changed his action, and at one time with the heel, and at another with the tip of his scythe, clipped the hillock round both sides with short strokes. And while he did this he kept looking about and watching what came into his view: at one moment he picked a wild berry and ate it or offered it to Levin, then he flung away a twig with the blade of the scythe, then he looked at a quail's nest, from which the bird flew just under the scythe, or caught a snake that crossed his path, and lifting it on the scythe as though on a fork showed it to Levin and threw it away.

For both Levin and the young peasant behind him, such changes of position were difficult. Both of them, repeating over and over again the same strained movement, were in a perfect frenzy of toil, and were incapable of shifting their position and at the same time watching what was before them" (Tolstoy, 1878, p. 178).

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5.2.1 THE THREE FUNDAMENTAL CONCEPTS OF PRACTICE-BASED PERSPECTIVE

Schatzki points out the three meanings attributed to the word 'practice', one being 'to practice an activity', as in 'practicing piano'; another the notion of 'practice' being a particular activity, for example voting practices, cooking practices, or accounting practices; and the third notion is the actual doing of the activity, "performing an action or carrying out a practice " (Schatzki, 1996, p. 90), which we refer to as "praxis" (Reckwitz, 2002b, p. 249). The latter two meanings are of relevance to the practice perspective and are explained in the following sections.

5.2.1.1 PRACTICES

Practices are "meaning-making, identify-forming, and order-producing activities" (Nicolini, 2013, p. 7), characterised by routinized and commonly shared patterns of behaviour. They consist of interconnected elements of activities and states of both body and mind, and the use of material objects. Although practices are 'regulated' and 'regular' patterns of activities, they are not a result of simple obedience to rules, rather they are "collectively orchestrated without being the product of the organizing action of a conductor" (Bourdieu, 1990, p. 53). While being routinised, practices lead to neither mindless repetition nor complete invention, and "all practice theories thus leave space for initiative, creativity, and individual performance" (Nicolini, 2013, p. 4).

Among the concepts central to understanding practice theories, are the notion of *structuration* in Anthony Giddens' theory of structuration (Giddens, 1986), and the concept of *habitus*, introduced by Pierre Bourdieu (Bourdieu, 1977, 1990) in his influential *Outline of a Theory of Practice* (1977). A central role in the former approach

plays the concept of 'duality of structure' that Giddens coined to describe the mutually constituting relationship between agents and structures (Giddens, 1986).

Bourdieu's primary sociological interest lies in analysis of people's daily 'doings'. He uses the concept of practices to situate the sociological eye within the rich variety of human activity, which he conceives of as being generated by the *habitus* (Nicolini, 2009, p. 59). The basis of habitus are "schemes of perceiving, thinking and acting", which provide actors with a range of possible practices available in a given situation (Bourdieu, 1990, p. 54). In Bourdieu's conceptual framework, it is a person's habitus that creates and coordinates the practices that a person has at her/his disposal, and the habitus itself is created by the very practices an actor carries out. Moreover, the h*abitus* of a person is associated with collectively shared patterns of meaning, such that a habitus is simultaneously unique to an individual (each actor has a unique trajectory over the course of his/her life shaping the actor's habitus), and shared across a common group of actors with similar trajectories ("product of history" (Bourdieu, 1977, p. 82)). Summarizing, we can say that the concept of the duality of structure postulates that social phenomena only come into being by actors' carrying out practices (Reckwitz, 2002b), and the concept of the habitus illustrates how practices organise and link social order and individuals (Schatzki, 1996).

Practices imply ways of perceiving the world, of wanting and knowing and interpreting and doing (Reckwitz, 2002b). The "schemes of perceiving, thinking and acting" (Bourdieu, 1990, p. 54) that shape the activities of actors are both constraining and enabling (Giddens, 1986), and are collectively shared and social in nature, which gives practices their spatiotemporal character (cf. Becker, 2005). The long-term persistence of practices is maintained through shared understanding and the ability to carry out

practices, perpetuated simultaneously through training and performances by practitioners (carriers of practices). Thus all practices are of a genuinely social nature, "because participating in them entails immersion in an extensive tissue of coexistence with indefinitely many other people" (Schatzki, 2000, p. 105).

Practices also have a material component, and practice theories highlight the relation between practices and their material conditions (Orlikowski & Scott, 2008; Reckwitz, 2002a). The notion of the "sociomateriality" of practices refers to the use of things, whether as tools (e.g. writing instruments, computers, etc.), surroundings (e.g. furniture, desk, vehicle, lights, etc.), and/or others (e.g. dress), all of which play a part in how practices are carried out, how they connect in space and time, and how they interact.

> "For practice theory, objects are necessary components of many practices – just as indispensable as bodily and mental activities" (Reckwitz, 2002b, p. 252).

Organisation of a practice

Practices are *organized* by a triad of "shared understanding, explicit rules, and teleoaffective structure" (Schatzki, 1996, p. 103). Shared understanding encompasses knowing how to, and being able to (1) do the practice, (2) recognise the practice, (3) and to prompt or respond to the practice (Schatzki, 1996). Teleoaffective structures are comprised of "hierarchies of ends, tasks, projects, beliefs, emotions, moods and the like" (Schatzki, 1996, p. 99). These three types of linkages are referred to as the "'organization' of the practice"(Schatzki, 1996, p. 99).

Practices also have mutually constitutive ostensive and performative aspects. The action people carry out when engaged with specific situation are performances and routines and patterns created by these performances form ostensive aspects.

> "The ostensive aspect enables people to guide, account for, and refer to specific

> performances of a routine, and the performative aspect creates, maintains, and modifies the ostensive" (Feldman & Pentland, 2003, p. 94).

The ostensive aspect is formed of "things" that can have 'a conceptual existence of their own (Latour 1986)' which may sometimes be codified (Jarzabkowski, Lê, & Feldman, 2012, p. 909).

Dispersed and integrative practices

Schatzki distinguishes between two types of practices: dispersed and integrative practices. *Dispersed practices* are spread across various different areas of social life, for example practices of questioning, explaining, and obeying. They are "woven into nexuses" and broadly diffused over diverse domains of social life (Schatzki, 1996, p. 91). *Integrative practices* are more complex practices that constitute "particular domains of social life" (Schatzki, 1996, p. 98). For example, business practices, teaching practices, religious practices, or banking practices, are of this kind. Integrative practices are not simply "assemblages of dispersed practice" (Schatzki, 1996, p. 99), although dispersed practices "meander through" and interact with integrative practices (Schatzki, 1996, p. 125). This interaction between dispersed and integrative practices can be a source of modification for some or all practices involved (Schatzki, 1996).

Social Field

A *social field* is a nexus of practices consisting of both dispersed and integrative practices that forms more complex "networks of action chains" (Schatzki, 2000, p. 103) in which multiple participants are immersed and in which their understanding is both "expressed and acquired" (Schatzki, 1996, p. 112).

5.2.1.2 PRAXIS

When practices are carried out they are "followed in rough and ready ways, according to the exigencies of the situation" and the Greek word "praxis" is used to differentiate the actual activity, what is done and how is it done as it "is lived in the moment" (Whittington, 2006a, p. 615) from aspects that might guide that activity.

It is in praxis that practices 'come alive', where practices are carried out and intermingle, where actors engage with material aspects and where they interact with other actors, representing "the whole of human action (in contrast to 'theory' and mere thinking)" (Reckwitz, 2002b, p. 249). Praxis is a situated flow of activity, the transient reality of practices being carried out, where reproduced structures may appear visible. This creation and re-creation of structure happens every time a practice is carried out.

5.2.1.3 PRACTITIONERS

The role awarded to practitioners in practice theories is one of reflexive, engaged actors, immersed in their praxis who are carriers of practices and who perform practices, in praxis (Whittington, 2006a). In a practice-based perspective, practitioners are living, thinking, feeling and doing people, being and becoming in the world. Practitioners are "knowledgeable agents", bounded by unconsciousness, as well as unknown circumstances, or unanticipated consequences (Giddens, 1986, p. 281), who develop a feel for the game, a pre-perceptive anticipation based on previous experience which is/becomes part of their habitus (Bourdieu, 1998).

> "Between agents and the social world there is a relationship of infraconscious, infralinguistic complicity: in their practice agents constantly engage in theses which are not posed as such" (Bourdieu, 1998, p. 80)

Each individual carries out multiple practices, and is therefore a unique and continuously adapting blend of diverse social practices, which furnish him with understanding and interpretation of the world and himself in that world (Reckwitz, 2002b). Knowledge thus has a special place of interest in practice theories as "practices are carried out on the basis of *knowledge*" (Becker, 2005, p. 218). Whilst the awareness of rules and norms may be required and present at the level of "discursive consciousness", practices mainly draw on "practical" consciousness (Giddens, 1986, p. 49) , "the pre-verbal taking-for-granted of the world that flows from practical sense" (Bourdieu, 1990, p. 68).

Knowledge in practice theory is 'know-how' first, rather than 'know-what', and is an intrinsic part of the practice being carried out. The knowledge associated with a practice is collective, where intentionality, wanting, and feeling are a routinized and taken-for-granted part of that practice and "do not belong to individuals but – in the form of knowledge – to practices" (Reckwitz, 2002b, p. 255).

Immersed in their practice, practitioners' actions are always purposive and reasonable, while not always being a "product of a reasoned design, still less of rational calculation" (Bourdieu, 1990, pp. 50–51). These non-calculative actions are meaningful, knowledgeable, intelligible, and coherent, though not necessarily consciously organised, premeditated, modified to the anticipated future, or a result of a plan (Bourdieu, 1990). Assuming that social agents are reasonable, does not mean they have to be rational (Bourdieu, 1998).

5.2.2 ORGANISATIONS IN A PRACTICE-BASED PERSPECTIVE

From a practice-based perspective, "[o]rganizations are social phenomena" (Schatzki, 2005, p. 473), an arrangement of bundles of practices constituted by their praxis, in a mesh of existing, altering and new practices and material arrangements, continually perpetuated by the production and creation of practices (Schatzki, 2005). Organisations are a "recurrently enacted" (Orlikowski & Scott, 2008, p. 462) web of related integrative practices interwoven with dispersed practices that, in contrast to a wider societal context, are more structured, purposive, sometimes politicised, and regularly instrumental (Hendry, 2000).

Employees carry out practices, which taken together, constitute the business of the firm. Organisational practices cluster in nexuses of practices, forming a collection of social fields, where multiple practices interact in a "sea of interdependent actions, interpretations and artefacts" (Pentland & Feldman, 2005, p. 798) in which the components of "hierarchized field[s] of ends, tasks, and purposes" are articulated by individual actions, but the hierarchy is only expressed when the "actions are taken as a set" (Schatzki, 2000, p. 105).

5.3 THEORETICAL FRAMEWORK FOR EMPIRICAL RESEARCH

The following section develops the theoretical framework for the practice-based empirical research on decision-making in project praxis integrating the ideas of issues streams (Cohen et al., 1972; Langley et al., 1995), modes of engagement in praxis (Tsoukas, 2010), and practice perspective introduced in the previous section. This section describes how issue streams could be formed and how decision-making practices could be carried out by organisational actors immersed in their praxis This

leads to a definition of a decision site, as an area of actions available to the participating practitioners in particular sociomaterial context.

5.3.1 ISSUE STREAM FORMATION

Responding to the dissonance of views on organisational decision-making Langley et al. (1995) suggested focusing on organisational "issues" rather than "decisions" (Chapter 4, Section 4.2), the concept which reflects organisational practitioners' vocabulary with a frequent focus on 'issues', and the "complex network of issues" . This is similar to the Garbage Can Model where organisational issues and solutions appear randomly connected (Cohen et al., 1972). The web of issues and solutions seems to capture the fluidity of organisational reality as it would appear to organisational actors immersed in their praxis (Tsoukas, 2010) where goal ambiguity and routine 'choice opportunities' give the appearance of 'organized anarchies' which escape "classical models of decision-making' (Cohen et al., 1972). The following figure (Figure 6) illustrates how 'decisions' sometimes emerge from a web of interrelated issues ('I's) and provisional resolutions ('R's) (Langley et al., 1995).

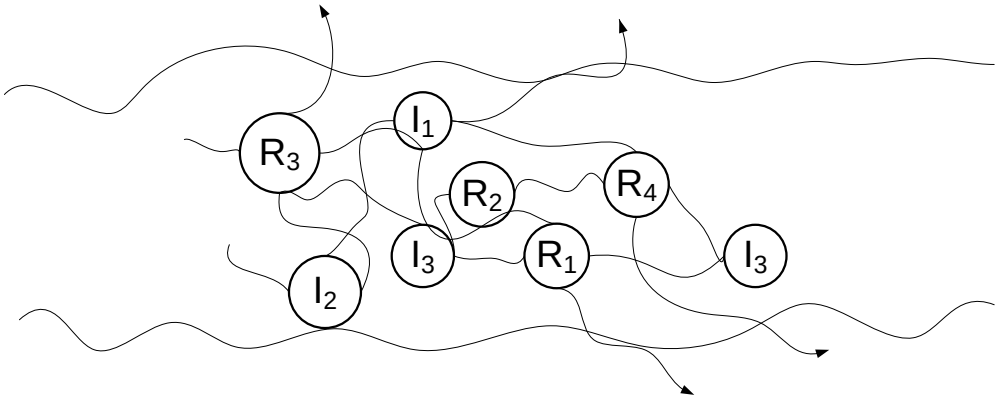


FIGURE 6 - ISSUE STREAM (c.f. LANGLEY ET AL. 1995, P.274)

Seeing that organisations collectively manage a web of issues, leads to a consideration of how the issues get formed and transformed. Taking the practice perspective, Tsoukas defined an issue to be "a concern, a disturbance that *matters* to agents whose identity has been constituted in the context of a particular sociomaterial practice" (Tsoukas, 2010, p. 392). The following diagram (Figure 7) displays the mutually constitutive relationship between practitioners' habitus, current sociomaterial context, and issue stream formation in praxis, perceived as a web of issues ("I") and resolutions ("R") (arrows #2 on the left) (Cohen et al., 1972; Langley et al., 1995).

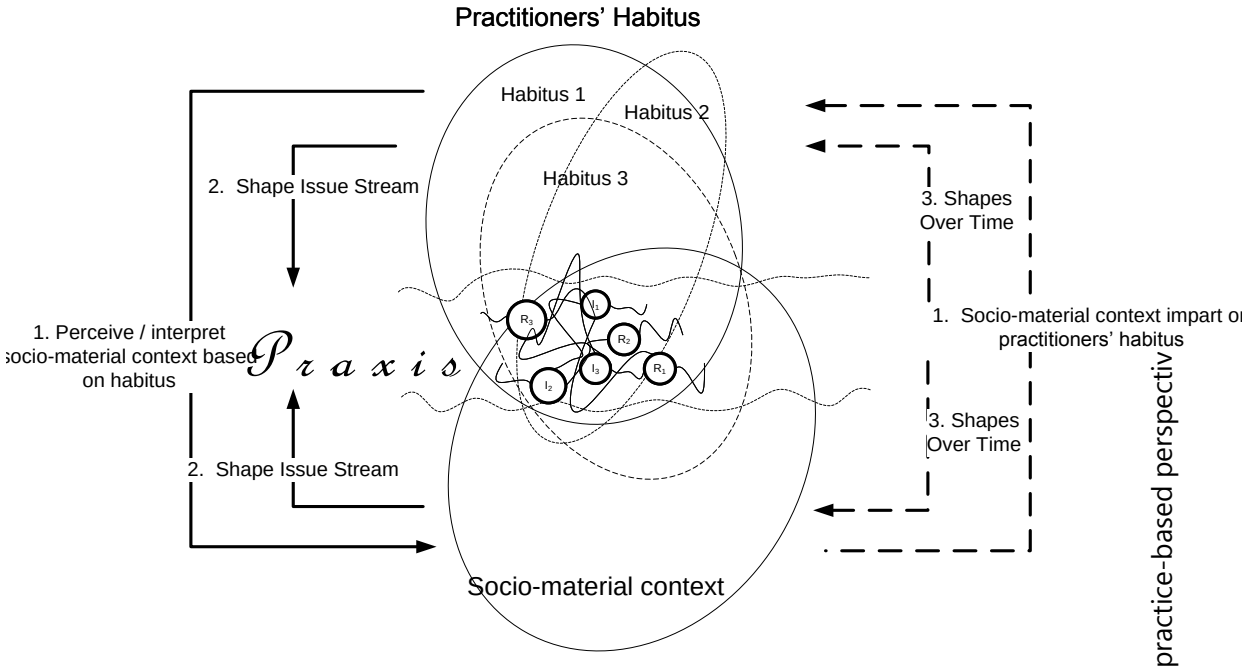


FIGURE 7 - MUTUALLY SHAPING HABITUS, CONTEXT, PROBLEMS AND ISSUES

Practitioners' habitus interprets the sociomaterial context (Figure 7, solid arrow #1) and praxis emerges in the interaction between participating practitioners' habitus of the sociomaterial context in an ongoing flow of organisational activity. The basis of habitus provide actors with a range of possible practices available in a given situation

(Bourdieu, 1990) (left arrow #1 in Figure 7) and the resulting praxis moulds both habitus and the context in which it is carried out (dashed arrows #2 and #3 on the right Figure 7). The internalised portion of sociomaterial practice becomes an unquestioned facet of reality, to which the practitioner is accustomed, and which forms "the 'inherited background', against which practitioners make sense of their particular tasks" (Tsoukas, 2010, p. 392). Thus, issue streams are perceived by participating practitioners, based on their habitus and in relation to the specific socio-material context.

5.3.2 Decision Site

Tsoukas further highlighted the distinction between reflective and unreflective engagement in praxis, distinguishing three modes of engagement: (1) Practical coping, (2) Deliberate coping, and (3) the mode of Thematic Awareness (Tsoukas, 2010). Therefore, a breakdown in routine practice prompts practitioners to reflect on their practice or consider it with a degree of detachment (Tsoukas, 2010). When routine praxis is interrupted, a *decision site* could be formed, an area of actions available to practitioners immersed in praxis in a particular sociomaterial context, that includes a portion of the web of problems and resolutions perceived by participating practitioners (Cohen et al., 1972; Langley et al., 1995) (shown as the shaded area in Figure 8).

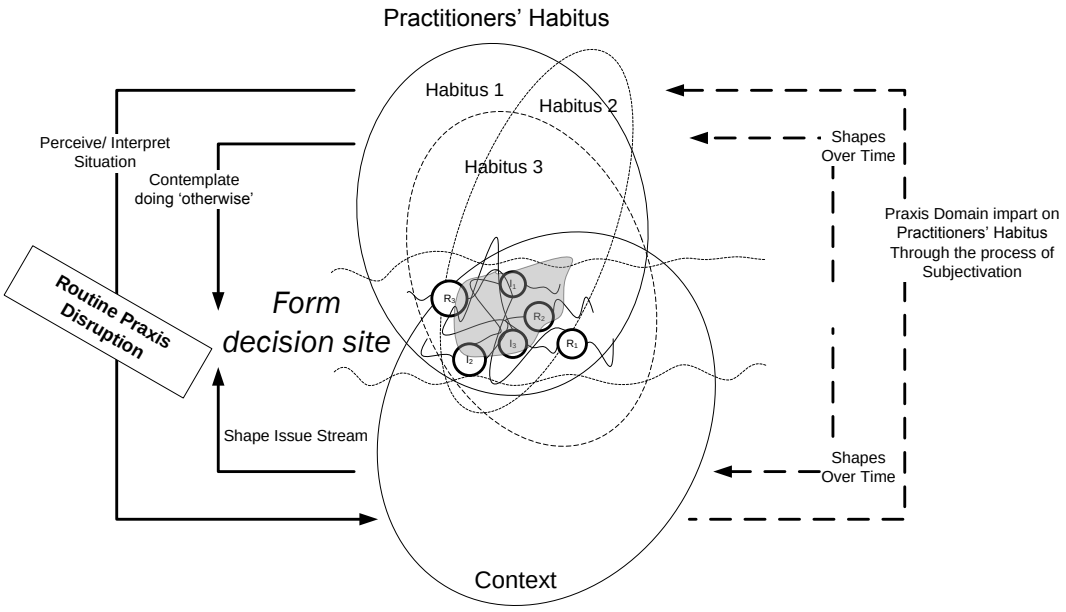


FIGURE 8 - DECISION SITE

Practitioners immersed in their praxis responding to a 'disruption' to their routine, become 'decision makers' that form and manage the decision site aiming to resume their praxis. Consequently, in the present thesis, organisational decision-making is understood as any type of practice that constructs and sometimes transforms a decision site. Such a type of practice reflects on whether current routine praxis could be carried out in a different way, and leads to a changed perception of issue streams, even though it may not necessarily result in action (Becker, 2013) and could be carried out prospectively, retrospectively and introspectively (Langley et al., 1995).

5.4 CONCLUSIONS TO CHAPTER 5

This chapter introduced the family of theories of social practices, the concepts of habitus (Bourdieu, 1977) and structuration (Giddens, 1986), analytical concepts of practice, praxis and practitioners, and described organisations as "practice-arrangement bundles"

(Schatzki, 2005, p. 478). The practice concepts were combined with the ideas stemming from the research on organisational decision-making and used as the basis for formulating a theoretical framework for empirical exploration of decision-making practices in project praxis.

Organisational decision-making is thus conceptualised as an organisational practice that manages a stream of issues by creating a decision site. A decision site is defined as an area of actions available to practitioners immersed in praxis in a particular sociomaterial context and is constituted of a web of problems and resolutions perceived by participating practitioners. The proposed framework does not limit decision-making practices to only those of instrumental rationality, or those that follow a certain process, nor only those that are followed by action. Instead, the framework embraces the full diversity of organisational decision-making practices. As organisational decision-making practices manage issue streams in organisations, inquiry into decision-making becomes an exploration of formation and transformation of decision sites and practices' interplay with other organisational practices. The following chapter formulates the research questions and explains the research design.

Chapter 6 Research Problem, Design and Data Collection Strategy

"My entire scientific enterprise is indeed based on the belief that the deepest logic of the social world can be grasped only if one plunges into the particularity of an empirical reality, historically located and dated, but with the objective of constructing it as a 'special case of what is possible,' as Bachelard puts it, that is, as an exemplary case in a finite world of possible configurations" (Bourdieu, 1998, p. 2).

This chapter presents the research problem in the context of organisational project management with reference to the practice based theoretical framework for empirical research of decision-making practices in project praxis. The theoretical framework serves as the basis for framing the research problem in practice perspective and for formulating specific data collection questions. Subsequent sections describe research design and chosen strategy and outline inherent limitations. The last section of this chapter describes companies selected to participate in the research.

6.1 RESEARCH PROBLEM

The management of projects is an organisational activity indisputably instrumental to strategy implementation (Partington et al., 2005; PMI, 2013; Smith-Daniels & Smith-Daniels, 2008; Smyth, 2009; Winter et al., 2006) and critical to contemporary firms' competitive advantage (Aubry et al., 2007; Maylor, 2001). Classic management theories based on instrumental rationality have influenced the design of modern organisational project environment, hence the current state of the field, in research and practice, continues to retain strong functionalistic orientation (Cicmil et al., 2006) and promotes the view of projects as isolable, goal-oriented, time and budget constrained activities designed to achieve project and corporate objectives (Morris & Jamieson, 2004a; Smyth & Morris, 2007).

The prominence given to corporate and project objectives in project management research and practice highlights explicit attempts to 'manufacture rationality' in a project setting (Shenhav, 2002). Research on project management reports that rational decision-making is what is expected of project managers (Atkinson, 1999; Cicmil et al., 2006; Hodgson, 2004; Kerzner, 2013; Kwak & Anbari, 2008b; Meredith & Mantel, 2008; A. J. Shenhar et al., 2001; Thomas, 2006). Specifically, research identifies that project managers should focus on simultaneously accomplishing project objectives (time/budget/scope) while maintaining strategic alignment, guided by strategic objectives (Morris & Jamieson, 2004a; Thiry & Deguire, 2007; Thiry, 2007; Winter et al., 2006).

Furthermore, a project environment is designed to 'promote rationality production' intended to "turn the principles of "normative" rational decision-making into a social

reality directly accessible and potentially useful for decision makers within organizational contexts (Latour 1994, 2005)" (Cabantous, Gond, & Johnson-Cramer, 2008, p. 412). Project management tools and methodologies reflect attempts to improve 'bounded rationality' (Simon, 1948) of project actors with focus on analysis and calculations (e.g. Gantt Charts, cost benefit analysis, risk analysis, stakeholder analysis, decision trees, etc.) (Besner & Hobbs, 2006; Blomquist et al., 2010; Cicmil et al., 2006).

The presence of the three pillars of the Cabantous and Gond (2011) framework in project environment leads to an expectation of at least sporadic occurrences of rational decision-making in project praxis with potential utilisation of corporate and project objectives. However, empirical research on project practices reports that prescribed decision-making methods are not widely used in unaided decision-making in project delivery (Papke-Shields, Beise, & Quan, 2010; Besner & Hobbs, 2008, 2006; Fortune & White, 2006).

The aim of this research was to understand if in an organisational project environment which demonstrates presence of mechanisms of rationality production described by Cabantous and Gond (2011), project professionals indeed carry out rational decision-making practices when immersed in praxis, and if articulated project and corporate objectives are used in such decision-making practices in project praxis, which would provide empirical evidence to the importance afforded to them in project management literature.

Exploring when and how decision-making practices are carried out in such a setting would: (1) assist in understanding conditions for initiating and carrying out unaided practice of rational decision-making; and (2) possibly offer ways of improving the

unaided practice of rational decision-making in project praxis and in that manner contribute to the emerging field of project-as-practice research (Blomquist et al., 2010; Thomas, 2006). Furthermore, understanding project level decision-making practices could: (3) illuminate how issues streams are formed and transformed in project praxis (Langley et al., 1995); and (4) reveal some aspects of how practical rationality is manifested in organisational praxis (Tsoukas, 2010). Such findings would contribute to the promising field of research on organisational decision-making practices (Becker, 2013; Bolander & Sandberg, 2013; Cabantous & Gond, 2011) and understanding of "the logic of practice" (Bourdieu, 1990) .

6.2 Research Questions

To explore the relationship between articulated strategic and project objectives and decision-making practices, this study focused on decision site formation and transformation carried out by organisational actors while immersed in organisational project delivery praxis. Specifically, the empirical research focused on the following data collection questions.

1. Does observed sociomaterial context exhibit mechanisms of rationality production (Cabantous & Gond, 2011)?

   The first question aimed to establish if the participating organisations aimed to 'manufacture rationality' (Shenhav, 2002) and focused on the inquiry into the 'mechanisms of rationality production' (Cabantous & Gond, 2011). The research sought to understand how participating organisations communicate their strategic direction and how they attempt to align projects to strategic objectives. Inquiry into the purchase of expert tools, executives' expectations of the tool use and

benefit, the research intended to determine if the tools, techniques and organisational procedures are indeed aimed to "engineer rationality" (ibid.).

2. What is practitioners' perception of their sociomaterial context and their decision-making practices?

   The second data collection question aimed to understand how practitioners perceive the organisational sociomaterial context and their praxis in it, in order to determine if instrumental rationality has been accepted as the 'administrative ideal' (Simon, 1948). The research investigated how practitioners use the concepts of 'strategy', 'goals' and 'decisions' to provide the background to understand their decision-making practices.

3. What decision-making practices are carried out in project praxis?

   The last data collection question aimed to discover how decision-making practices are carried out in project praxis, with specific focus on use of the stated objectives, with specific sub-questions aimed to aid in this inquiry:

   a. How are decision-sites constructed and transformed, in project praxis?
   b. What is the relationship between project and corporate objectives and decision site construction in project praxis?
   c. Are there incidences of rational decision-making practice, carried out by project practitioners, as described by Cabantous and Gond (2011) in project praxis?

The following describes the selected research strategy employed to answer the stated questions.

6.3 RESEARCH STRATEGY AND DESIGN

To get close to the "totality of practitioners reality", this research has been designed as a qualitative interpretative research, "embracing the idea of multiple realities" (Creswell, 2007, p. 16) and taking a social constructivist stance. Social constructivism seeks to understand the multiple meanings individuals give to the world they live and work in, with the view that those meanings are socially and historically constructed. Qualitative research is characterised by the logic of induction, emerging ideas that are shaped by the researcher's experience prior and through data collection, and is open to changes through the research process (Creswell, 2007, p. 19).

> "The more open-ended the questioning, the better, as the researcher listens carefully to what people say or do in their life setting. Thus, constructivist researchers often address the "processes" of interaction among individuals" (Creswell, 2007, p. 21).

To observe practices of project decision-making in the organisational flow, "*in-vivo*" and "*in toto", in actu, and in situ* (Langley et al., 1995, p. 261), I selected the embedded multiple-case study research design (Yin, 2009) and three data collection methods: (1) company and project document review; (2) semi-structured interviews with participants; and (3) direct observation in the role of an *observer as participant* (Robson, 2002; Saunders, Lewis, & Thornhill, 2009). This is due to a number of considerations as outlined below.

6.3.1 RESEARCH DESIGN: EMBEDDED MULTIPLE CASE STUDY

To understand how decision-making practices are initiated, where and how objectives are used, and what other practices participate in decision-making activities, data collection was focused on capturing actions within projects (Engwall, 2003). It has been

suggested that the "in-depth case study is a promising tool" to investigate action in management research (Numagami, 1998, p. 12), and that case study design provides rich data to study organisational decision-making (Rouleau, 2005). Case study is often used in project management research, decision analysis research, and organisational decision-making research as well. It has also been suggested that practical rationality is best understood by studying particulars of cases, anchored in context "[p]raxis has always been contingent on context-dependent judgment, on situational ethics" (Flyvbjerg, 2001, p. 136). .

Research in project management is frequently conducted using surveys or case studies (Winter & Smith, 2008). For example, exploring the link between decision and strategic alignment, Morris and Jamieson conducted ex-post interviews in multiple case studies in order to explore corporate decisions (Morris & Jamieson, 2004a), an approach similar to the one employed by a series of studies of organisational decision-making processes conducted by Nutt (Nutt, 1976, 1984, 1986a, 1986b, 1998a). Research in decision analysis often selects case study method (Montibeller, Alberto Franco, Lord, & Iglesias, 2009; Barcus & Montibeller, 2008; Merrick et al., 2005; Keeney & McDaniels, 2001; Keeney, 2001; McDaniels & Trousdale, 1999; Keeney, 1988). Sometimes experiments in laboratory settings are a method of choice, for example, Leon's study comparing alternative focused thinking to the value focused thinking approach, was conducted using experiments with two groups of university students (Leon, 1999). More recently, investigation into evaluating how objectives are generated, was developed through two experiments with MBA students, aimed at evaluating their past decisions (Bond, Carlson, & Keeney, 2008). Studies in managerial behaviour and organisational decision-making, have been conducted using a variety of designs, regularly including

case study design (e.g. (Eisenhardt, 1990; Langley & Truax, 1994; Nutt, 1998b; Sandberg, 2000; Samra-Fredericks, 2003; Poole & Van De Ven, 2010)). The case study design, often used in organisation studies, in project management research, in the study of decision analysis, as well as in emerging practice-based decision-making research (Bolander & Sandberg, 2013), appears to be the appropriate research design aimed to capture richness of decision-making and decision related phenomena, especially as the boundaries between the researched phenomenon and its context are not very clear (Robson, 2002).

Conceptualising projects as part of organisational praxis, a mutually constitutive flow of organisational activity, makes the specific site of project praxis, with its organisational embeddedness (Engwall, 2003), a fertile ground for studying entwinement of organisational praxis, temporary breakdowns (Sandberg & Tsoukas, 2011), and specifically for observing decision-making practices (Cabantous & Gond, 2011; Langley et al., 1995; Tsoukas, 2010). It has been suggested that the very nature of projects, especially the temporality of project existence, impacts how practices are shaped, perceived, and carried out, and what structures are relevant (Blomquist et al., 2010; Hällgren & Söderholm, 2011). Furthermore, the literature on project management states that project managers are expected to make decision during project delivery (e.g. Engwall, 2003; Jamieson & Morris, 2004; Kwak & Anbari, 2009; Söderlund, 2011a; Williams & Samset, 2010; Williams, 2002). As organisational decision-making episodes are embedded in projects, and multiple projects from two organisations are included in the data collection, the research took shape as embedded multiple case study (Yin, 2009, p. 46), Figure 9.

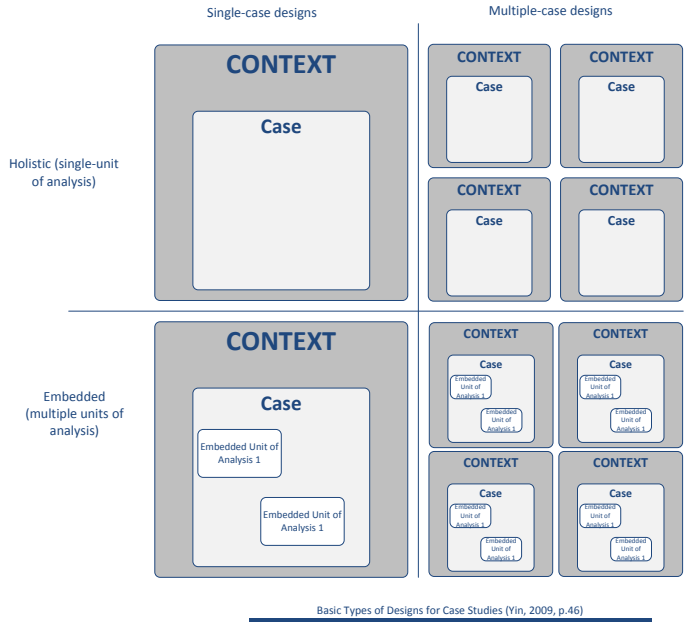


FIGURE 9 - BASIC TYPES OF DESIGN FOR CASE STUDIES (YIN, 2009, P.46)

The choice of project meetings for observing project decisions was deliberate. The literature on project management informs that project managers are expected to make decisions during project delivery (e.g. Engwall, 2003; Jamieson & Morris, 2004; Kwak & Anbari, 2009; Söderlund, 2011a; Williams & Samset, 2010; Williams, 2002). Furthermore, projects have been highlighted as a good place to observe practices (Cicmil & Hodgson, 2006; Engwall, 2003; Hällgren & Söderholm, 2011; O'Leary & Williams, 2013; Sydow, 2006) .

By focusing only on scheduled, 'naturally' occurring project meetings, I aimed to avoid sensitising the practitioners to the focus of my research and intended to capture organisational decision-making 'in the wild' (Hutchins & Lintern, 1995). Figure 10 depicts a view of organisational decision episodes (darker shade boxes) as organisational proceedings that may occur during project delivery, in and out of project meetings, as embedded in the flow of organisational activities and contexts.

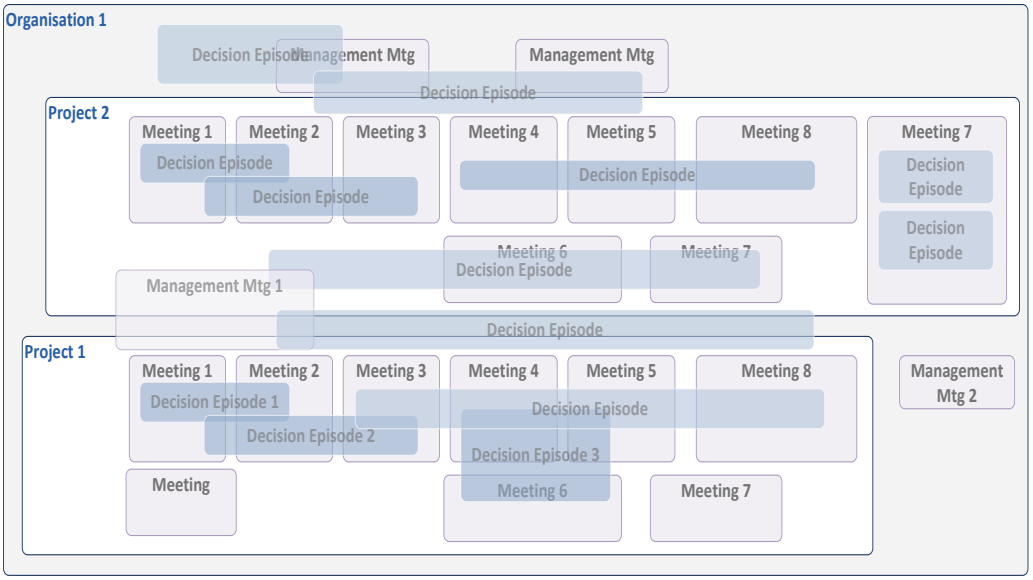


FIGURE 10 - DECISION EPISODES (INSPIRED BY YIN)

By choosing to observe only 'naturally' occurring project meetings, and only when invited, the research was designed to trace decision-making practices with the least possible interference with praxis (c.f. Dunbar, 1997) recognising that this method will not capture all decision-making in observed projects.

6.3.2 Data Collection Strategy

Since Mintzberg's seminal research on managerial work (1971), researchers have been attempting to get closer to the micro-practices of managing and decision-making. Diverse data collection methods have been employed depending on the research subject, availability of research resources, and access to organisations. One way of studying decision-making within organisations is ex-post, through the use of interviews and questionnaires after the process has been completed, as "[t]he best trace of the completed process remains in the minds of those people who carried it out" (Mintzberg et al., 1976, p. 248). However, there is a possibility that recall biases will introduce errors in recounting past events (Nutt & Wilson, 2010b). To limit biasing the participants, Nutt

has used multiple interviews, paying close attention to interview protocol design (Nutt, 1984), while Poole and Roth employed direct observation of 'natural groups', with a given or 'real' decision task, to study group decision processes (Poole & Roth, 1989). Bourgeois and Eisenhardt used multiple data collection methods: interviews, questionnaires, observations and secondary data sources, when researching the speed of decision-making in microcomputer firms (Bourgeois III & Eisenhardt, 1988). Langley also employed a combination of methods, gathering documents, conducting interviews, and carrying out direct observation in her study of formal analysis within organisational strategic decision-making (Langley, 1991).

Project-as-practice research provides some suggestions on how to conduct empirical studies of practices in projects (O'Leary & Williams, 2013; Blomquist et al., 2010; Manning, 2008; Sydow, 2006) by inviting a heightened focus on process and context

> "to relate the temporary and fluid, that is the project, to the more permanent and stable, that is the organisation, the network and/or the field in which projects are usually embedded" (Sydow, 2006, p. 252).

Recent empirical studies of decision-making that are specifically set up in practice perspective also use participant-observation methods, for example Bolander and Sandberg (2013). Organisation studies that take the practice perspective, have employed various research methods, from immersive participant observation to action research (Golsorkhi et al., 2010). For example, Feldman used the participant observer method in her 2003 study of practices used in university housing divisions (Feldman, 2003), as did Nicolini in a longitudinal study of practices of telemedicine in two medical centres in northern Italy (Nicolini, 2013). The strategy-as-practice research stream (Jarzabkowski, 2004; Reckwitz, 2002b; Whittington, 2006b) also often employs

participant observation and a variety of action research methods (Orlikowski, 2010). Some researchers have used ethnographic approaches and complementary methods to collect data across contexts, using "interactive discussion groups, self-reports, and practitioner research" (P. Johnson, Balogun, & Beech, 2010, p. 244). Longitudinal case studies are the most frequent choice of method, augmented with critical discourse analysis (CDA), ethnomethodological and conversation analysis (EM/CA), and other data analysis methods (Golsorkhi et al., 2010). Nicolini recommends a 'tool-kit approach', offering a collage of methods to be used when researching practices (Nicolini, 2013).

As the aim of this research was to describe decision-making practices in project praxis, running experiments would not be a data collection method well suited for the type of questions asked. Experimental settings reduce the investment of decision makers in the decision outcomes, possibly changing the decision-making processes under investigation (Kühberger, Schulte-Mecklenbeck, & Perner, 2002). It has been noted that "practice and the behaviour observed in a laboratory often have little relationship", as a laboratory setting narrows the context, resulting in considerable deviations from field conditions (Nutt, 1987, p. 2). To explore how our daily world is created through practices, how practices combine, and to what result, requires bottom-up exploration in order to develop a deep understanding of the activities and their relationships in their temporal and material flow of praxis (Nicolini, 2013; Reckwitz, 2002b).

Based on the review of methods employed in similar studies, and with the aim to trace "issues forward, not decisions backward" (Langley et al., 1995, p. 276) as close as possible to practices in their original form, a combination of three data collection methods was selected as the data collection strategy.

To profile the sociomaterial context in which observed practices were taking place, a review of existing organisational and project documentation, and other ostensive aspects of the context were gathered (Pentland & Feldman, 2005). To further enhance my knowledge of the sociomaterial context and to provide a basis for understanding participants' interpretations of the events, semi-structured interviews were conducted with project participants and executives in the latter part of each data collection period. Lastly, the core of the data was collected in meeting proceedings that were audio recorded in silent attendance (*observer-as-participant* (Robson, 2002).

The empirical part was designed to follow a number of projects though their delivery, audio-record proceedings, and separate out instance of decision-making through transcription after the events took place. In this way occurrences that may be labelled by practitioners as decisions, or those considered routine day-to-day activities, were equal parts of the initial data review.

6.3.3 Research Limitations

Within the stated interpretative research paradigm, this research is subject to limitations inherent in qualitative research design. The aim of this research was to explore and describe. To capture and describe the contextual richness of practitioners' daily engagement in their praxis, a large amount of data was collected, transcribed, and analysed. Some of the advantages of this type of research have been outlined above, such as the close involvement of the researcher with the totality of the observed reality, which provides an opportunity to detect a variety of important factors that might not be included if another data collection method was used (e.g. surveys). By audio-recording the discourse in the observed proceedings, the researcher had an accurate source of what discourse transpired, and could return to the exact interval as many times as

required. This method provides a glimpse of what happens without interfering in the proceedings, or decreasing the contextual texture an experimental setting would impose. However, as with any research method, there are disadvantages to be aware of, specifically the observer effect, selective attention and coding, scholastic fallacy, selective memory, and interpersonal factors (Robson, 2002, pp. 323–325).

OBSERVER EFFECT

The observer effect relates particularly to the potential influence that the observer's presence may have on the proceedings, the impact of which can neither be confirmed nor disconfirmed. To lessen the potential bias of the observer's effect, *habituation* was planned in both organisations (Robson, 2002). As much as it was possible, I behaved as an employee of the firm, arriving and leaving the offices in accord with observed teams' routines, dressed in a commonly accepted way, took lunch breaks at the same time, and stayed at my assigned desk like the other employees. It appeared that the participants got used to my presence in their offices, at my desk, and to my silent attendance in their meetings. The audio-recorder was always placed in front of me, and it seems that it was not intrusive to the proceedings. Most participants had their mobile devices placed in front of them as well, and although the recorder was visibly different, it was not unusual to have electronic devices present.

SELECTIVE ATTENTION AND CODING

Inherent in this type of research is a potential for the bias of selective attention and selective coding (Robson, 2002). By design, the research focused on scheduled project meetings, of which an example is shown in Figure 10, as one organisation with two projects. Organisational activities take place in between scheduled project meetings as

well, and I recognised that not all relevant activities would be captured with this method. However, recorded data provided enough material to identify 28 decision-making episodes, 10 of which were part of regular sprint planning sessions while 18 others occurred in response to multiple prompts.

OVERCOMING SCHOLASTIC FALLACY

The practice perspective specifically points to the bias of 'scholastic fallacy' that confuses the 'logic of logic' with the 'logic of practice' (Bourdieu, 1990) due to the detachment from practices being analysed (Sandberg & Tsoukas, 2011). To minimise the impact of the 'scholastic fallacy' (Bourdieu, 1990) the research strategy was designed to engage with the data with reference to the reviewed frameworks and emerging hypotheses, in an open-minded way, as recommended by Eisenhardt:

> "Although early identification of the research question and possible constructs is helpful, it is equally important to recognize that both are tentative in this type of research. No construct is guaranteed a place in the resultant theory, no matter how well it is measured. Also, the research question may shift during the research" (Eisenhardt, 1989, p. 536).

This approach is consistent with the qualitative research approach and with the social constructivist stance (Creswell, 2007). By recording all the meetings and only later proceeding to identify decision episodes during the transcription process and analysis, data was not pre-judged at the time of observation. To minimize the bias of scholastic fallacy, multiple analytical lenses have been applied during the analysis (described in Chapter 7 and the Appendices).

THE ROLE OF THE RESEARCHER

Due to my previous research work with Company 1 and earlier professional experience with Company 2 (1996-1998), I had some professional and organisational background knowledge. This could be seen as potentially limiting my ability to convert tacit into explicit knowledge, i.e. not to recognise the patterns and rules (Nonaka & von Krogh, 2009). On the other hand, practical understanding of the environment observed could improve the researcher's perception and understanding of the practices observed, and has been recommended as a deliberate strategy to learn the practice that is being observed as:

> "Incidentally, identifying practice-arrangement bundles requires considerable 'participant observation': watching participants' activities, interacting with them (e.g. asking questions), and — at least ideally — attempting to learn their practices. The names participants use for their activities are an important clue for identifying existing practices and bundles, as are also social theoretical considerations" (Schatzki, 2005, p. 476).

My background knowledge assisted in interpreting the discourse and in developing ideas used to arrive at the research findings. Although to lessen the potential of the practitioner' bias in interpreting the data, by transcribing the data myself, I gained several perspectives of the text, and used multiple theoretical constructs to analyse it.

SELECTIVE MEMORY

The large amount of data collected could result in Data Overload (Miles & Huberman, 1994). Indeed, data transcription and data analysis took longer than originally planned. However, transcribing the data myself, resulted in a very intimate knowledge of it. Engaging with the data during the analysis, with reference to multiple theoretical concepts and iterating with evolving coding schemas, provided competing

interpretations which motivated research progress. Tools of qualitative research, (e.g. software tools, note taking, keeping research diary) were employed to reduce the effect of selective memory.

INTERPERSONAL FACTORS

To reduce the potential for being biased by participants, my interaction was mostly limited to formal meetings. The interaction with project participants was by-invitation only, where project managers initiated the contact. This was implemented with discretion, as occasionally participants would stop by my desk for an informal chat, and some meetings would "spill over" after the allocated time. Most of these instances were recorded and all of these interactions contributed to my understanding of the totality of the participants' worlds.

6.4 CONDUCTING DATA COLLECTION

The empirical research was conducted in two established software companies that deliver strategic initiatives through projects utilising recognised project methodologies. My status as a researcher was revealed to the participants at the very beginning of the data collection, and I only attended meetings when invited by the participants. As a passive observer, I did not taken part nor contribute to meeting proceedings in any way (Robson, 2002).

There were two periods of data collection, each lasting over two months, with further theoretical research and data analysis completed in-between. Semi-structured and unstructured interviews with project participants took place in the second half of each data collection period, and I had at my disposal some of the pre-existing project documentation.

Company 1 was observed between March and May 2010, and Company 2 between January and March 2011. The lag between the two observations was longer than originally planned due to the availability of the participating organisation. Conducting data collection and the data analysis phase with a degree of overlap in phases was intentional and is a recommended approach in case study research (Eisenhardt, 1989; Glaser & Strauss, 1967).

6.4.1 Participating Organisation Selection

To find organisations to participate in the research, a call for participation was published in a professional newsletter in Canada (PROCEPT Associates, http://www.procept.com/), and forwarded to various organisations through personal and academic contacts. Possibly due to the previous research engagement, Company 1, located in the UK, agreed to be part of the new research. A few months later, its sister organisation, located in Canada, gave its consent as well. The call for Research and the Research Agreement are included in the Appendix E – Supporting Documentation.

6.4.2 Project Selection

I asked to observe a variety of projects that were in delivery phase. For software development projects, this would mean that they have been approved based on a business objective, that some requirements have been understood, the project scope was set, and that the project was in design and code-development phase. Depending on the project methodology used, projects would be at various stages of progress in their Software Development Life Cycle (SDLC). I asked project managers in Company 1 and programme directors in Company 2 to suggest projects in the delivery phase. Eight projects were selected from a list of projects, four in each company, and the associated

project managers were tasked with inviting me to project meetings.

In each organisation, the participating project sponsor introduced me to the management team. In Company 1, the introduction took place in a standard management meeting, where I gave a short presentation broadly outlining the research interest in project management practices. In addition to the four selected projects, another project team requested that I attend their two meetings, which resulted in total of five projects that were observed in Company 1. In Company 2, I met with the programme directors in their weekly meeting with the VP of Programme Management Office. This was followed by a department wide meeting attended by all employees, where I briefly introduced the research and its focus on project management practices.

6.4.3 Confidentiality and Permission to audio record

In each organisation, I signed the standard employee confidentiality agreement. Permission to audio record proceedings was granted by project sponsors at the executive level. Additionally, at the beginning of each meeting, I asked the meeting participants for permission to record and had the audio recorder placed in plain view. The agreement to record was denied only once in an interview with a senior executive in Company 2.

6.5 Data Analysis Approach

Practice perspective is a relatively new development in management research, and associated research methods are divergent and evolving. Schatzki recommends that the practice view should be used to frame and orient the research (Schatzki, 2000), and Sandberg and Tsoukas (2011) advocate shifting focus from researching entities to researching "the relational whole of specific sociomaterial practices" (Sandberg &

Tsoukas, 2011, p. 346). Recommending a move away from the "scholastic attitude of theoretical detachment", they indicate that scientific rationality underestimates the meaningful totality in which practitioners are immersed (Sandberg & Tsoukas, 2011, p. 341), and offer a number of strategies to explore the rich contextual reality in which practitioners are engaged. To experience the world through the practitioners' eyes while immersed in praxis, they suggest searching for entwinement in praxis, focusing on what activities people carry, 'zooming in' and 'zooming out' (Nicolini, 2009), and focusing on temporary breakdowns (Sandberg & Tsoukas, 2011).

Concepts in practice theories are not a fixed representation of a (pre)given world, but are "emergent creations", open ended, partly determined through practices in which they are enacted. To study practice is to look for "family resemblance" - similarities and differences in the empirical phenomena, to think analogically, in an attempt to understand cases under investigation, "offering researchers the opportunity to refine their analytical understanding of certain phenomena" (Sandberg & Tsoukas, 2011, p. 353). As approximate as this may be, researchers should reformulate and test current conceptualising, and refine their understanding by asking: "How far can you go with these concepts at hand?" (Sandberg & Tsoukas, 2011, p. 353).

> "To study organisations in practice perspective means to first identify the "actions that compose it" then to differentiate bundles of "practice-arrangements" formed by these actions, resulting in identifying a "net of bundles", identifying if these bundles work together or compete" (Schatzki, 2005, p. 476).

These considerations led me to adopt the open ended and inductive analytic approach (Creswell, 2007; Strauss & Corbin, 1990), selecting the unit of observation to be decision episodes, and the unit of analysis objectives and practices. Throughout the data

transcription, transcript re-reading, and ongoing data analysis, I continued to search the literature for concepts that were extending, or opposing those I was using. Dissonance in my interpretation kept motivating the research, in a dynamic interaction between searching the literature, searching the data, and presenting and analysing the data (Creswell, 2007; Langley, 1999). Previous chapters have introduced and discussed some of the theoretical concepts, which in fact came into view during the data analysis, which is consistent with the interpretative approach used (Glaser & Strauss, 1967; Strauss & Corbin, 1990).

6.6 Conclusion to Chapter 6

This research project was designed to address the question of utilisation of project and corporate objectives in project praxis. Based on the reviewed project management literature, and a more recent interpretation of rationality production as performative praxis (Cabantous & Gond, 2011) it is reasonable to expect that the performative praxis of rational decision-making would appear, at least intermittently, in project praxis with rational orientation. To explore if such practices occur and if objectives are used, and to what effect, this research project asked three questions: (1) Does observed sociomaterial context exhibit mechanisms of rationality production (Cabantous & Gond, 2011)? (2) What is practitioners' perception of their sociomaterial context and their decision-making practices? and (3) What decision-making practices are carried out in project praxis?

To observe practices of project decision-making in the flow of organisational praxis "*in-vivo*" and "*in toto", in actu, and in situ* (Langley et al., 1995, p. 261) the research was designed as an embedded multiple-case study research design (Yin, 2009) and

employed a combination of data collection methods (Nicolini, 2013; Robson, 2002; Saunders et al., 2009). This chapter explained the rationale for the choice of embedded multiple case research approach and observer-as-participant data collection method and briefly described the data collection plan, process and data analysis strategy. The following chapter provides details of conducted data analyses.

Chapter 7 DATA ANALYSIS

"Finding the enfolded order in the mind of the master decision maker is the key to documenting process" (Nutt, 2009b, p. 611).

The following chapter presents analytical approaches considered and used. The main portion of the chapter outlines advancement of data analysis through levels of abstraction, describing the iterative text-code development, idea generation, germination and exploration. The progression is grouped in three steps: (1) Summarising and packaging the data; (2) Repackaging and aggregating the data; and (3) Developing and testing propositions (Miles & Huberman, 1994). Furthermore, this chapter includes the definition of "Praxis Domains", a construct that has emerged through data analysis and was instrumental in interpreting decision-making practices as well as a description of two visual tools used in analysis of observed decision-making events.

7.1 INTRODUCTION

The choice to study project decision-making practices and their relation with stated objectives from the practice perspective influenced both the research design and the choice of the analytic approach. The practice perspective shifted the research focus from stable pre-given entities (such as objectives), to understanding the construction of meaning, the relational nature of practices, and the concepts and processes, (Feldman & Orlikowski, 2011). Doing qualitative research means that concepts continued to evolve through data collection and data analysis (Creswell, 2007). In this research, this meant that I looked not only for objectives and their use, but also for what else shapes practices, how practices shape objectives, and how objectives are interpreted.

Collecting data as an observer-participant, results in a vast amount of qualitative data that poses a risk of overwhelming the researcher, and the following chapter discusses the analytical approaches considered and used. The main portion of the chapter traces the advancement of data analysis through the levels of abstraction, describing the iterative nature of text-code development, idea exploration, and idea germination. The progression is grouped in three steps: (1) Summarising and packaging the data; (2) Repackaging and aggregating the data; and (3) Developing and testing propositions.

This chapter includes the definition of "Praxis Domains", a construct that was instrumental in interpreting the data, and a description of two visual presentations of observed decision-making processes. The interplay between the identified praxis domains was traced chronologically using the swim lane diagram, and the decision-making process was described with a flowchart presentation.

7.2 DATA ANALYSIS APPROACH

The theoretical framework presented in Chapter 5 framed the research questions and guided the data analysis. In practice perspective, and shown in Figure 8, praxis is never divorced from practitioners in particular sociomaterial context being always intricately meshed with decision site construction. Therefore, to be able to identify decision-making practices in use, in depth understanding of local praxis in local sociomaterial context of each particular project was required (Flyvbjerg, 2001).

My analysis was guided by the step-wise approach of the levels of abstraction (Miles & Huberman, 1994) as depicted in Figure 11. I first described individual projects and meetings, identifying decision episodes within a single project, in a single meeting, or as they spanned multiple meetings. In this first round of analysis, while still attempting to identify decision episodes, I also looked 'around' issues, bracketing text of interest in ad-hoc categories. This was a divergent phase where ideas from prescriptive project management and descriptive research on organisational decision-making, were considered concurrently with reading the transcribed text. During this phase, I was answering data collection questions #1 and #3 (page 98) as I was developing my understanding of the organisations' and each project's context as well as developing an appreciation for local practices.

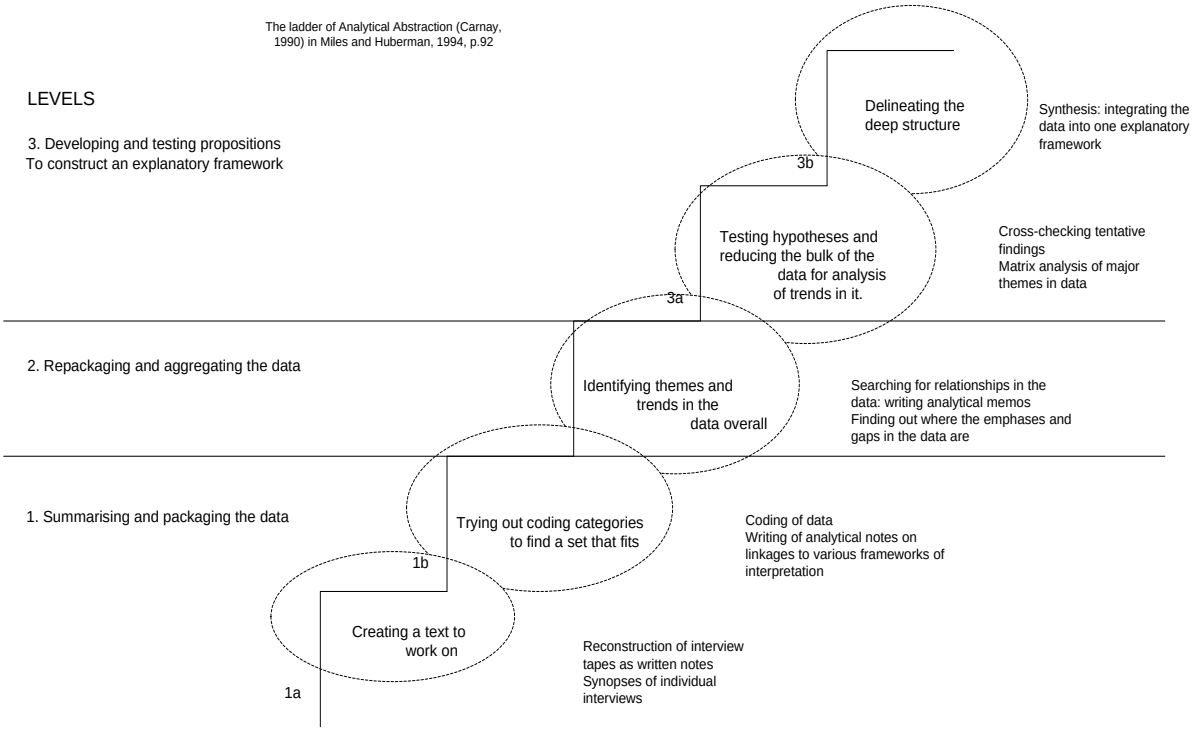


FIGURE 11 – THE LADDER OF ANALYTICAL ABSTRACTION (CARNEY, 1990) IN MILES AND HUBERMAN, 1994, P.92

As reported by Kaplan, I "iterated between raw data, emerging themes, and the related literature to settle on overarching concepts and their interrelationships" (S. Kaplan, 2008, p. 734) while comparing events across decisions, looking for differences and family resemblances (Sandberg & Tsoukas, 2011), and revising models as new insights emerged.

7.3 SUMMARISING AND PACKAGING THE DATA

Packaging the data started during the initial data collection, when all recordings were dated, assigned a unique ID, and described immediately with field notes. Following the completion of data collection, all audio files were organised in NVIVO and linked with appropriate notes and other documents. Initial coding in NVIVO took place during the

transcription process, and continued into the subsequent levels of analysis.

Interview data was separated from meeting data and transcribed in full. Interview text was reviewed to develop understanding of practitioners' perception of their sociomaterial context and their perspective on decision-making practices.

Data Storage and Data Management

The first step in data analysis was to organise all the recordings and documents in NVIVO in a hierarchy by company and project, as shown in Figure 12:

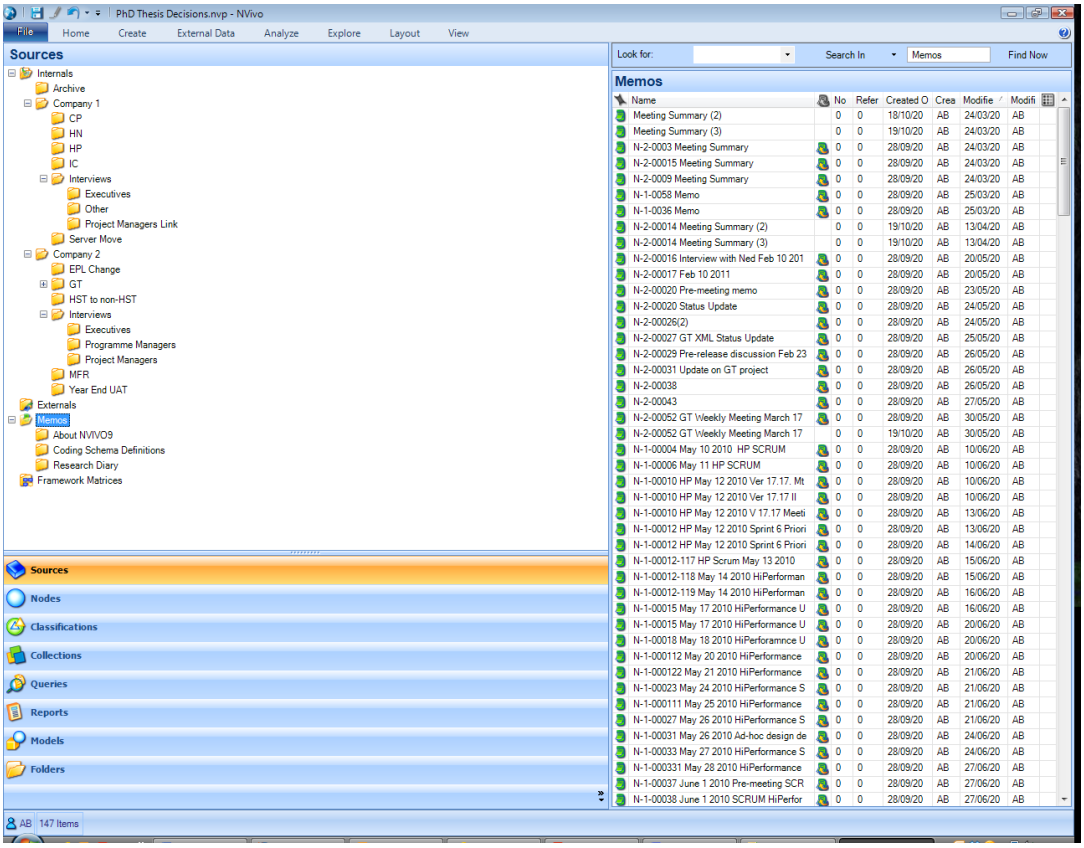


FIGURE 12 - NVIVO SCREEN PRINT

The main file collection, including not only recorded data but all relevant documentation, mind maps, drawings, etc., was stored and regularly backed up to multiple and physically remote servers, including off-site locations. There were eight

consecutive versions of NVIVO projects, each preserving the state of the analysis prior to moving to a new coding iteration, or a new project organisation. Only one NVIVO project file was active at one time, and all previous versions of project related files have been saved.

I kept a transcription diary (Richards 2009) to track the development of coding sets and ideas, as well as to track the progress. In addition to NVIVO9, I used MS Excel to record data logs, and to analyse data units. MindManager was used to support literature review, MS Visio (2007) as a drawing tool, and MS Word as a word processor.

7.3.1 CREATING A TEXT TO WORK ON: IDENTIFYING DECISION EPISODES

The first step of analysis was to listen to all recordings and transcribe the parts identified as decision episodes. In identifying *cases* I was guided by a definition of a decision episode as a time-bracketed organisational activity (Hendry & Seidl, 2003), beginning when a concern is first raised (Nutt, 2008), and resulting in a "specific commitment to action" (Mintzberg et al., 1976, p. 246). Sometimes this meant going back and transcribing a meeting where the starting point may have initially seemed insignificant. I searched for decision episodes that participants called a "decision" (ex-ante, in-actu or ex-post), and for those instances where practitioners appear to consider alternative courses of action, regardless of how they would refer to those occurrences, alternatives, or any other part of that process.

18 distinct decision episodes, and another 10 instances of 'sprint planning' (SP) with multiple estimation decisions in each meeting, have been identified in-actu, in-situ and in-toto. Table 1 displays the number of identified decision episodes (#DE) per project, listing the number of meetings attended, and the number of recorded hours.

	Total Number of meetings attended	Total Number of recorded hours	#DE
Company 1	**94**	**67:26:16**	**11+10 SP**[6]
CP	23	15:41:36	5 SP
HN	9	4:01:55	2
HP	45	24:51:59	6+5SP
IC	2	2:27:10	1
Server Move	15	10:11:08	2
Company 2	**36**	**27:05:37**	**7**
EPL	10	7:41:15	0
GT	16	9:14:54	5
Tax to No-Tax	4	2:41:39	1
Year End UAT	6	1:39:47	1

TABLE 1 - SUMMARY OF RECORDED MEETINGS / COMPANY / PROJECT

7.3.2 TRYING OUT CODING CATEGORIES: DEVELOPING CASE ATTRIBUTES

I used qualitative coding in NVIVO to analyse the recorded data and to develop "cases". Richards categorises three types of coding: descriptive, topic, and analytical (Richards 2009). I first created descriptive free codes, which were later organised in tree-hierarchy-codes, and subsequently developed topical and analytical codes, in parallel to the evolution of the case attributes.

After the initial pass through the recorded data, the cases were identified as Decision

[6] SP – Sprint Planning

Episodes (DE) and described by NVIVO 'Case Properties'. Case properties are attributes assigned by the researcher and used to describe cases for further analysis. Consistent with standard project management classifications, each decision episode was at first identified by its company, project manager and project methodology. Further on, building on decision analysis categories, decision episodes were categorised by their decision content and decision process type following Nutt (Nutt, 2009a), and by attributes from "The Dimensions of Decisions: A conceptual and empirical investigation" (Franz & Kramer, 2010). (Details of each decision episode are in Appendix C.)

7.3.2.1 Describing Decision Content

Decision Content identifies the subject matter of the decision, the issue to be resolved, exclusive of the process taken. Over time, the codes settled into three categories: (1) a way of managing an issue (Product/Method Design); (2) ordering tasks in time (Schedule); or (3) allocating resources (Resource Allocation).

Method/Product design decision – eight instances

Method/product design decision refers to the question of how to do something, e.g. how to design a solution to a software functional requirement, how to implement a solution, etc. In these episodes it is clear what needs to be accomplished, but the question arises about how to go about it.

Schedule Decision – 7 discrete instances and 10 sprint planning sessions

In decisions of type "schedule", teams would try to determine when to do something and how to coordinate the tasks. There may be some overlap between the Method/Product Design and Schedule decisions content type. Schedule decisions were focused on when the tasks would take place, more than on how the tasks were to be

done. However, it is not always possible to separate these concerns, as one may be dependent on the other. For example, the timing of product release in decision episode 5, was categorised as a schedule decision, although the alternatives imply a different way of doing things, i.e. the timing of the tasks changes how the tasks are done.

RESOURCE ALLOCATION DECISION – THREE INSTANCES

In only three cases, the teams focused on the question about allocating resources. Once it was a budget allocation decision impacting the next six months, while the other two were project local.

7.3.2.2 DESCRIBING DECISION PROCESS TYPE

Decision Process Type signifies the approach taken to generate and evaluate alternatives (Belton & Stewart, 2001), and three categories were found in observed data: (1) Choice between clearly stated alternatives; (2) Approval, subdivided in (2.a) where shared understanding is sought, and (2.b) where one party has the institutional power to grant the approval; and (3) Construction and Choice. These identified how decision-making had been approached, if alternatives were presented at the beginning, or approval was sought, or an issue was recognised, and whether alternatives and objectives were constructed through the process. By process category, there were ten Construction and Choice decision episodes, two Consensus Building episodes, and three Approval situations. Of the 18 distinct episodes, only two started with given alternatives. The ten sprint planning sessions had a list of tasks to estimate and were provided with the set of available estimates (this is described in detail in the findings section).

CONSTRUCTION AND CHOICE - TEN INSTANCES

Construction and Choice was the most often recorded decision process type, where the team considered a problem and constructed alternatives together, before selecting how to proceed.

APPROVAL - CONSENSUS BUILDING EPISODES – THREE INSTANCES

In the consensus building, one party was presenting a solution and trying to gain another party's acceptance. This is similar to the Approval, except that in these cases the other party did not have the power to disallow the course of action, though their agreement was preferred it was not mandatory. This is also knowledge sharing, often referred to as getting the 'buy-in'.

APPROVAL - INSTITUTIONALISED DECISION POINT – THREE INSTANCES

In three cases labelled "institutionalised decision point", an approval was sought in order to proceed with an action (IC and GT) or to allocate a resource (HP). In these episodes, an alternative is presented to a party with the power to grant that approval.

CHOICE BETWEEN CLEARLY DEFINED ALTERNATIVES – TWO INSTANCES PLUS 10 SPRINT PLANNING SESSIONS

In only two of the 18 episodes, alternatives were clearly defined at the beginning of the decision-making episode. One of the cases was a long decision episode, where only two alternatives were available (Server Move Circuit); the other case was a very short instance of an individual asking a Project Manager to select between two tasks to be undertaken. Sprint planning sessions followed the predefined procedure, estimating a given set of stories with predetermined set of values.

SUMMARY TABLE

Case	Decision Process	Decision Content
DE1	Construction and Choice	Resource allocation decision
DE2	Consensus Building	Schedule Decision
DE3	Approval - Institutionalised	Resource allocation decision
DE4	Approval - Consensus building	Method/Product design decision
DE5	Construction and Choice	Schedule decision
DE6	Approval - Consensus building	Method/Product design decision
DE7	Approval - Institutionalised	Schedule decision
DE8	Construction and Choice	Method/Product design decision
DE9	Construction and Choice	Method/Product design decision
DE10	Construction and Choice	Schedule decision
DE11	Construction and Choice	Schedule decision
DE12	Approval - Institutionalised	Resource allocation decision
DE13	Choice between clearly defined alternatives	Schedule decision
DE14	Construction and Choice	Method/Product design decision
DE15	Construction and Choice	Method/Product design decision

Case	Decision Process	Decision Content
DE16	Construction and Choice	Method/Product design decision
DE17	Choice between clearly defined alternatives	Method/Product design decision
DE18	Construction and Choice	Schedule Decision
DE19-DE27	Choice between a set of alternatives	Schedule Decision

TABLE 2 – SUMMARY TABLE OF DECISION CONTENT AND DECISION PROCESS PER DECISION EPISODE

7.4 REPACKAGING AND AGGREGATING THE DATA

Having developed the first tentative set of codes and finding too few clear references to objectives, I returned to the data to explore the decision episode context. To assist in understanding the sociomaterial context, all projects were profiled using the goal-and-methods matrix (Turner & Cochrane, 1993); project complexity (Williams, 2002); and inferred project objectives (Keeney, 1992) (Details per project are in Appendix B). After the project complexity evaluation, decision episodes were individually evaluated using the same descriptive framework of project complexity.

Having thus profiled the overall project environment, each project and each episode's sociomaterial and temporal context, I returned to the data to focus on processes and actions (Feldman & Orlikowski, 2011; Sandberg & Tsoukas, 2011). "Zooming out" I looked at the relationship between decision episodes and organisational and project sociomaterial context, while "zooming in" I investigated each decision episode in detail

using “different angles for observation and interpretation frameworks” (Nicolini, 2013, p. 239).

7.4.1 EMERGENCE OF "CLUSTERS OF CONCERNS"

I shifted my focus to the study of processes, following the "assumption that to understand decision-making we must explore how decisions come about" (Poole & Van De Ven, 2010, p. 543), where the unit of analysis is not a variable, but a set of events "interrelated in a complex fashion" that form a process (Poole & Van De Ven, 2010, p. 547). Reviewing the text of the episodes again and having become aware of the project sociomaterial context, clusters of topics emerged from recorded discourse. The clusters were of importance to the participants, and they evolved to form the concept of *praxis domains* which identified broad areas where discussion centred on a specific issue, or family of issues, in a particular organisational context. In other words, praxis domains are organisational "*practice-arrangement bundles*" (Schatzki, 2005, p. 478). Praxis domains thus yielded a new set of codes to bracket the text based on its domain focus. The new schema yielded a set of five domains.

7.4.2 DEFINITION OF ORGANISATIONAL PRAXIS DOMAINS

The areas of concern were grouped into five praxis domains, which seem to constitute the entire organisational praxis as seen from the perspective of project participants that engaged practitioners' attention in various ways. These clusters were labelled ‘organisational praxis domains’ (or ‘praxis domains’), and are conceptualised as nexuses of organisational practices carrying out a specific, although broad, organisational purpose. For example*, the operations praxis domain* encompasses all organisational activities related to maintaining daily operations. These could be management

practices, accounting practices, resource allocation practices, software development and other practices, which are carried out with a focus on operational tasks. An example would be the practice of daily backups in both companies, or the practice of delivering fixed-schedule releases in Company 2. Some practices are organisationally unique to a domain, for example, specific batch processing is unique to the operations domain of Company 2. Other practices that are part of the operations praxis domain are common across the domains. For example, the reporting practice is carried out in each domain, though by different practitioners and possibly in different formats. Standard management practices (e.g. budgeting, planning, measuring, etc.) are carried out to support each domain, though they are often customised to the domain (e.g. the Company 2 project management office has a specific "project dashboard" report generated to report on project progress). In each organisation, praxis domains contain a relatively stable collection of practices, have their own rhythm, and are characterised by the specific use of resources and domain-centric interpretative schemes. Each praxis domain forms its own rationale that constitutes its own issue streams with which practitioners engage in a domain-specific way.

The concept of praxis domains that emerged through the data analysis, resembles the "*practice-arrangement bundles*", described by Schatzki as distinct social fields, where dispersed and integrative practices combine in praxis, forming action chain networks (Schatzki, 2005, p. 478). These praxis domains, although quite dissimilar in some ways, overlap in others and share some of the integrative and dispersed practices, while each having its own "hierarchized field of ends, tasks, and purposes" (Schatzki, 2000, p. 105). Domain specific integrative practices evolve to incorporate intra- and inter-organisational concerns, in the processes encompassing organisational objectives, into

their teleoaffective structure.

> "teleoaffective structures establish, inter alia, a field of correct and acceptable ends, a selection of acceptable or correct projects to pursue for the sake of those ends, a variety of acceptable or correct tasks to carry out as part of those projects, a range of acceptable or correct ways of using objects, and a variety of acceptable and even correct emotions, feelings, and passions"(Schatzki, 2000, p. 124).

Not one of the observed praxis domains could exist on its own, separated from the rest of the organisation; they are not standalone independent sub-organisations (as an outsourced-to organisation would be), but are interconnected, interdependent parts of the main organisational praxis and a wider "sociohistorical space-time" (Schatzki, 2005, p. 473). For example, the integrative practice of software development participates in all praxis domains in the observed organisations, although in each domain it results in different chains of actions. Simultaneously, software development practices are part of the wider net of practices across organisations, professional institutions, universities, and others.

> "All these meshes, nets, and confederations form one gigantic metamorphosing web of practices and orders, whose fullest reach is coextensive with sociohistorical space-time"(Schatzki, 2005, p. 473).

Identifying praxis domains served as a way to: (1) understand how practitioners perceive their sociomaterial context; (2) to access specific practice's organisation; and (3) to understand the practitioners' activities.

7.4.3 THE PRAXIS DOMAIN INTERCONNECTEDNESS

Organisational praxis domains are meshes of dispersed and integrative practices, and many practices are shared across the domains, interconnecting them in various degrees forming structures of variable stability. Established processes could be connecting

hardware and software, or technical systems and business processes, whilst other interactions are more transient, or changing at a faster rate, e.g. change of product ownership in project HN at Company 1; change of product requirements in both companies. These processes are part of organisational project sociomaterial and spatio-temporal context. As an illustration, and not a comprehensive representation, the diagram in Figure 13 shows a few examples of processes interconnecting the Domains.

The diagram attempts to display the dynamic environment in which organisational projects are embedded. Some of these interactions would be described as a part of systems analysis, others as part of project set up, and some as project management processes and artefacts. Some connections refer to stable routines, such as a mandated project management methodology for software development life cycles (SDLC). Others, like software release practices, are sometimes fixed in time. Not only are projects embedded in multiple praxis domains, but also those domains interact in complex ways (Engwall, 2003).

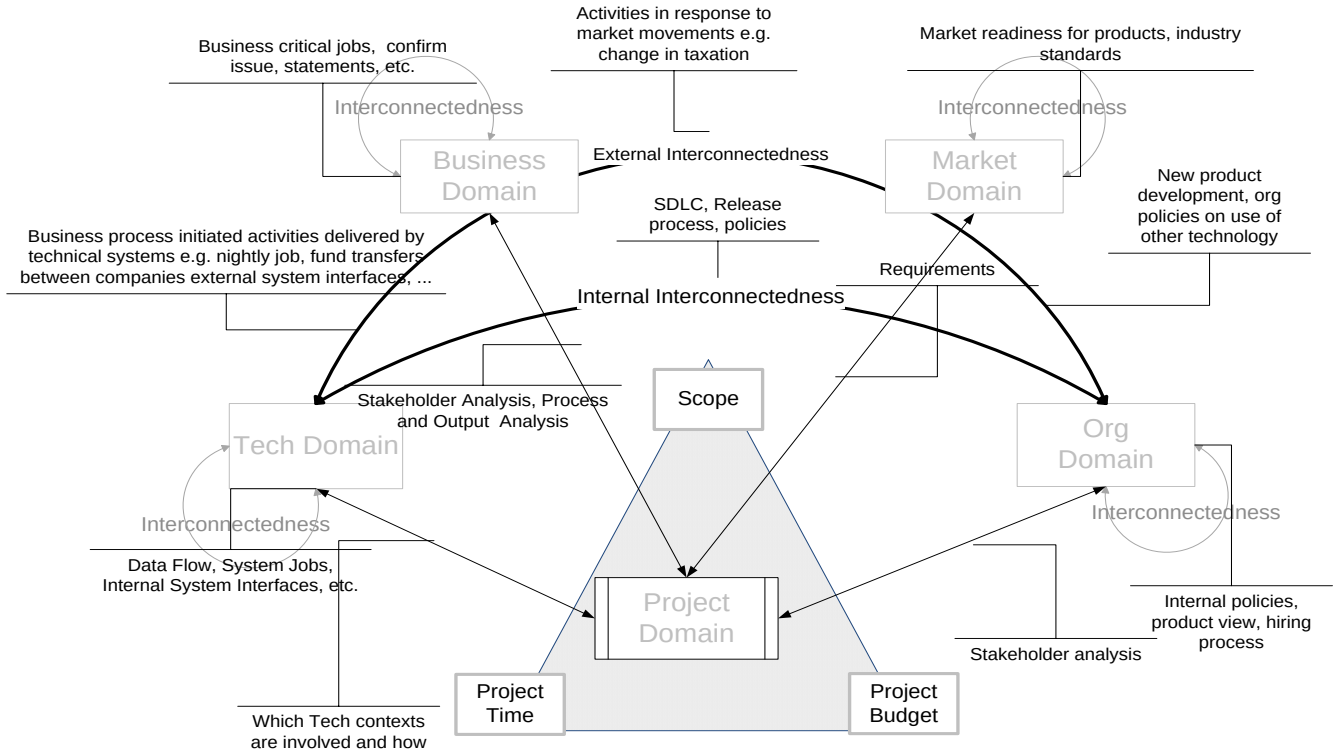


FIGURE 13 - DOMAINS INTERCONNECTEDNESS[7]

[7] This figure is intended to illustrate types of interconnectedness between the domains, and is not a comprehensive representation of all possible links

7.4.4 Praxis Domains Interplay

Having framed the context with specific praxis domains, I went back to the transcripts to understand how praxis domains impact decision-making. I traced decision-making processes using swim lane diagrams (c.f. Langley & Truax, 1994; Poole, 1983) and activity step-flowcharts (c.f. Mintzberg et al., 1976; Nutt, 1976). The swim lane diagram allowed for a chronological trace of the discussion across the praxis domains, thereby showing the focus of decision discourse (progression in time from left to right) over the praxis domains (horizontal lanes), and the praxis domain focus relative to the decision-making phase (symbols identifying information sharing, alternatives, opening, closure, etc.). Tracing the praxis domain occurrence over the duration of an episode, using swim-lane diagrams revealed frequent domain overlaps while the flowchart representation followed only decision-process-steps accenting construction of the decision site. At the end of this analysis, I compiled a matrix of all attributes and compared the cases. Analysis of each decision episode is included in Appendix C – Decision Episodes.

7.4.5 Process in a Swim Lane Diagrams

To describe the process of decision-making over a period of time, and to show when each of the domains was invoked, I used the Swim Lane diagram. For each Decision Episode, one diagram was created following the coded text. Each diagram has the five identified praxis domains on the left hand side. The time-direction is from left to right. 'Activity' at the top identified the phase of a discussion, and the symbols used represent the activity in a domain, often simultaneously occurring in multiple domains. I used the following phases to match meeting discourse as closely as possible, but did not define them precisely at first. Having traced all episodes once, I reviewed the diagrams and consolidated the phases as follows:

"Trigger" identifies the phase when a statement was made that started a decision episode. This could be a statement of a problem, an alternative, a model discussion, a clear introduction, etc. This phase identifies the point when the team recognised that there is an issue to be addressed, for each new issue introduced.

"Decision Site Construction", abbreviated to DSC***,*** phase brackets periods during which the team discusses its perception of the subject matter in its sociomaterial context and constructs a decision site. Teams offer their interpretations of practices relevant to the issue discussed contributing to the shared understanding of the germane environment.

"Alternative" phase refers to the segment when alternatives are introduced. The different colour of symbols identifies changes in the alternatives, or a new alternative. Although introduction of alternatives is part of decision site construction and transformation, a separate segment was introduced for ease of analysis.

"Implementation" phase signifies a discussion about implementing a proposed alternative and usually involves a simultaneous spatiotemporal and sociomaterial evaluation of actions. This segment was distinguished from decision site construction because of its focus on action, on carrying out the alternative.

"Agreement" indicates the point when the decision is reached, and

"Objection", with only two instances in distinct episodes, specifies when an objection was raised to an alternative, or a statement.

Any symbol could be placed in any phase and in any domain. A symbol can occur in multiple domains in the same phase segment. All phases can be repeated over an

episode.

LIMITATIONS OF DOMAIN PROCESS TRACE

The domain process trace was developed to aid in the data analysis. The following are some limitations of this representation as it was used for this research:

- Trace segments vary in duration. Whether the team spent two or 20 minutes on decision site construction, as long as the phase was not interrupted by a shift in focus (e.g. new alternative), the phase is recorded as one.
- Swim-lanes do not track who speaks, only what the discourse is about.
- Time-dimension of the consideration is not recorded either, e.g. when an alternative is considered across the domains, it could be evaluated within different time frames.

DE8 – ILLUSTRATIVE EXAMPLE OF USE OF THE SWIM LANE DIAGRAM

The discussion of whether the software change that is a part of this project will be made production-ready or ad-hoc, was carried over multiple project meetings. This diagram captures the relevant activities during the meeting when agreement has been reached. The episode starts with the statement from the Development Manager insisting against hard-coding.

> *"Dev Manager: I have some ideas about it because I don't want to productionise that code, because I don't want to continue to hard code it. So, really I want to code it as a fire fight code for the client and I want to revisit it, I want to get rid of hard coding, that's just not correct." [N-2-3 Jan 19 2011 Project TnT]*

Decision Episode Synopsis: The Development Manager does not explicitly state why he does not want to hard code the solution *("that's just not correct")*, and the team does not inquire further or challenge this statement (Phase – Trigger, pre-given alternative implement ad-hoc code, segment #1). The participating team shares practices of

software development, and have been subjectivised in this particular organisational context, thus they understand implicitly why the objection to 'hard coding' is made. As praxis domains are characterised by their internal organisation (shared understanding, rules and teleoaffective structure), the practitioners do not need to explicitly state the reasons for their actions. This is supported by opinions expressed in interviews (e.g. N-2-30).

> *"Q: what do you mean properly?*
> *PM - I mean **'properly'** - a lot of the code we ran we made ad-hoc changes, we didn't productionise it, they are not part of the release, **we did not do end-to-end** [development], I mean there are many components to this, where we really **should have done a better job , a complete job,** in terms of moving instructions across and **testing them properly**, and there are certain things that are not part of the fund merger process where we leveraged today a certificates, there is a whole list of them that are not part of this process" [N-2-30 Interview with NM, Project TnT Feb 23 2011]"*

First, as part of software development practice in this environment (Technology Praxis Domain), it is taken-for-granted that hard-coding should be avoided. Hard-coding could have a detrimental effect on future upgrades, compatibility and maintenance (Operations Domain); hard-coding also reduces product transportability to multiple clients (Market Domain), and is against the generally accepted organisational standard of not-hard-coding in Company 2 (Organisation Praxis Domain) (segment #2).

The project manager evaluated possible implementation (implementation phase) of the proposed alternative to not-hard code the project solution, in view of the project timelines and budget, recognising that an alternative would not fit within the timelines (alternative symbol shown in the project domain, segment #3). When a team member introduced a hybrid solution, partially hard-coded and partially reusable portion made

production-ready, a new alternative phase is shown in the technical domain (segment #4). The team members clarify their understanding of the solution and update their perception of the context (discussion in the decision site re-construction phase, segment #5). They consider how the new alternative would work in the technical domain, in the project domain, which includes fitting into an organisational wide release and its impact on the operation. Then they evaluate the hybrid solution within the re-constructed decision site (#6). Seeing that it would work, they agree to proceed with the hybrid solution (#7).

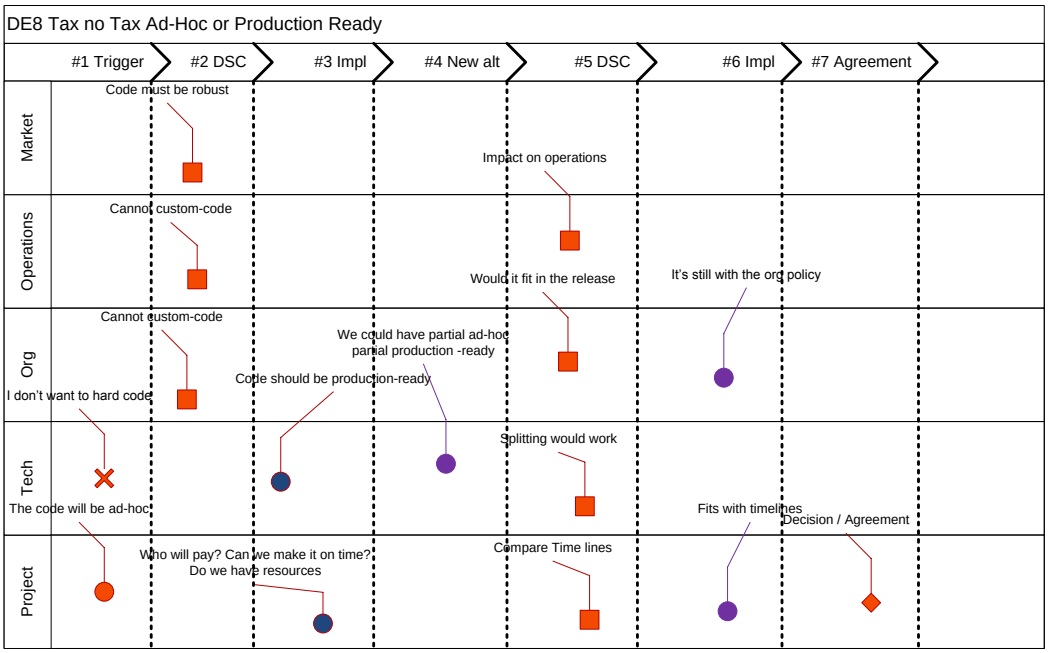


FIGURE 14 – DE8 EXAMPLE SWIM LANE DIAGRAM

The perception of the decision site evolved from the initial focus on the technical problem solution with the project-only view to include organizational concerns over long-term code quality that takes into account the impact on all clients and partners, their processes, and future releases and continuous product maintenance. Having recursively constructed the decision site expanding from the project focus (reuse the

previous code, minimise cost, deliver on budget) to incorporate concerns about the long-term code maintainability, its impact on clients, and market reputation, a new alternative was created, evaluated in this new setting, found to be feasible and agreed upon.

7.4.6 PROCESS IN A FLOW CHART DIAGRAM

The swim lane diagram was useful in considering how decision-making practices are entwined and interact with praxis domains through different phases. This led to a more abstracted way of recording the process in a step-flow chart that allowed me to compare three attributes of decision episodes: decision site (re)construction, number of alternatives, and problem perception in sociomaterial context. I selected the following shapes for modelling the specific processes.

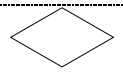
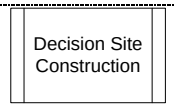
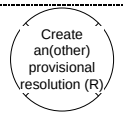
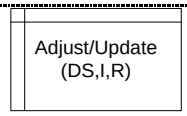
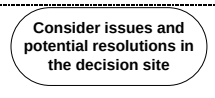
VISIO Shape	Interpretation
	Diamond – signifies a decision question branching to "yes" and "no" directions.
	Building shared understanding of practices in sociomaterial context.
	Resolutions to issues are created.
	Update perception of decision context, issues or resolution. In specific decision flowcharts, the box would be drawn every time any of the three elements change.
	Consideration of issues and potential resolutions in decision context
	Straight line – "Yes" direction
	Dotted Line – "No" direction
	Bolded line – path taken

TABLE 3 - FLOWCHART SHAPES

The steps were recorded from the top box going down, and following decision branches. Tracing the process in the activity-flowchart yielded two distinct flowchart templates. Sprint planning sessions followed a prescribed procedure, resulting in a routine like activity, displayed in Figure 15.

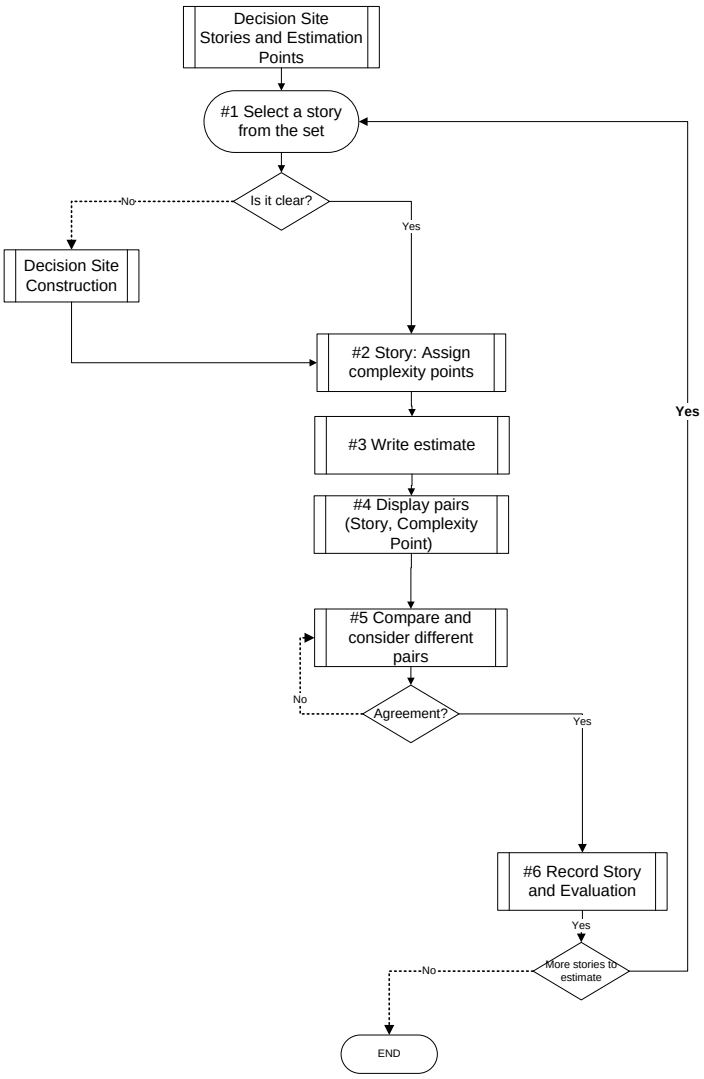


FIGURE 15 - SPRINT PLANNING FLOWCHART

The other 18 decision episodes followed an iterative and less structured process, described by the following flowchart (Figure 16).

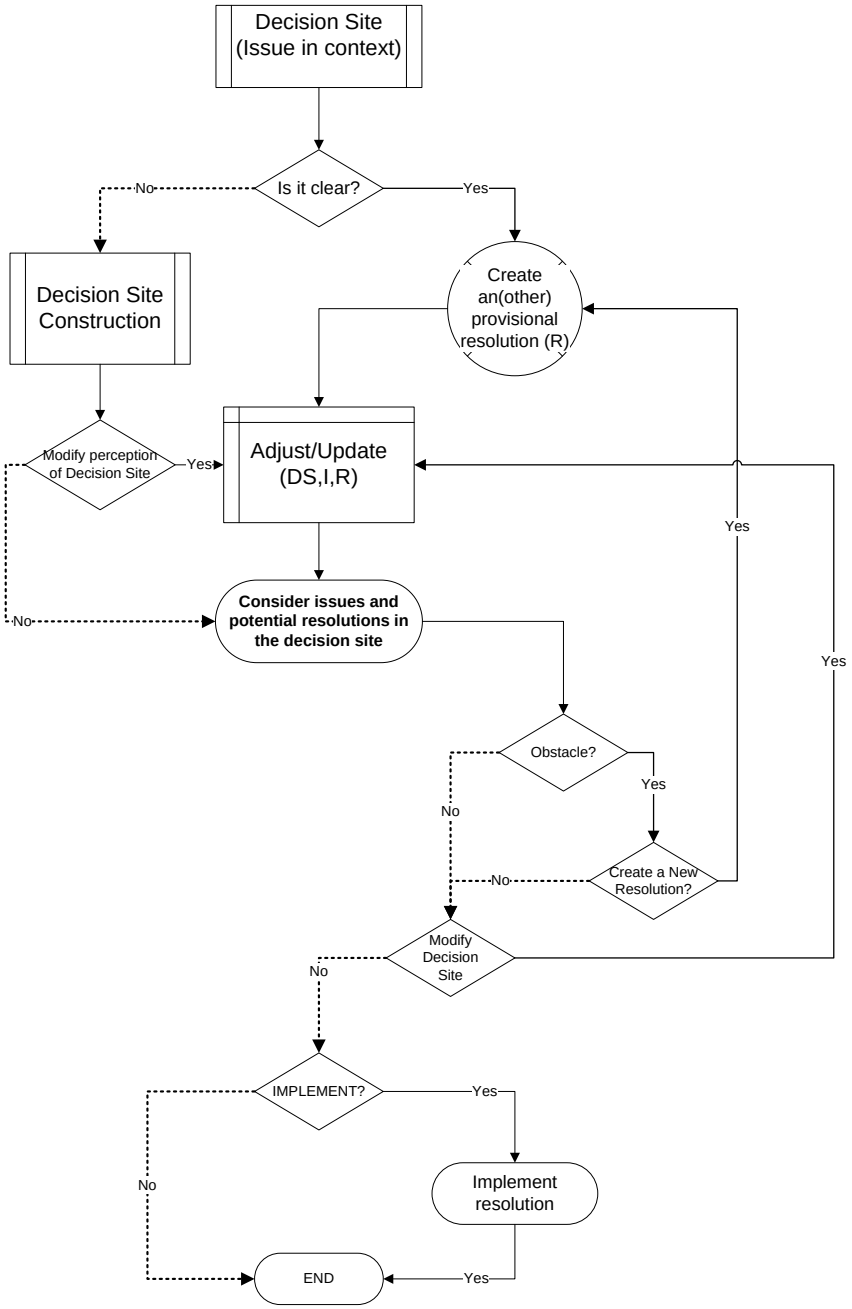


FIGURE 16 – NON-SPRINT PLANNING SESSIONS GENERIC FLOWCHART

DE8 – ILLUSTRATION OF ACTIVITY FLOWCHART DIAGRAM USE

The following flowchart illustrates the use of the flowchart with reference to the decision episode discussed above (DE8).

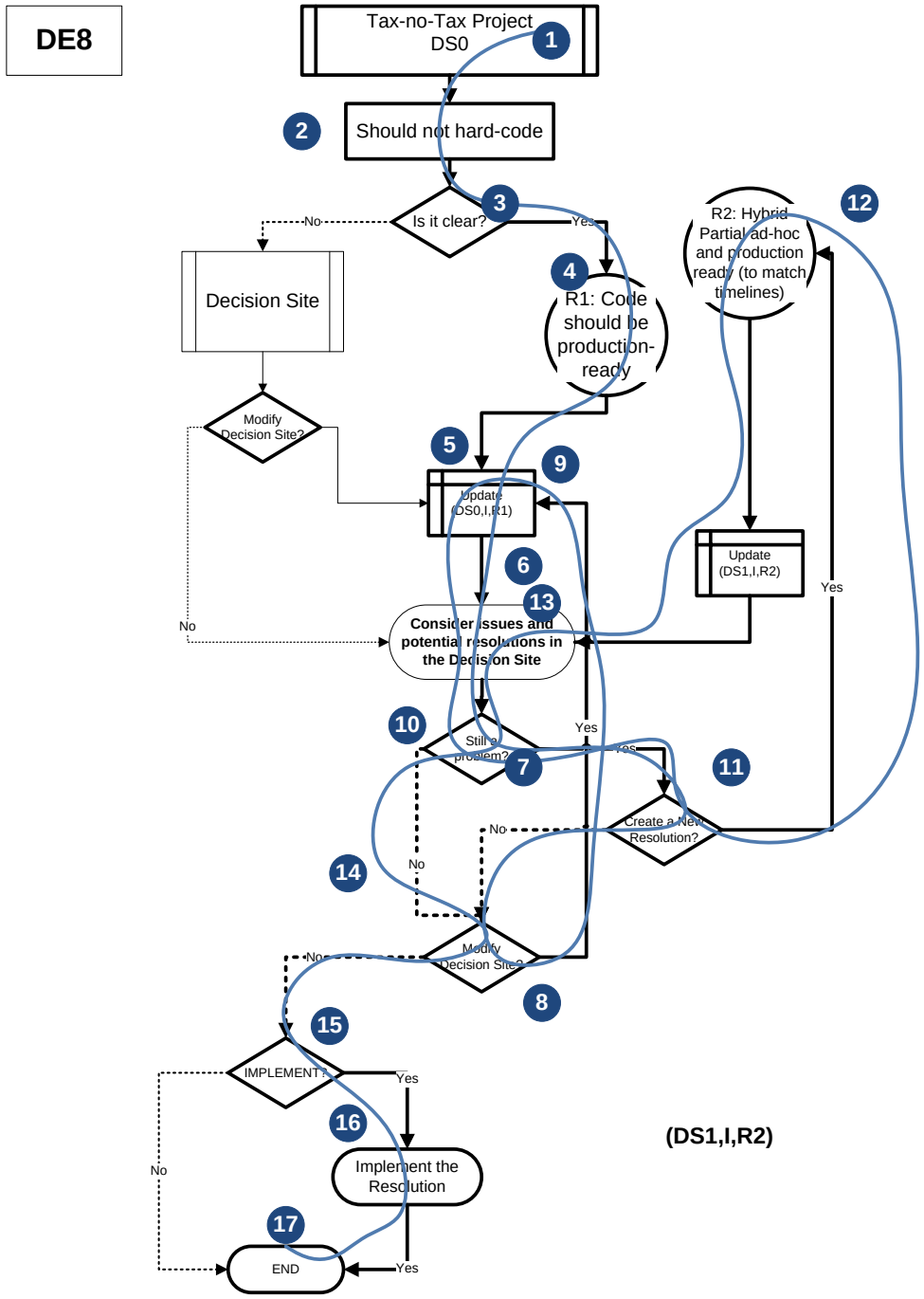


FIGURE 17 - DE7 FLOWCHART

Bolded lines indicate the 'touched' boxes, and the flowing blue line indicates the overall flow. The "pass" is considered every time the process passes through the consideration box, and the number of perceived decision sites is counted based on how many times

the process passes through the "consider" box. Each instance starts with a Decision Site 0 (DS0), and each update adds +1 to it. Therefore, in this instance, the team started with their view of the project and its context as DS0, when confronted by the Development Manager's insistence on not hard-coding (R1). They first update their perception of the site with timeline and budget considerations, in view of the release schedule, arriving at DS1, and then consider a proposed hybrid solution (R2). I only count the two alternatives discussed here, and not the ad-hoc option that was part of the original plan because that option was not discussed during the episode.

The flowchart allowed for another level of data reduction, resulting in mapping all decision episodes to similar steps. This produced the number-of-passes attribute, indicating how many times the decision situation has been considered, how many times the perception of a decision site has been adjusted, and how many alternative resolutions have been brought forward. Each decision episode was therefore described by the three variables: Perceived Decision Site, Perceived Problem, and the Alternatives.

7.4.7 MAPPING OBJECTIVES

Each decision episode was represented in the swim-lane process trace, which was then used to infer objectives based on praxis domains. This process was informed by the understanding of praxis domains and the specific situation. The following table describes how each domain could be interpreted at each organisational level through generic objectives. The column under Project Decision Level is populated with examples rather than with generic objectives, as at this level objectives are operationalised into action. These are detailed in each decision episode analysis. Please note that the objectives identified at the decision level are instrumental across the domains, i.e. they

support objectives from other domains, not only those in their own row.

Domain	Org Level (Strategic Level)	Project Level (Fundamental)	Project Decision Level (Instrumental)
Market	Maximise market share (maximise profit) • Gain more customers • Develop new Markets • Expand in new markets	Deliver on time and budget Respect Project Customer	DE8 e.g. T3 – "do what the other market participants are doing"
Operations	Maximise profit through operations • Create/improve new products and services • Improve Efficiency and Effectiveness • Adherence to overall business requirements – Strategic view of the product/service	Deliver on time and budget • Adherence to Project Business requirements • Maintain existing Business Processes within the project and outside	DE13 e.g. Blob or Relational – maximise flexibility of end-business functionality
Organisational	Improve Organisational Efficiency and Effectiveness • Develop strategies • Develop procedures e.g. HR procedures, structure, policies • Manage human resources	Deliver on time and budget • Respect organisational procedures and policies • Train and develop staff within projects	DE16 e.g. Server Move – Circuit decision: Respect Organisational procedures/minimise disruption to org procedures
Technical	Improve Efficiency and Effectiveness of technical systems • Develop procedures for maintenance and development • Create new methods/products	Maximise product specifications e.g. maintainability, flexibility, compatibility, etc. (product specific) • Operate within the accepted organisational	DE7 e.g. Ad-hoc vs. production code – maintain production maintainability

Domain	Org Level (Strategic Level)	Project Level (Fundamental)	Project Decision Level (Instrumental)
		technical standards	
Project	Develop project environment to improve Efficiency and Effectiveness • Project Methodology • Project Control • Training	Deliver on time and budget • Respect/improve the accepted project methodology • Train and develop staff within projects	DE15 Server Move – HN servers: Minimise risk to the project success

TABLE 4- MAPPING CONTEXT DOMAINS TO OBJECTIVES

7.5 DEVELOPING AND TESTING PROPOSITIONS

At the end of data analysis, interviews were transcribed and analysed, sociomaterial context was described at the level of company, project and each episode, and all decision episodes were described with the following (each is detailed in Appendix D):

- Decision Content Type and Decision Process Type
- Decision-making process steps activity flowchart and resulting variables
- Decision Episode inferred activated objectives hierarchies
- Decision-making swim-lane diagram detailing the process steps across praxis domains

At the completion of the data analysis, there were a number of characteristics associated with each decision episode. All descriptors were consolidated into a spreadsheet and analysed across the levels, (company, project, and decision episode) and across the episodes. Details of the analysis are in Appendix D. The following table summarises data sources (Table 5), method of collection and collected artefacts, showing which analytic tool was used and for what purpose.

Data Source/Collection Method/Artefacts	**Analytic Tool**	**Purpose**
Company documentation Collection e.g. project dashboard, project methodology manual Employee survey results (Company 1)	Narrative Organizational structure graphical representation (G. Johnson & Scholes, 2008) Product architecture (organisational)	Research Question 1 Contextual Background Praxis Domains Development
Company meetings (2) Silent observation Existing Documentation Strategic Objectives Hierarchy Decompositions used in Town hall (Company 2);	Description	Research Question 1 Strategic direction Information Contextual Background Praxis Domains Development
Project Documentation and Tools Silent observation/ Review/Collection Project Documents (e.g. minutes, charters, etc.)	Description	Research Question 1 and 3 Contextual Background Praxis Domains Development
Project Meetings (130 meetings, 94 hours of audio recording) Silent observation Audio recordings in NVIVO	Project narrative - history, team, methods Goals and method matrix (Turner & Cochrane, 1993) Project Complexity Assessment (Williams, 2002)	Research Question 1, 2 and 3 Develop understanding of project in particular sociomaterial context Identify Decision Episodes Praxis Domains Development
Decision Episodes (28) Identified during transcription	Narrative in project/company	Research Question 1, 2 and 3

Data Source/Collection Method/Artefacts	Analytic Tool	Purpose
NVIVO Transcripts Analysis of Decision Episodes	context Objective Hierarchies (Keeney, 1992) Praxis Domain Process Swim Lane Diagram (adapted) Activity Flowchart (adapted)	Tracing decision-making activities and their relationship with context Praxis Domains Development
Interviews with project participants and executives (34 interviews) Semi-structured and unstructured interviews Audio recordings/NVIVO Transcripts	Narrative	Research Question 1 and 2 Participants' interpretation of organizational environment Praxis Domains Development

TABLE 5 - DATA SOURCES, COLLECTION METHODS, ARTEFACTS AND ANALYTIC TOOLS

7.6 CONCLUSION TO CHAPTER 7

Data analyses presented in this chapter explored decision-making in software development projects using "several frames of reference", multiple sources and methods to represent the process (Nutt, 2009b, p. 608), with focus on instances of rational decision-making praxis (Cabantous & Gond, 2011). "Zooming in and zooming out" and using "different angles for observation and interpretation frameworks" (Nicolini, 2013, p. 239) the observed projects were described in their organisational environment, with reference to organisational project complexity (Williams, 2002). Decision episodes were classified by content and decision process type (Nutt, 2009a), and decision processes were traced with two visual presentations. The analyses focused on practices being

carried out at the project level within an organisational context, and attempted to capture the totality of the decision events in their environment and dynamics (Engwall, 2003). Especially, identified decision episodes were searched for occurrences of rationalising elements such as decisions and objectives (Hendry, 2000) and processes indicative of rational decision-making (Cabantous et al., 2010).

The deep enmeshing of decision-making with organisational context adds to the complexity of decision subject matter which is being interpreted by decision-making groups (project teams). To describe the interaction between observed organisational decision-making and its context, data analysis encompassed:

- Developing an understanding of the specific organisational sociomaterial context based on available company documentation, observation of management meetings, semi-structured interviews, and an overview of mandated tools and methods.
- Understanding of specific project sociomaterial context developed through learning about specific products, prescribed and enacted project methodologies, interviews with project participants and observation of project meetings. This was followed by an in-depth analysis of projects using project complexity frameworks.
- Understanding of decision episodes sociomaterial context progressed through in depth analysis of recorded discourse through which close interaction with clusters of concerns emerged.

This chapter described the steps carried out in the data analysis phase of this research project and the following chapter presents the results of the analysis.

Chapter 8 RESEARCH FINDINGS

"Contrary to the ontology underlying scientific rationality, which assumes disconnection—namely, that we, as sentient beings, are initially separated from the world to which we subsequently become contingently connected—the notion of being-in-the world stipulates that our most basic form of being is entwinement: we are never separated but always already entwined with others and things in specific sociomaterial practice worlds (hereafter "sociomaterial practices"), such as teaching, nursing, managing, and so on (Dreyfus, 1995; Orlikowski, in press; Sandberg & Dall'Alba, 2009; Schatzki, 2005; Taylor, 1993a)" (Sandberg & Tsoukas, 2011, p. 343).

This chapter presents the results of the data analysis. The first part describes the sociomaterial context of the two organisations based on the document review and semi-structured interviews with executives and project participants, that illustrate organisational orientation to instrumental rationality. The subsequent section describes project participants' perspective from the interview data, demonstrating practitioners' bias toward rational management approaches and their concerns over the apparent lack of adaptability in their dynamically changing environment. Observed decision-making activities are presented grouped in three parts by how they were referred to by practitioners. The last section remarks on the number of episodes detected in this research. The conclusion of this chapter summarises the findings and suggests an interpretation of the results which are further elaborated on and discussed in the next chapter.

8.1 INTRODUCTION

This research explored decision-making practices in project praxis in two well established software development organisations with a strong functionalistic orientation in their project environments, with the aim of understanding the relation between strategic objectives and project level decision-making practices.

The importance of objectives to project success and as a means of aligning project level activities to corporate strategy is emphasised in project management literature (Atkinson et al., 2006; Atkinson, 1999; Cooke-Davies, Crawford, & Lechler, 2009; Jamieson & Morris, 2004; A. J. Shenhar et al., 2001). In a perfect managerial world, decision-making at the project level would make use of specific decision-relevant objectives and combine strategic, operational and project-local objectives into a multi-dimensional and dynamically changing hierarchy of objectives on the basis of which alternatives are to be evaluated during the decision-making process (Keeney, 1992). Such frameworks have been proposed for project performance evaluation and decision-making (Barclay & Osei-Bryson, 2009). This research project sought to examine whether project practitioners actually compose and utilise such hierarchies, and should this not be the case, to ascertain how project teams manage to keep projects aligned to corporate strategy in their absence.

To understand decision-making practices in organisational projects three specific research questions were postulated. The first question inquired about the sociomaterial context in which observed project decisions occur, with the explicit aim of determining if the 'mechanisms of rationality production' which would support emergence of rational decision-making praxis are present (Cabantous & Gond, 2011). These

mechanisms are described as (1) rationality conventionalisation (2) engineering of rationality, and (3) commodification of rationality (Cabantous & Gond, 2011), and they would be evident in practitioners' espoused beliefs, purchase of expert tools and employment of specialised professionals. The first sub-section of this chapter section presents the results of the data collection and analysis designed to establish if these mechanisms were present in the participating organisations.

Based on the collected documentation, semi-structured interviews and observations, the two companies participating in this research are first introduced in their wider sociomaterial context, portrayed in the business units responsible for project delivery. The sociomaterial context is further described through the explanation of how corporate strategic objectives are set and communicated, the introduction of installed project management tools and introduction of employed project practitioners.

Following the description of organisational and project context, and in answer to the second research question, participants' perception of their environment and decision-making practices is described with reference to the data collected during semi-structured interviews. Presented are participants' description of the organisational role of project managers and their explanations and use of commonly used concepts of 'strategy', 'decisions' and 'objectives'.

The third research question aimed to discover which project level activities manage decision sites and is addressed in the last part of this chapter, through the description of identified decision episodes. The observed decision episodes are first introduced grouped by practitioners' naming of the activities, as this partially reflects participants' perception of what constitutes decision-making in their worlds. Three groups of events

are presented: (1) Episodes with events referred to as 'decisions' resulting from institutionalised, planned decision-making, or carried out spontaneously (2) decision-like activities that were not called 'decisions' by the practitioners but have considered multiple alternatives, and (3) planned sessions of estimating software development tasks, mostly referred to as 'sprint planning'. This provides the basis for the definition of two project level decision-making practices that follows in the subsequent Chapter 9, and a discussion about their relationship to project and corporate objectives.

8.2 THE ORGANISATIONAL SOCIOMATERIAL CONTEXT

The two software development companies that agreed to participate in this research belong to the same parent company and are both in the business of developing software solutions for the financial services industry. Company 1, in the UK, is a leading provider of business solutions and services to the asset management industry. Established for over 30 years it has more than 400 international clients in the top financial institutions, utilities, and communications. Company 2, founded in 1996, is located in Canada, and provides software business solutions and services to the investment fund industry. The company has about 700 employees that support approximately 130 clients, major mutual fund firms in Canada (50) and in Europe (80), servicing over 11 million active fund accounts, and processing on average 100,000 transactions daily.

Both organisations produce and maintain software solutions which provide business critical service and support daily investment decisions of their clients. Company 1 offers support to their licensed products hosted on client's sites, whilst Company 2 has most of their clients' environment hosted locally under licence-plus-hosting and services

agreements.

8.2.1 General Information about the participating Business Units

The business unit participating in this research in Company 1 was the Global Development Centre (GDC) that encompassed a research & development (R&D) software development centre and a system infrastructure (SI) department. GDC has around 80 staff based in the UK office and runs approximately 30 concurrent projects. The UK Development Team was responsible for software development of existing and new products for emerging markets. The quality assurance team (QA) and project management office (PMO) were in development during the time of the research.

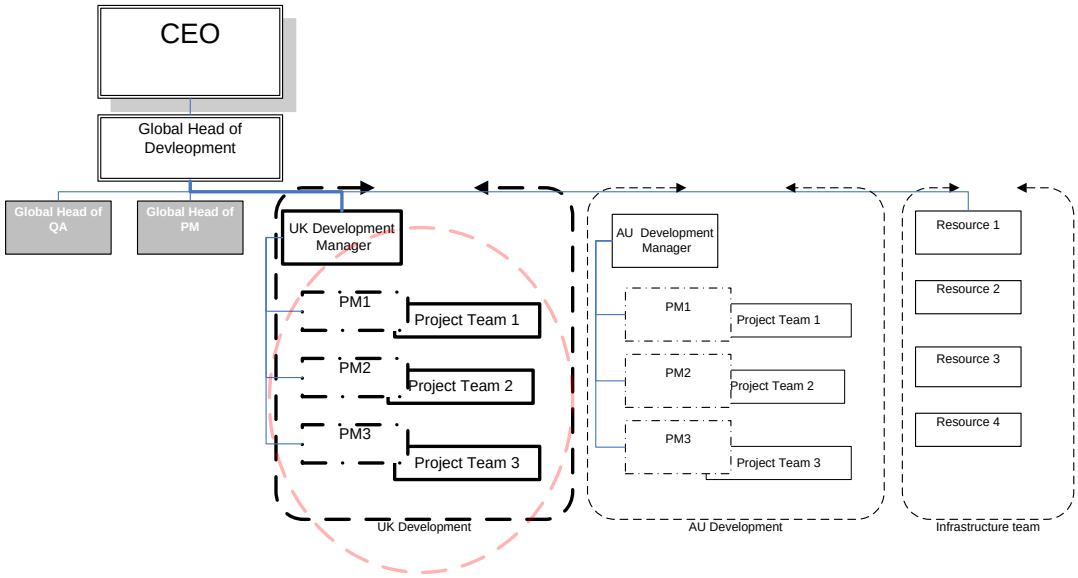


FIGURE 18 – COMPANY 1 SIMPLIFIED STRUCTURE

The Global Development Centre was responsible for multiple concurrent projects and was organised around project teams. Multidisciplinary project teams reported directly to the assigned project manager, and project managers reported to a development manager (departmental structure shown in Figure 18, with the participating area

highlighted by the red dashed-line).

Each project manager would be assigned a number of projects under his/her control and, aside from a role of architect, there was no overlap in resources or activities across the projects (Figure 19). The development manager's responsibility was to oversee the portfolio of all development projects reporting directly to the Global Head of Development. Company 1 did not have an operational programme management office although the development of the new PMO was in progress at the time.

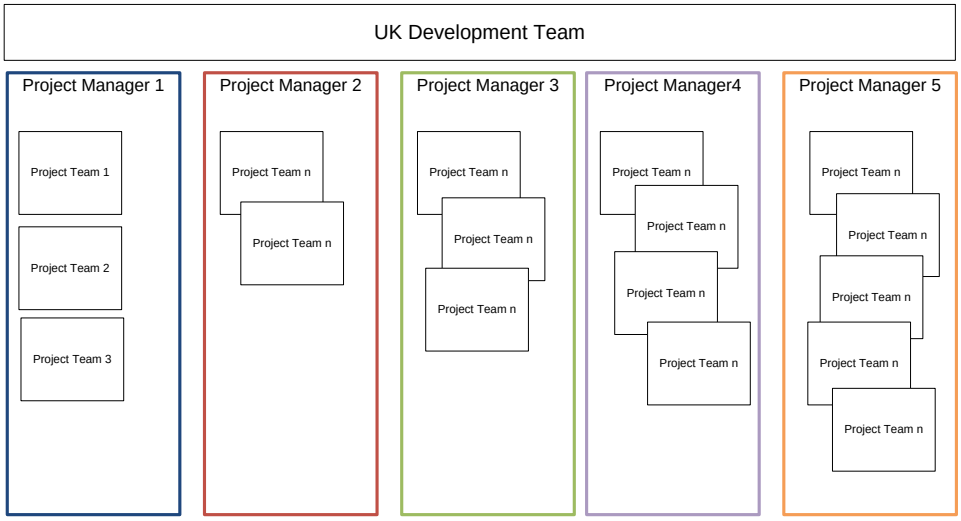


FIGURE 19 - COMPANY 1 PROJECT PORTFOLIO STRUCTURE

The programme and project organisation in Company 2 was considerably different to Company 1. The formal Project Management Office (PMO) was responsible for prescribing corporate project management approach, monitoring project progress and reporting on performances. Project managers and business analysts were part of programme teams, and reported to programme directors, as shown in Figure 20, while software developers were part of a different organisational unit. At the time of observation, the Company 2 PMO included four programme directors who reported directly to the Vice President (VP) of PMO.

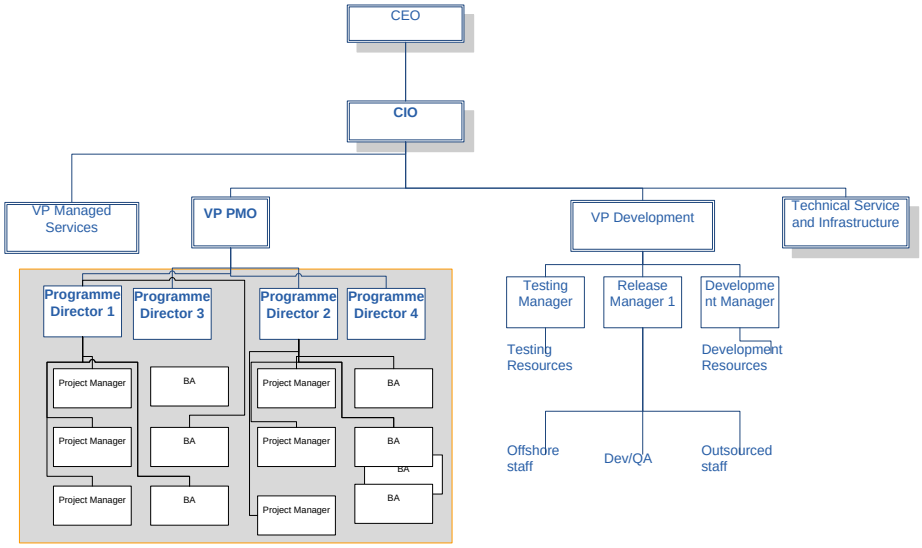


FIGURE 20 - COMPANY 2 PMO ORGANISATIONAL CHART

Each programme director was responsible for a programme of projects that were clustered around client groups, each containing about 20 – 30 concurrent projects scheduled in different releases. Typically, a project manager would be dedicated to a single project. This resulted in the following programme/project/release development schedule Figure 21:

FIGURE 21 - COMPANY 2 PROGRAMME/PROJECT AND RELEASE SCHEDULE STRUCTURE

As a result of their business model, organisational structure, and technical product configuration most project work in Company 1 was carried out in relative independence from other projects and product support activities, resulting in lower level of internal interconnectedness. This arrangement enabled project development teams to focus solely on construction of product code. However, as Company 1 creates new products with novel technology for emerging markets, project activities were sensitive to target-market movements.

This project setting was in sharp contrast with the project environment of Company 2, where the business model and overarching technical configuration resulted in an intricately connected socio-technical environment with interdependent hardware, software, interfaces, and business processes operating in a mature market. Projects in Company 2 function in a complex interconnected multi-client, multi-layer, multi-process setting that manages business critical data across world time zones. The following is how the Company 2 CIO described challenges resulting from the technology in use:

> *'CIO: The issue we have is that our technology is quite old. In some aspects, dB component, the underlying data base, is the bulk of the code, is probably 25 years old. And then we layered on products on the outside, like fat client component, desktop, and then there is a web piece as well. And the problem is lot of our projects require archaeological digs to actually do it. /…/*
> *On a large project it's not like you're just touching dB code, or just touching desktop, or the web usually, you're getting all three components and some of the architectural designs over the years have been less than perfect. A simple change ends up being a much larger change, because you're touching so many pieces of code" [Interview with Company 2 CIO, March 11 2011].*

The two companies employ different project delivery approaches. Company 1 project managers were encouraged to use a combination of traditional waterfall (Kerzner, 2013;

PMI, 2013) and internally adapted agile software development methodology (Boehm & Turner, 2003; Cockburn, 2006), developed on the basis of industry accepted principles. The adopted project methodology in Company 1 was not locally documented and the practitioners frequently discussed rules and guidelines that were available from a variety of resources. Company 2 mandated the corporate project methodology developed based on the traditional waterfall approach to software development, that was detailed in the company project management manual.

A SHORT NOTE ON SOFTWARE DEVELOPMENT PROJECT METHODOLOGIES

Standard steps of Software Development Life Cycle (SDLC) are requirements gathering, system design, code development, and testing and implementation (Figure 22), which can be organised in different ways and deliver a variety of artefacts.

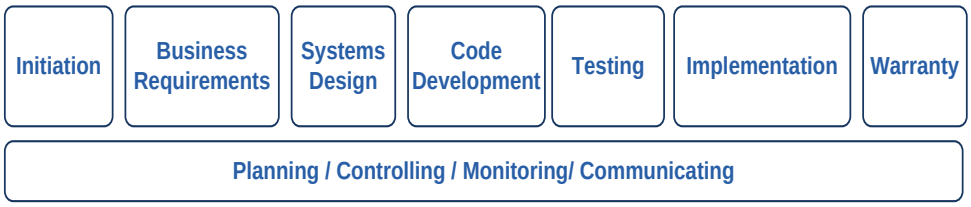


FIGURE 22 - BASIC SOFTWARE DEVELOPMENT LIFE CYCLE

Waterfall project methodology is the traditional way of developing software code, which originated in classic engineering principles (Morris, 2011). Project phases are separated by gates, often marked with formal artefact acceptance with sign offs that are linearly connected, as depicted in Figure 23, where a new phase does not start before the old phase is completed (PMI, 2013):

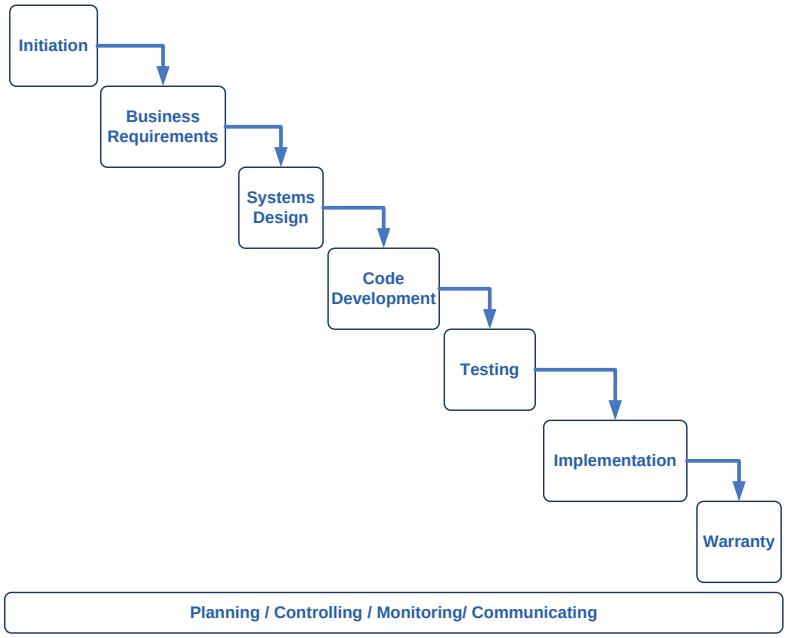


FIGURE 23 - TRADITIONAL WATERFALL

Agile software development[8] approaches developed specifically for development of complex and novel software products (Boehm & Turner, 2003; Cockburn, 2006). A number of agile methods have been developed, under different names, for example Rational Unified Process (RUP), Extreme Programming (XP), Evolutionary Project Management (EVO), etc. These methods favour smaller and more responsive product development increments (three week long "sprints" or 'iterations") to longer waterfall stages (e.g. six month development cycle) characterised with feedback learning loops meant to deliver a usable software product at the end of each iteration.

[8] For example: http://msdn.microsoft.com/en-us/library/hh273055(v=vs.88).aspx; http://agilemethodology.org/;http://www.agilealliance.org/the-alliance/what-is-agile/.

In the agile development approach, project phases are often run in parallel, with quick feedback loops between requirements, design, development and testing. Agile approaches embrace frequent changes to requirements, favour sparse documentation, support self-governing teams and promote a quick trial and error style of software development. Detailed documentation, is often created only after the code has been implemented rather than before. In this approach, the development team, which includes clients, is meant to lead the initiative through a process of shared learning during requirements clarification and revisions, active code development and product formation.

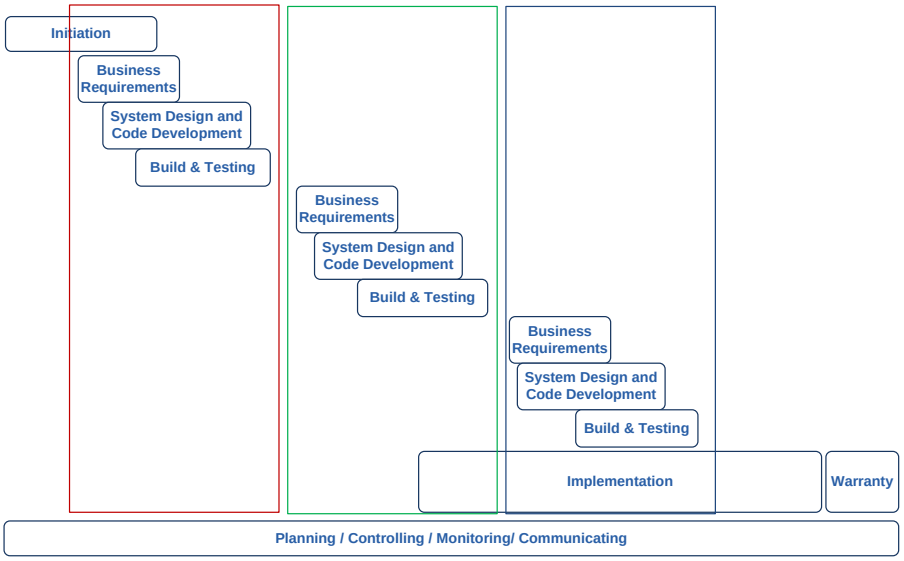


FIGURE 24 - GENERIC AGILE APPROACH

Although the choice of methodology has influence on project results (Cusumano, Crandall, MacCormack, & Kemerer, 2009) neither development approach has been proven to be ideal or the best (Brooks, 1995; Lee, 2010). Some organisations adopt various hybrid approaches, or pick and chose how to run a project as they see fit.

8.2.2 Employment of Strategic Objectives

In both organisations strategic direction was communicated with reference to a hierarchy of objectives. The interviews with company executives reveal their perception

of the concepts of 'strategy', 'mission', 'strategic goals' and illustrate their belief in achieving corporate goals by delivering projects aligned to strategic objectives. For example, here is how the Company 1 CEO expresses their strategic direction:

> *"R: What is the vision/mission of this organisation within the group (of organisations)?*
> *Company 1 CEO: For us, it's supposed to be "to be the leading software player in the financial management space ", that's a very clear strategic objective, or a vision I guess. But thereafter, what we provide and where we provide it and what is the emphasis of this business will constantly change.*
> *The objective is to be profitable, to have a margin, to have a 40% margin, so those sorts of objectives are set, but how we get to it, strategic actions that we take, can change" [Meeting Code: N-1-107, September 16 2010, Interview with the Company 1 CEO]*

The executive explains how they regularly conduct strategic planning 'behind closed doors' highlighting his belief that sharing strategic direction with particular project teams/managers would be beneficial:

> *"CEO: The challenge is that strategy is done in the middle of a closed room when you say strategy, everyone gets excited, 'we cannot tell you because it's 'confidential''. But in fact a lot of the strategy you can actually share, so every time we're doing a project it's not a bad process to say, come into the room, let's take you through what we're trying to achieve and why , and how it fits with the strategic objective , now go and do the job" [Meeting Code: N-1-107, September 16 2010, Interview with the Company 1 CEO].*

The CEO believes that communicating corporate strategy would bring improvement in overall performance, through improved motivation, more innovation, and better decision-making:

> *"R: If people were more aware of the strategic direction, would you expect that*

would make a difference?

CEO: Oh, yeah, they would be more motivated and more empowered. You'd get better innovation, ***because you know the objective****. It's like when you go to a client and he tells you actually what I want is...I want a piece of paper, actually he needs to tell you 'what I need is something to write on', you might come up with something that is cleverer than a piece of paper.*

So I ***think if you tell people what it is that your overall objective*** *is and then you know depending on what level they are operating, they are feeling empowered to say, OK I understand what it is , motivated to say is there a better way to get there, perhaps other people, you get the best out of them and then when they are going along the process* ***the decision-making would be better****.*

So he [project manager] is going to be two months late but he knows actually two months is impossible, because it's a drop dead date with the client, or two months doesn't matter, but the quality of it is more important. ***I think the decision-making would a lot, lot, better. So there is a benefit****" [Meeting Code: N-1-107, September 16 2010, Interview with the Company 1 CEO].*

The CEO of Company 1 makes the direct link between knowing strategic objectives and better decision-making at the project level. To facilitate such improvement, the Head of Global Development created an excel document which mapped corporate objectives to individual objectives and set quarterly performance measures (snapshot of the excel file provided in Appendix A). As the Head of Development (Company 1) expressed:

"Head of Development (Company 1): There needs to be a link between strategy ***and what I do today.*** *Why should, not quite why should I answer this email, or write this module, but, why am I working on this project, ahmm, I am working on this project because it's part of that strategy, and it's part of that strategy, because that fits in that overall organisational objective which achieves this mission and that is something we're still not terribly good at" [Interview with Head of Development, Company 1, May 21 2010].*

Similar to Company 1, Company 2 also used a hierarchy of objectives to communicate at

the town hall meeting how project level initiatives contribute to strategic goals. The same set of objectives was used to align projects to strategic objectives, and to measure project and individual performance against them. The material presented at the Company 2 town hall was the source of diagrams presented in the Figure 25 and Figure 26:

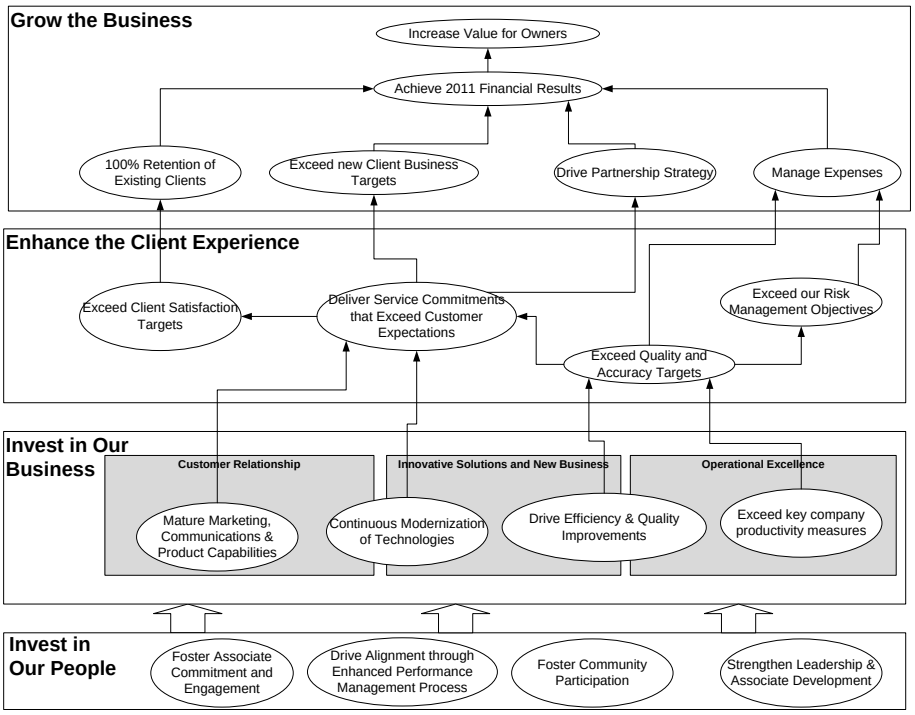


FIGURE 25 - COMPANY 2 BUSINESS GOALS

These diagrams demonstrate how strategy is communicated as a network of goals and how strategic initiatives are aligned with achieving particular objectives.

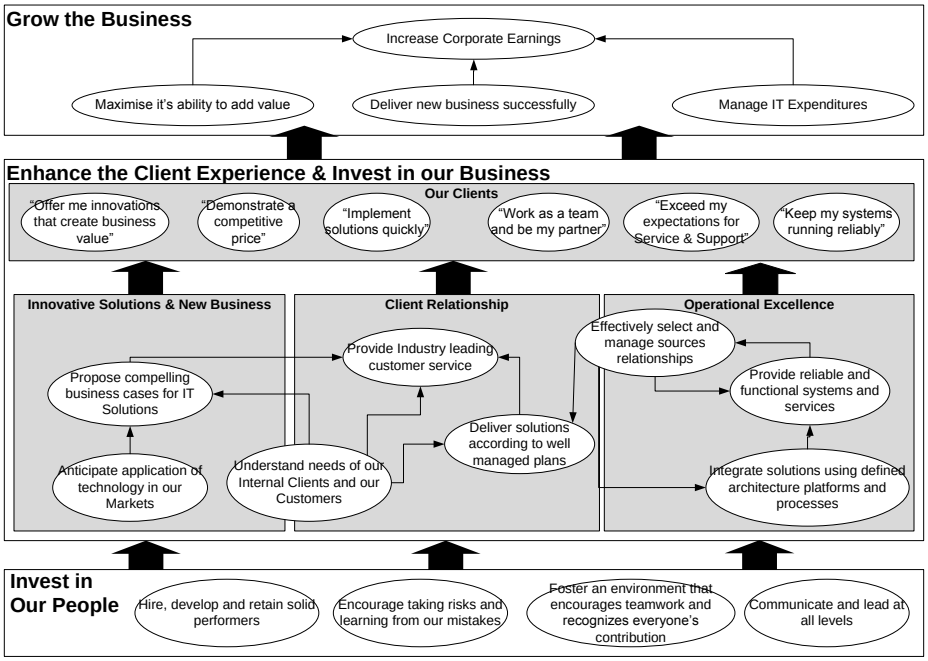
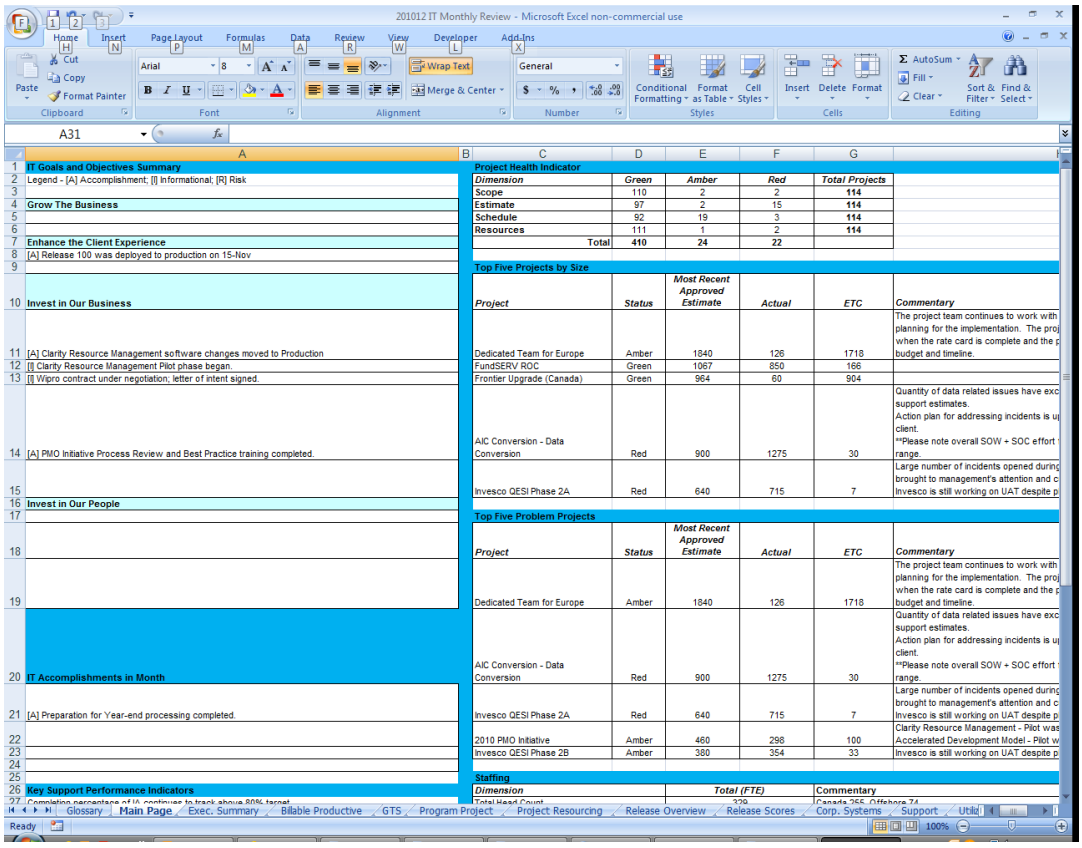


FIGURE 26 - COMPANY 2 IT GOALS

The objectives from the presented hierarchy also appear in the Company 2 project dashboard, an excel workbook compiled and reviewed weekly and monthly by the Company 2 executives (example displayed in Figure 27).



IT Goals and Objectives Summary	Project Health Indicator				
Legend - [A] Accomplishment; [I] Informational; [R] Risk	*Dimension*	*Green*	*Amber*	*Red*	*Total Projects*
	Scope	110	2	2	114
Grow The Business	Estimate	97	2	15	114
	Schedule	92	19	3	114
	Resources	111	1	2	114
Enhance the Client Experience	Total	410	24	22	
[A] Release 100 was deployed to production on 15-Nov					

Top Five Projects by Size

Invest in Our Business	*Project*	*Status*	*Most Recent Approved Estimate*	*Actual*	*ETC*	*Commentary*
[A] Clarity Resource Management software changes moved to Production	Dedicated Team for Europe	Amber	1840	126	1718	The project team continues to work with planning for the implementation. The proj when the rate card is complete and the p budget and timeline.
[I] Clarity Resource Management Pilot phase began.	FundSERV ROC	Green	1067	850	166	
[I] Wipro contract under negotiation; letter of intent signed.	Frontier Upgrade (Canada)	Green	964	60	904	
[A] PMO Initiative Process Review and Best Practice training completed.	AIC Conversion - Data Conversion	Red	900	1275	30	Quantity of data related issues have exc support estimates. Action plan for addressing incidents is u client. **Please note overall SOW + SOC effort range.
	Invesco QESI Phase 2A	Red	640	715	7	Large number of incidents opened during brought to management's attention and c Invesco is still working on UAT despite p

Top Five Problem Projects

Invest in Our People	*Project*	*Status*	*Most Recent Approved Estimate*	*Actual*	*ETC*	*Commentary*
	Dedicated Team for Europe	Amber	1840	126	1718	The project team continues to work with planning for the implementation. The proj when the rate card is complete and the p budget and timeline.
IT Accomplishments in Month	AIC Conversion - Data Conversion	Red	900	1275	30	Quantity of data related issues have exc support estimates. Action plan for addressing incidents is u client. **Please note overall SOW + SOC effort range.
[A] Preparation for Year-end processing completed.	Invesco QESI Phase 2A	Red	640	715	7	Large number of incidents opened during brought to management's attention and c Invesco is still working on UAT despite p
	2010 PMO Initiative	Amber	460	298	100	Clarity Resource Management - Pilot was Accelerated Development Model - Pilot w
	Invesco QESI Phase 2B	Amber	380	354	33	Invesco is still working on UAT despite p

Key Support Performance Indicators	**Staffing**		
	Dimension	*Total (FTE)*	*Commentary*

FIGURE 27 - COMPANY 2 IT INITIATIVES DASHBOARD

The communication of strategic direction and their link to the strategic initiatives is even more important in the view of short strategic cycles and expected changes. Company 1 CEO points to the fast pace of the industry they are in that makes long term planning quickly obsolete and creates a need for more adaptability.

> *"Company 1 CEO: OK, I think when people say strategy in the old days, would be 3 year time frame. To me strategy changes,* ***it's like these projects, there is a re-set every three months****, to my mind, of things keep changing, because we don't control the environment . So when we think about where we were at the end of 2008 and when you look where we are today, if you made any assumptions based on the 2008 you would be in deep trouble.*
>
> *So certainly in the fast moving industries let's say financial services and software, I think your time horizon of strategy,* ***there is a three year vision somewhere*** *, for example, we've got a number of ideas , we're going to rebalance where we have*

> *development, but* ***every three-six months we're changing our views how fast or how slow we might want to do it.***
> *You know, which countries we may go to, because we're getting a better understanding of where our business is going, and the demand of the market, so to me it's like an* ***18 month cycle, where you're constantly looking at the iterations of sort of 18 months, but you do that every three months , cause a lot of change is happening*** *[Interview with Company 1 CEO, September 16 2010].*

However, despite acknowledging the expected changes in their strategy the executives pointed out that once the projects are 'in flight' they are no longer assessed for alignment but are instead tracked against the original objectives:

> *"Company 1 CEO: …but, I guess, the scope is always going to change* ***[…]. I think you have to reassess****. To believe that the project will never change would be wrong. In three months you need to measure that. And then put change control in place and whatever. So it's more complex than what I am saying. Take a project manager, give him that and he goes off and blindly does it, then I think you're going to fail.* ***He needs to understand that there will be things that will change that along the way and he's going to constantly be manoeuvring****" [Interview with Company 1 CEO, September 16 2010].*

This is further elaborated by the Head of Development:

> *"CL: The decision around which project gets done is probably where the strategy comes in, but* ***once that project is instantiated and you said I want to achieve this and I need to achieve it like that, you've done that to achieve the strategy, you don't then track, I certainly don't track, is it still achieving strategy, because I am assuming it does, unless that strategy changes completely****. Which case that's change control.*
> *R: But the objectives could change in between?*
> *CEO & CL - Aha! " [Meeting Code: N-1-107, September 16 2010, Interview with Company 1 CEO]*

The importance of strategic objectives expounded in the literature on strategic

management and project management, is echoed in the views expressed by the executives. Both organisations engage in strategic planning and communicate strategy with reference to hierarchies of strategic objectives used for communication, project alignment to strategy and individual performance measurement. According to the executives, these objectives are intended to guide employees' daily activities toward achievement of strategic goals and illustrates that the concept of means-ends rationality is conventionalised and has become unquestionably embedded in organisational routines.

The practitioners also recognize the constant change in their environment and described their attempts at managing it (e.g. change control), as well as their failure in using the existing tools, and were considering instituting new ways of tracking to the changes. They identified the need to be "adaptable" to the context and be able to respond to change.

8.2.3 Employment of Project Management Tools

Both companies use the standard suite of project management tools, namely MS Project Plan (e.g. Gantt charts) and subscribe to industry accepted project management tools and techniques. (For example, Company 2 favoured the use of industry accepted project management standards such as the CMM model).

Both used project estimates recorded in Gantt charts to measure project success by triple constraint: meeting project time lines, delivering within budget and achieving project scope and quality with expectations that Gantt charts should inform project decision-making. Here is how the CIO of Company 2 expresses his dissatisfaction about the lack of use of Gantt charts:

> *"Company 2 CIO: What I found is we, generally, have project plans that are cut at the start of the project and then invariably become a high level road map which people follow and do not really derive it from the project plan, it could be disconnected from reality, it's a high level view but it's a... whoever I go and ask about a Gantt chart and, it never seems to be what my impression would be on the usage of Gantt and how to use it." [Interview with the CIO of Company 2, March 11 2011]*

The expectations to keep Gantt charts accurate through daily updates, demonstrates the espoused belief that this management tool could help project managers overcome some of their 'bounded rationality' (Simon, 1948) and thus aid in their decision-making.

In addition to the standard project management tools, both organisations were mandated to use another software package aimed to be a "soup to nuts" (Interview with Company 2 CIO, March 11 2011) solution for portfolio project management that assists in enterprise level resource coordination and utilisation that generates up-to-date reports. Alas, in both companies this tool had a very low uptake as well.

> *"Company 2 CIO: But right now, they [the project managers] don't use the tool and I don't think they keep consistency a practice, do the same approach in how they go and plan projects and how they actually track them. The status reporting has been a challenge at the project level. To get accurate status report coming out of project managers… It always seems , and I have seen this at other places, I don't think it's a failing of project managers, this is a big push, they are active in projects and I am not sure if we're understaffing them, or we're not giving them admin help, but the actual fundamentals of what that job is which is to track risk, you know, track issues, [create] mitigation strategies and reporting and following a plan, doesn't always seem to happen." [Interview with Company 2 CIO, March 11 2011]*

Executives in both organisations discussed the need to improve the use of project management tools, and expressed their expectations that if the tools were adequately

used, the state of project management practice would be improved. The purchase and desired use of these tools reflects another pillar of the mechanisms of "rationality production" (Cabantous & Gond, 2011).

8.2.4 Employment of Specialised Professionals

Although I have not had access to personnel files to survey and analyse the educational background of participating practitioners, the positions of project managers, developers and business/systems analysts in these organisations typically require university level education (e.g. evidenced in job posting). In personal communication, two project managers in Company 2 voluntarily informed me they hold master level degrees and at least 4 of the 9 participating project managers had obtained project management professional (PMP) certification from the Project Management Institute (PMI). sCompany 2 explicitly preferred to hire certified project management professionals (PMP) for project and programme managers' positions which was reflected in publicly available job posting.

Both organisations also occasionally employed management consultants. Company 1, for example, implemented a prescribed set of human resource management procedures and tools (i.e. consultant's proprietary framework, software and procedures including recruitment, training, assessment and management of redundancies). Shortly before the start of the observation, Company 2 completed an engagement with a top management consulting firm, and as a result, was in the process of implementing a balanced scorecard performance assessment across the board (R. S. Kaplan & Norton, 1996a, 1996b). These engagements further exemplify executives' confidence in such interventions and their faith in management theory, tools and techniques, delivered by professional consultants.

8.2.5 Conclusions to Findings about the Organisational Sociomaterial Context

Both participating organisations are structured in a standard organisational hierarchy and uphold the ideal of instrumental rationality. The interviewed executives advocate effectiveness of management tools based on instrumental rationality and share implicit trust in the benefits of rational decision-making.

The interviews conducted with the executives and the collected corporate material demonstrate practitioners' belief in, and reliance on standard management tools and illustrate attempts at "institutionalisation of instrumental rationality" (Thomas, 2006, p. 102).. Executives in both organisations expected to improve project delivery through 'better' application of project management techniques and increased use of the mandated enterprise software product. The executives believed more control and more standardisation should deliver better results, although they did acknowledged the need for project actors' "adaptability" with respect to short strategy cycles and dynamically changing objectives. The corporate material presented in sub-section 8.2.1. reveals the executives' espoused view that "the function of project management is to clarify a means-ends relationship and, through this, increase predictability, calculability, control and efficiency" (Thomas, 2006, p. 103) and where the failure of project management is attributed to the lack of appropriate use of such tools (ibid.).

The assessment of organisational sociomaterial context based on the data obtained through available company documentation and semi-structured interviews confirmed the orientation towards instrumental rationality where generally accepted concepts of management theories are commonly referred to, supported through use of project

management tools, established management techniques and employment of specialised experts. In conclusion, the participating organisations exhibit 'mechanism of rationality production' (Cabantous & Gond, 2011).

8.3 PARTICIPANTS' PERCEPTION OF THE SOCIOMATERIAL

CONTEXT

In answer to the second research question, semi-structure interviews were conducted with project participants to understand their perception of decision-making in the context of their praxis. This section first provides a brief description of participating practitioners before portraying how they talk about their praxis and the challenges they face.

Most participants had a long tenure with the same organisation and were thoroughly knowledgeable about the company's business, organisational history and local culture. In Company 1, all project managers were previously employed as programmers. In Company 2, of the four participating project managers three had a technical background and one originated from the operational side of the business. Only one of the nine participating project managers was with the company for less than five years. Most other research participants had been employed by the host company for more than 3 years.

The following sub-sections present executives' views on the project manager's role, followed by the participants' perception of their environment expressed in their perspectives on the concept of strategy, decisions and objectives.

8.3.1 THE PERCEIVED ROLE OF PROJECT MANAGERS

Consistent with research on project management reviewed in Chapter 2, the role of project managers is seen simultaneously as that of "implementer" (Cicmil et al., 2006) and of a strategic actor (Sydow, 2006). The following few excerpts illustrate how the project manager's role is described by the companies' executives. The VP of PMO (Company 2) sees the role of project managers at the front line as 'guardians' of quality:

> *"Company 2 VP PMO: To translate it to Programme Managers, in terms of more day-to-day management, as they are overseeing Project Managers (PM) and Business Analysts (BA) who are the arms and legs of the organisation, they are the first view point from clients to us and the quality of the work that's done by BAs and PMs is reflected on the organisation. So it is their job to ensure that quality of the work is consistent and real" [Meeting Code: N-2-48, March 11 2011, Interview with VP PMO].*

While the Head of Development in Company 1, perceived project managers as 'chasers', managers that follow up to make sure tasks are done on time:

> *"Company 1 Global Head of Development: And a project manager's role is very much to check that people are going to get there in time to be able to get remedial action. And, with any luck, after a while the people that they work with get used to doing that and they themselves ask, you sort of get this creepy feeling , I am going to be asked if I am going to finish on time" [Interview with Company 1 Global Head of Development , May 21 2010]*

The Company 2 CIO echoes the same sentiment, that the key part of the job is to track, follow the plan and report:

> *"Company 2 CIO: but the actual fundamentals of what that job is [project manager's job] which is to track risk, you know, track issues, [create] mitigation strategies and reporting and following a plan, doesn't always seem to happen." [Interview with Company 2 CIO, March 11 2011]*

These sentiments confirm the traditional view of the project managers' role to ensure projects are delivered within triple constraint (time, budget and quality), where risk-management, mitigation strategies and reporting are standard project management activities aimed to accomplish that goal.

However, project environments are often messy, frequently characterised by poorly structured situations, where objectives are not always clear, where different constituencies may have conflicting aims requiring project managers to exercise leadership as well as conduct hard analysis and design (Morris & Jamieson, 2004a). They are also expected to see the big picture, be aware of the anticipated project results and look for realisation of long term benefits (A. J. Shenhar, 2008; A. Shenhar, Poli, & Lechler, 2001). Furthermore, project managers should understand their own and partners' strategic objectives (Hebert, 2002), and be able to accept responsibility for the business level strategy (Thiry, 2007). This reported duality of the role was evident in both organisations. There was an expectation that project managers need to be adaptable and respond to changes:

> *"Company 1 CEO: So it's more complex than what I am saying. Take a project manager, give him that [objectives] and he goes off and blindly does it, then I think you're going to fail. He needs to understand that there will be things that will change along the way and he's going to constantly be manoeuvring" [Interview with Company 2 CEO, September 16 2010].*

There was also an expectation that project managers make decisions while balancing objectives:

> *"Company 1 Head of the Development: I believe that you can successfully hit your objectives but if you do it the wrong way, then you have not achieved the company goal. So, there are behavioural objectives which people are monitored on. So the*

> *fact that you can hit the date, is great, but if on the other hand everyone behind you is bleeding, has left the company, is busy saying to everyone how hideous the organisation is, then I would say is a failure, and you would probably get a low mark for it" [Interview with Company 1 Global Head of Development , May 21 2010].*

In other words, as reported by research on project management (cf. Berggren & Söderlund, 2008; Blomquist et al., 2010; Hällgren & Söderholm, 2011) and confirmed by the interviews with the company's executives, the role of project managers is indeed perceived as dual. On one hand, project managers are expected to produce project plans, track and update project artefacts and report on project progress ('do hard analysis'), expected to follow up on tasks and ensure completion on time, budget and of satisfactory quality. Simultaneously, project managers are expected to be able to balance organisational objectives, respond to changes and ensure project activities suit the particular organisational context and fit with organisational strategy. In accord with the literature, project managers in these organisations were perceived as both implementers and as active strategic actors that implement strategy through project delivery.

8.3.2 'DECISIONS', 'OBJECTIVES' AND 'STRATEGY' AS PART OF PRACTITIONERS' DISCOURSE AND PRAXIS

To better understand how practitioners perceive their sociomaterial context and their role in it, the following interviews are presented to illustrate how practitioners talk about the concepts of goals, objectives and decisions. Hendry (2000) suggests that the concept of 'decision' acts as a

> "rationalizing element, a fundamental component of strategic language to which specific impressions can be attached, in terms of which meaning can be constructed,

and around which actions can be routinely organized" (Hendry, 2000, p. 971).

The next excerpt is from an interview with a development manager after a meeting in which he had announced a decision to split the project team in three sub-teams. When asked about the reasons for the team split, he described the 'goal' as follows:

> *"Dev Manager: **The primary goal** [of the team split] is to try and get people into a position so they can **feel ownership.** As I was saying that they feel ownerships for what they are doing. Because at the moment I don't get the impression that people feel they own it and they **are responsible** for this. And my take on is that the thing[project] is just so big, and it's very hard to see the end of it and to see what is in scope for one person, and what is in for another person , it's very hard for people to own it and easy for them to get lost in the big picture.*
> *Where breaking it down into separate things, which are very sort of distinct pieces, the visualization, the dashboard, etc. which are very distinct elements, yeah, it's going to mean **the team will clearly know what is it they are producing**, and **understand the progress** they are making towards producing it, and just make it more visible to them and more visible to everyone else..and **the rate now we're getting through stuff**." [Meeting Code: N-1-43, June 2 2010 Project HP, Interview following the meeting]"*

He makes a reference to task division (as means) to achieve his goal of "clear ownership" in order to encourage feelings of "responsibility", make visible progress, and ultimately determine the 'rate of getting through stuff'. Although, later in the interview he clarifies that the key objective is to learn where and why the delays occur, and to speed up the delivery:

> *"Dev Manager: I am pretty confident it's a good decision, I think it will make it clearly visible where we are progressing things, **where we do have problems, and that's going to allow us to identify if we need more resources in certain areas to get the throughput that is required.***
> *Because it's not necessarily the effort to create these components, a lot of it is the*

> ***turnaround time*** *because* ***one of the driving factors for this product*** *is going into a market space where there is no other products in that area. At this moment now that is not to say that our competitors are not working on something, so time to market is actually quite critical in this as well.*
> *R: How will you judge if this was the right call today?*
> *Dev Manager: I think, I guess, objectively, we should see* ***the team start to take more responsibility for their area, start to drive themselves harder, to understand what specific issues they are having and put things in place to help address those issues****.*
> *At the moment we seem to talk a lot: 'we need to talk about this', 'we need to talk about that'. And nothing actually happens...you need to do it, go and do it...rather than it being a group of 15 people now, where it's just grey, it's out there, we need to talk about that, but who needs to talk about this, you need to take an ownership for it"[Meeting Code:N-1-43, June 2 2010 Project HP]"*

However, in the meeting preceding this interview, the same development manager introduced the need for change as follows:

> *"Dev Manager: The product owner has an* ***aggressive target to get components turn-around in two or three days, while the Architect is taking more than 12 days****. There is a big discrepancy between his expectations, and* ***we need to understand why we have such a huge discrepancy*** *and if we need to adjust Product Owner's expectations and say these things take longer than you anticipated. [Meeting Code: N-1-43, June 2 2010 Project HP]"*

And further to the point about increasing time-to-delivery:

> *"Dev Manager: I kind of lost count of how many times* ***people have highlighted to me that if we cannot start turning stuff around quickly then it's not viable****" [Meeting Code: June 2 2010 Project HP Meeting Code: N-1-00043]"*

The above text demonstrates that the concept of a 'goal' although taken-for-granted and casually engaged, can take different meanings even with the same person explaining the same situation. When asked in the interview, the manager names the

main 'goal' of the team-splitting activity to assign ownership. When asked to describe how the success will be measured, he lists three 'goals': visible exhibition of ownership of their area, understanding of issues causing delays, and improvement of the ability to address issues. Only when prompted, he mentions improving the speed of delivery. Although from the meeting with project managers preceding the interview, and preceding meetings with management, it appears that the team was trying to understand the cause of delays *in order* to speed up the delivery of components. It is as if the goal of improving the delivery somehow got merged with the actions being taken to achieve it, and was not at the front of the development manager's mind. In other words, during the interview, what seemed to have been the main goal of the decision to split the team in three sub-teams, appears to not have been at the level of his discursive consciousness (Giddens, 1986).

The previous example shows how the meaning given to a 'goal' in a particular situation can be variable. The following example shows that it is expected there would be 'objectives' behind a decision made. The interview extract illustrates how the product owner of the HN product explains his understanding of the 'objectives' for the product transfer offshore:

> *"The HN Product Owner (PO): the Decision to move HN to CompanyGL ? I would say that's probably been made in a bar, over a beer, between CEO1 and CEO2 [laughter]*
> *The objective is clear. The objective is to provide better service to one of our main customers, which is Customer1. That's why we're moving, that's why moving HN is really about. And, there is a belief that by moving HN closer to the customer, back in the US, they would get a better service. I think there is also a desire on this side of the pond, to put a box around HN, it has never been particularly profitable or particularly successful. And I think its value to the company is more to do with the*

> *relationship with CompanyGl and Customer1 than anything else, so that kind of moves it into CompanyGl sphere of influence" [Meeting Code: N-1-49, June 2 2010 HN].*

Although the practitioner expressing these opinions was not present when the decision was made, and was only aware of it when he was given the mandate to establish the product in the other office, he provided an explanation in terms of strategic objectives behind this decision.

> *"PO: I think, given the dynamics of the companies, I think that is really the only level [between two CEOs] that decision could be made because it is really a combination of interests of Company 1 and CompanyGL, so I think it's really at that level the two entities meet. So I can see, I can understand why it was taken at that level. I am happy with that.*
> *In terms of the way it's been communicated, we could have been better at communicating it as an organisation. But, things that come down from the top tend to be kind of fairly informally communicated to start with; we're left to sort it out anyway. [Meeting Code: N-1-49, June 2 2010 HN]*

How and why that decision was made was not communicated to the product owner, yet he has described it with conviction indicating his certainty in the existence of objectives behind the decision. This illustrates the taken-for-granted view of the presence and use of organisational objectives, even when there is no evidence there ever was such a meeting or that the inferred objectives were in any way part of consideration when this decision was made.

The common understanding of objectives and their part in organisational life is demonstrated in other interviews as well. For example, the business analyst on HP project, the BA L, explained how they understand the project objective but are not in agreement in how to go about it. In this instance, one 'objective' is a product

requirement 'to build a reporting tool', that 'allows clients to consolidate reports', that expands into the objective of building a product that would sell ('saleable'). In L's view the approach taken may not be optimal, because of the existence of other products that potentially offer the same or similar functionality. In her words:

> *"L: We are building a product that allows a user to build our reports so that they can distribute [data] into client reporting.* ***The ultimate objective is giving the user the tool that they don't have today that allows them to consolidate their financial reports****. One of the questions raised, there are many reporting tools out there.. we are building a new tool.*
>
> *Why are we not piggy-backing on an existing reporting tool?*
>
> *There is a fine line between reporting we are doing and client reporting but it's kind of creeping into client reporting arena. So,* ***somehow, our objectives are*** *in a little bit grey area.*
>
> ***Those objectives are so broad. I want to build something that is saleable.***
>
> *More specifically, we are building internal dynamic reporting tool...for financial sector..so our approach, if it is the best approach, I don't know. I don't know..if it is the best approach for the cost." [Meeting Code: N-1-92, June 22 2010, Interview with BA L, HP project]*

She explains her understanding of the project objective to be a software feature requirement (a reporting tool) that is a part of a "saleable" product but questions if the approach they have selected (to build the new tool) is the best way to meet this requirement.

Furthermore, there is an expectation of 'rational decision-making' (Cabantous & Gond, 2011) that managers should be able to substantiate. For example, in an interview following a project update meeting [Meeting Code N-1-38] two of the three participants described decisions that were made in that meeting. They mentioned two decisions – an agreement to temporarily relocate the third participants (DE1) and an agreement to

reduce the number of project update meetings (DE2). When asked what guided them in their decision-making a junior manager appeared uncomfortable, providing a response:

> *"HN PM: Hmmmm?..[long silent pause] .Backed into a corner. ?!?! Not sure we have much … "*

This moment of uneasiness was interrupted by the experienced, senior executive who explained as follows:

> *"HN Product Owner: [it was] our inspiring conversation on the phone, was it? Not one of those inspiring meeting, ahh… [Laughter]*
> *I tell you, some information that came across in that meeting for instance, M was available in the middle of August. Hmm, that was a small amount of information we gained in that meeting. But kind of drove the decision-making process, but then we did not make very many decisions" [Meeting Code:N-1-38, June 1 2010, Post-Meeting Interview with the HN PM and the Product Owner].*

The experienced HN Product Owner truthfully described the meeting proceedings and identified the process (recorded and described in N-1-38, Decision Episode DE1). Although he states that the meeting was 'not that inspiring', he explains how learning of the availability of their offshore team member during the time the local project manager was to be absent was what guided the decision. Unlike his less experienced colleague, the senior manager was comfortable describing the emerging character of their decision-making.

The word 'decision' was often used in place of 'approval' as in an attribution of responsibility that matches organisational reporting lines (Brunsson, 1990). The two recorded episodes, DE5 and DE7 in Company 2, addressed the issue of scheduling product deployment as part of a scheduled release. Decision episode DE5 captured the process of issue formation and decision site construction, while D6 captured the

moment the CIO gave his approval. Here is how the GT Project Manager described the requirement for the 'decision' prior to meeting with the CIO:

> *"GT PM: we should approve it but it's not really his decision [deputy manager's]. So, he [the deputy manager] is recommending approving it. But only the release manager or a VP of Development can approve it. So I have an agreement in principle but I don't have an official agreement yet. And, I cannot tell the client that we have an approval for pre-release until I have it official. [Meeting Code: N-2-16, February 10 2011, Interview with GT PM].*

After the 'decision was made' i.e. the approval was given by the CIO ("I will take the responsibility", N-2-17), the GT PM clarified why this was not 'his decision' to make and why he had to escalate it:

> *"GT PM: But that was not my decision to make. I did not want to be part of that decision. They [the release manager and the VP of development] have to look at the bigger picture than I do. I have to look after my project. They have to look after the entire release.*
> *Let's say for example, I had ok-ed this to go into a release, and made a personal stake it has to go in, and let's say somebody listens and lets it in just because I asked for it, and if something really bad happens, or another client is impacted, that would be really bad [Meeting Code: N-2-23, February 16 2011, Interview with GT PM].*

In the given organisational structure, the 'release approval decision' meant the 'formal approval to proceed' and 'acceptance of responsibility', and was part of the mandate of specific organisational roles. Explaining the allocation of responsibility, the GT PM made visible the expectation that the higher ranked participants have a 'bigger picture' and are thus better qualified to make the approval decision, implying that somehow they would have information unavailable to him, in his role of a project manager.

Similarly, the BA L in Company 1 equates making a decision to taking the responsibility

for its outcome. In her role on the HP project the BA L was often the one called to prioritise tasks to be completed. Asked about how she selects which requirements get to be done first, she answers that she defers to the product owner who has that "responsibility", although, sometimes, "when a decision is small" she is the one that makes it. She mentions decision-making as 'taking responsibility' but doesn't explain if anything else, aside from scheduling concerns, influences her in prioritising tasks. She emphasises that by "making the call" in the absence of the designated decision maker the team can move forward and continue 'doing' project work, with the understanding that things could change in the next iteration [Details in the Appendix D, Chapter 5, Section 5.3: Interview with BA L, HP project, Meeting Code N-1-92, June 22 2010].

The following instance illustrates the communication of a decision. In a weekly status update meeting, the HN product owner communicates the decision not to use a vendor:

> *"Dev M: I just want to confirm with everybody that we are making this decision not to go with these two or any code whatsoever because I need to cut it off with them [another software company]. We need to return the code and what not, documentation.*
> *HN PO: That is correct.*
> *HN PM: Yup.*
> *Dev M: Do we feel we need to engage a sort of consulting?*
> *HN PO: Yes.*
> *Dev M: Ok.*
> *HN PO: Absolutely.*
> *HN PM: Yeah. That's kind of why I was asking if we were validating against them.*
> *Dev M: Technical consulting or business consulting, or both?*
> *HN PO: Business consulting and consulting around testing.*
> *HN PM: Yup*
> *Dev M: OK*
> *HN PO: Specifically*

HN PM: Yeah, that's the other testing piece we would like to get our hands o, it is their test cases. Dev M: OK" [June 1 2010 HN Update meeting, Meeting Code: N-1-00038]

In the post-meeting interview with two of the three meeting participants, in response to the question if they made any decisions, they confirmed they made two (recorded as DE1 and DE2). To verify my understanding, I asked:

"R: What about the engagement, was that the company that offers software for WS solution?
HN PM: A yes, a G2. I suppose. I mean, that was not a decision, it is more of a request, we would like that.
HN PO: Well, I don't know. ***That decision was made last week*** *in a meeting with the Head of Development when we decided we would not go forward with G2. We would not have WS software but we would take consultancy and testing expertise. So we just rectified a decision that was made a week or so ago" [June 1 2010 HN Update meeting, Meeting Code: N-1-00038].*

Practitioners distinguished between decision-making that took place in another meeting and a communication of an already made decision demonstrating many meanings behind practitioners' use of the word 'decision'.

Similar to the common use of 'decision' and 'objectives', the words 'strategy' and 'strategic' were also frequently used in both organisations. In Company 1 a few participants have mentioned that they wished they knew more about the overall strategic direction, an opinion supported by the company-wide annual HR survey which reported a high level of dissatisfaction with how strategy is communicated. The following is the excerpt from the interview with the Business Analyst L in which she expresses frustration about lack of clarity about the company's strategy.

"R: Do you think you understand well what the strategy of department, the

company is?

L: Funnily enough, I don't think I do. We had a team meeting the other day, a quarterly meeting , and it seems to me the strategy has changed We'd gone from the talk about being a consultancy, with focus on services, things like portfolios and cash cows, and at the last quarterly meeting that seems to have changed direction with more focus on products, and building on what we've got" [Interview with BA L, HP project, June 22 2010].

And, although expressing her disappointment at not understanding the strategic direction from the top down, she doesn't link overall strategy to her day-to-day activities, explaining that she understands product-strategy even if not the corporate vision:

"R: Does that [lack of understanding of corporate strategy] impact your day-to-day job?

L: I don't think so, not day-to-day.

R: In what way would you like to know more about the strategy, what would be the benefit?

L: The benefit would be in getting more confidence in management and what they are doing..it's been hard times over the last few years, there have been redundancies, lots of management changes, and, quite recently a lot of resignations, and I think there are questions, what are we doing? Why are we doing this?

I think understanding the strategy would give you more confidence, the quarterly meeting was sort of about turn in terms of our strategy, yeah, confidence in the company .

R: Would knowing the strategy influence how you prioritise the [product] sprint content?

L: I don't think so… I think I have a better idea of the HP product strategy going forward than I have of the company strategy going forward. From HP perspective I have a reasonably good idea of where Product Owner D and J want to go and have a reasonable amount of confidence that they know the market and our customers. But on the corporate level, I don't" [Meeting Code N-1-92, June 22 2010, Interview with BA L, HP project].

These findings illustrate that the participating practitioners commonly use the concepts of 'goals', 'objectives', 'decisions' and that these concepts take on different meanings. The findings confirm that in the participating organisations, the practitioners "[t]rained in the "rational actor" model, organizational members, and especially middle and upper-level management, account for their own and others behaviour in terms of it" (Boden, 1994, p. 183). They draw on concepts of strategy, objectives, goals and decisions to explain actions and inactions of organisational actors (ibid.) and to make sense of their environment.

8.3.3 Conclusions to Findings about participants' perceptions

Consistent with the project management literature, and based on the conducted interviews, project managers in both organisations are expected to be able to conduct 'hard analysis' and track project progress to deterministic plans, as well as to be active strategic actors capable of balancing multiple objectives with concurrent focus on project delivery and long term strategic goals (cf. Berggren & Söderlund, 2008; Blomquist et al., 2010; Cicmil et al., 2006; Hällgren & Söderholm, 2011).

Not surprisingly, practitioners display awareness in discursive use of concepts of strategy, decisions, strategic objectives, project goals, although their references to these concepts in interviews was not always consistent, changing meaning or merging means and ends. The previous section described how the concept of corporate objectives is used to communicate strategy, and how practitioners inferred objectives to describe and explain past situations (e.g. HN transfer, HP split) although did not always refer to objectives when describing their own decision-making (e.g. HN meeting: N-1-38) demonstrating their use of these concepts to make sense of their worlds (Czarniawska, 2003; Hendry, 2000). Decisions are expected to be made either as formal approvals and

allocation of responsibility (Brunsson, 1990), or as part of the on-going work-flow, and are seen as part of practitioners' jobs (Laroche, 1995) with an expectation of 'rational decision-making' (Cabantous & Gond, 2011).

From the interviews with the companies' employees, it can be concluded that standard management concepts have assumed a 'taken for granted' state. Through training and socialization to particular social fields and organisations (e.g. software engineering, project management, financial services) the practitioners' have been furnished with the acceptance of instrumental rationality as the ideal approach to management. Actors embedded in instrumentally-rational oriented organisational context, have expectations of managerial 'rationality' and conviction in their ability for rational agency (Tengblad, 2012).

8.4 DECISION-MAKING EPISODES

The previous sections of this chapter describe how the participating organisational units are structured, which tools they employ and how organisational sociomaterial context is perceived by organisational actors, highlighting the presence of 'mechanism of rationality production' (Cabantous & Gond, 2011). Participants expressed their confidence in benefits of use of prescribed management tools, importance of strategy communication, significance of clarity of strategic and project objectives, and an expectation of rational decision-making. This section turns the focus to the observed praxis, to practitioners' actions, with specific interest in the use of the concepts deemed vital by the participants.

As presented above, the practitioners regularly used the concept of decision in their discourse, and that sometimes they assigned different meanings to it. Some events

labelled 'decisions' were part of routine daily activities, others were called decisions ex-post although they did not seem to be so in-actu, and some instances called decisions were only a formal assignment of acceptance of responsibility.

A definition of a decision episode as a time-bracketed organisational activity (Hendry & Seidl, 2003), beginning when a concern is first raised (Nutt, 2008), guided the process of identifying *decision episodes* during the transcription phase of data analysis (described in 7.3.1). The first two parts of this sub-section present decision episodes which practitioners referred to as 'decisions' ex-ante, in-actu, or ex-post. Cases which were not identified as 'decision' by the participants but were selected based on the participants' recognition of a problem, or, for example, discussion of objections, introductions of alternatives, questions about chosen courses of actions and other activities that would commonly be interpreted as decision-making, are presented in the subsequent section. The third sub-section of this chapter describes 'sprint planning' sessions, routinely scheduled sessions during which developers estimated task complexity by following a particular project procedure.

The identified episodes are reviewed with particular attention to how the episodes were initiated, how participants engaged with the situation and how they referred or failed to refer to objectives. In other words, the focus was on how practitioners constructed and transformed a decision site, and which decision-making practices have been carried out.

8.4.1 EPISODES WITH EVENTS REFERRED TO AS 'DECISIONS'

Out of 28 identified decision episodes, 10 were sprint planning sessions, 12 were called 'decisions' by the participants, and 6 were deemed 'decision-like' during the transcription process. Three of the 13 episodes called 'decisions' (DE3, DE7 and DE11),

were a result of institutionalised procedures and organisational reporting hierarchy. Institutional approval points[9] often result in some kind of a record (e.g. contract, proposal, project charter, etc.), and are dictated by corporate or project governance. The three institutionalised decision-making events were all initiated as a result of division of organisational responsibilities for specific project approvals. Although, these three instances were part of standard organisational practice, they were different from daily routine as they were announced as 'decisions' and decision-making meetings were scheduled in advance. Practitioners were also observed to make 'decisions' as part of routine praxis. These events, called 'decisions' were not planned or otherwise separated from the flow of daily activities and occurred during standard project meetings. As the following shows, regardless of how they were labelled, participants in these episodes constructed and transformed decision sites in different ways.

8.4.1.1 DE3 The Budget Approval

Decision Episode DE3 was the most formal of all observed meetings. It was referred to as "the budget approval" meeting, and was organised with explicit purpose to obtain official budget authorization, as is required by organisational governance. The project team rehearsed their meeting presentation a week prior to the meeting, and distributed the meeting agenda a week in advance. The meeting was attended by the sales team, the product sponsor and the small project team consisting of a business analyst, acting project manager and the lead developer. The meeting started by stating the explicit

[9] This is sometimes referred to as 'gating' – a project/activity cannot proceed unless it passes a 'gate' which is usually signified by a sign-off

goal of obtaining budget approval:

> *"BA: Thanks for coming… What we want to do today is take you through the IC application and highlight the changes made over the last few months. That's really what we want to do, for you [the Product Owner (PO)] to raise awareness, and for us to consider what we want to do next so we can get some time sheet, which I know is important for bean counters" [Meeting Code: N-1-58 Project: IC June 4 2010]*

The three meeting goals were to (1) demo the project progress, (2) determine project strategy, and (3) approve the budget to proceed ("get some time sheet"). Although this episode starts with the key objective "to approve project budget", the, budget itself was not discussed during this meeting. While the team was demonstrating project progress with a walkthrough of the software product, a variety of other issues were brought up. During the hour and a half long meeting different alternative approaches were mentioned and explored, issues were opened and closed, while the main subject of this meeting was only mentioned once at the beginning and once at the end, but was not explicitly considered by the participants.

The meeting proceeded with the planned product demo that was frequently interrupted by questions from the sales team resulting in shifts of focus between praxis domains. A description of a particular functionality (technical praxis domain) would prompt a question about client implementation (operations, market praxis domains) then shift to off-shore resource availability (organisation praxis domain) then return to the technical functionality. At times, new ideas were introduced, for example, questioning if some parts of the system should be re-architected and re-coded, which were considered for a while, then abandoned to return to the demo and accompanying discussion.

The budget itself was not debated during the meeting, and the sought after budget authorisation was not granted. Notice of the intent to approve the budget was given almost immediately (in the 2nd minute of the meeting) where the product owner (PO) responded to the meeting objective "to get some time sheet' (i.e. budget allocated):

> *"PO: Just to maybe talk about it for a second..in terms of budget...I am not counting every month or every 14 days, I mean we're building a product here....I am fairly relaxed in terms of the product, the budget, the allocation, all of those things, so if we need to square away the budget for a period of time, and then backfill into it, one of the tasks that we do, then I am not so: what's the next seven days...I would rather sign off whatever it is , the next three months, six months of budget, but it's all about building the product... we'll get the right priority, we'll discuss the right priority"[Meeting Code: N-1-58 Project: IC June 4 2010].*

Although the product owner expressed his intent to approve the budget, he had deferred giving the formal approval. The meeting continued as planned, opening up and closing various strands of discussion about technology, requirements, solutions, etc. The project scope in general has been agreed to at the 25th minute, where the product owner framed the project's next steps in terms of activities from the sales team:

> *"PO: I think in the short term you go ahead with this agenda , that's because from the sales perspective what 's going to happen, we will be going through a bunch of activity which will be initial meetings , that might take two months,...." [Meeting Code: N-1-58 Project: IC June 4 2010]*

He agrees to the suggested project work for the following two months, aligning it to the sales cycle. But the budget was not discussed again until the end of the meeting (at 1 hour 20 minutes), when the team manager (TM) asked the product owner:

> *"Team Manager (TM): In terms of budgeting stuff we can maybe take it off line for this conversation...do you want to just agree to a budget to the end of the year*

for…. Because it's the head count isn't it really. So you got these three guys, maybe a little bit of me, and potentially, if we get the fourth person, and then that tester. Do you want to do it on that basis? Until the end of December?

PO: At the end of the day we'll sign the budget, it's a dedicated team for the product...We come through it every time. How long is the sign off for?

TM:It doesn't stop you going.. you know, changing your workloads, or the things you're trying to achieve to the end of the ..

BA: I think the demo tells that would be good just so ,..On a monthly basis.. 01:20:26-7" [Meeting Code: N-1-58 Project: IC June 4 2010].

Without clarifying if this is agreed or not, the product owner shifts the focus of discussion to sales process, future product market, potential competitors, and never returns to the question of the project budget. Figure 28 shows how discussion meandered across the praxis domains, opening up new issues (problem (a cross symbol) in section #6, then new alternative (a circle) in the 7th segment: a suggestion to re-architect the product), identifying challenges of open source corporate policy and retrofitting changes (two crosses in section #8), then shifting attention to discuss the proposed scope (plan) and reaching an agreement on the project next steps (section #10). At the end of the meeting, the budget is offered for approval again but not formally agreed to (section #14).

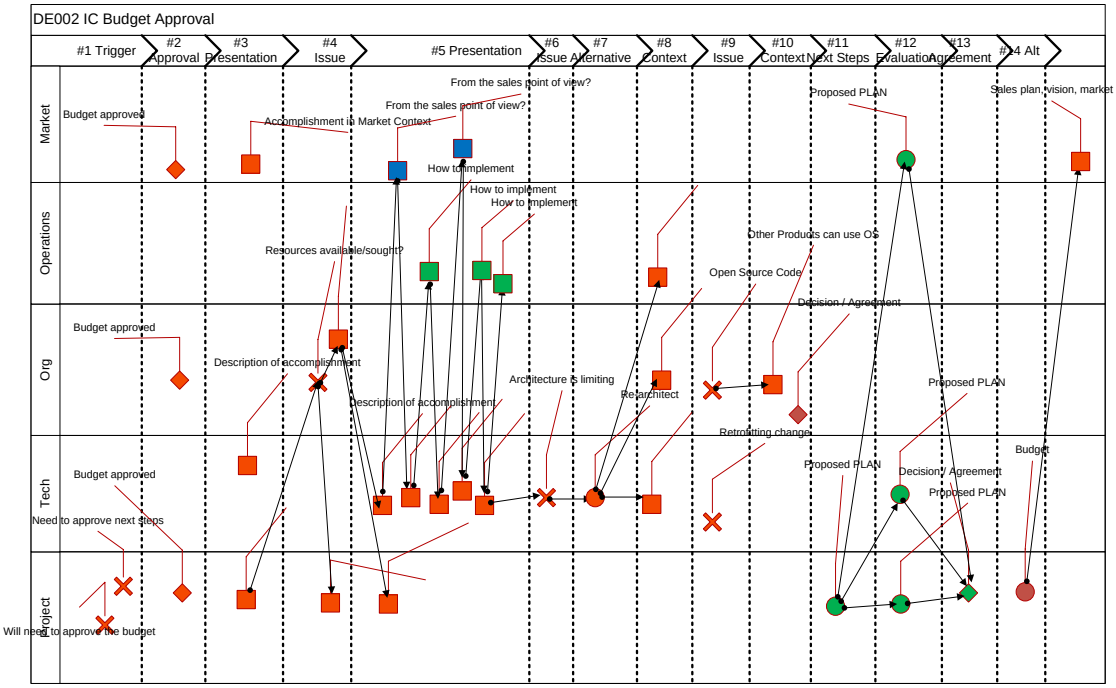


FIGURE 28 - DE3 SWIM LANE

By calling the meeting and conducting a demo, the team was made to reflect on their practices while sharing the information with another team. However, the stated reason for the meeting, the budget approval, although mentioned, was not considered in this meeting.

In this meeting, two streams of activities have been carried out. The software development team was presenting the results of their work ('demo') to the sales executives who were responding by asking questions and making suggestions about the product design and functionality. The development team countered the questions with suggestions of design changes that were further elaborated. This process continued through the meeting, opening and closing issues (e.g. should we re-architect this part?) and sometimes resulting in 'decisions' (e.g. let's not re-architect now). The project progress, the demoed functionality and the planned steps, not only informed the sales

team of project status and product functioning but also educated the project team of sales plans allowing two praxis domains to comingle in more than just status updates. With the exception of the meeting objectives, and the key issue to be resolved in the meeting (budget approval), no other objectives have been mentioned. While the 'budget issue' which was opened as a result of corporate structure, remained open, left unexplored and ultimately, unanswered, the meeting was otherwise informative to the attending team. In other words, although the perceptions of the participants have been changed, there was no evidence of reflection about the budget and the initial decision site was left unchanged.

8.4.1.2 DE7 CIO THE APPROVAL OF THE RELEASE

Similarly to DE3, decision episode DE7 was also part of corporate governance, which required a formal approval for the inclusion in a scheduled product release, as the GT project manager explained in an interview:

> *"GT PM: The decision to pre-release is for the dev group to make, in fact, for the release manager. So, each release has a release manager, who decides what goes into the release and what doesn't" [Meeting Code: N-2-23 Interview with GT Project Manager Feb 16 2011].*

As the designated decision makers (release manager or the VP of Development) were absent and had not delegated the release approval responsibility, the CIO was asked to approve the project for specific release schedule. This was an alteration to the routine approval process. The decision to escalate to the CIO level was made between the programme director and the project manager. If the approval was not escalated to the CIO level, the project work could have waited, as explained by the project manager (interview recorded prior to the meeting with the CIO):

"R: Do you have to provide the response today or can you wait until next week?
PM: Well, theoretically it could wait until the next week....the problem I have with this is that everybody knows that I already told the client they will have the response this week, that's one thing. Second thing, just because the release manager in charge of that release is away, it doesn't mean the business for us should stop. He should be fully backed up by somebody, right? I have an issue when a client tells me: "well that person is not here, nobody can do his/her job", I am sure they feel the same, we're not a one man company, we should probably be planning when someone's leaving.
In my mind this is the VPs failure that his release manager is away, and he knew about that, he is now away, and he did not leave any instructions to anybody, right? So I am afraid, I will not tell him [the client], no, 'it looks as if it will be approved', but I cannot tell him for sure it will be approved.
R: If you cannot give him an answer....
PM: If I cannot give him an answer today, then I have no other choice than to tell him he will have to wait until Monday or Tuesday.
R: And, are they any repercussions [if scheduling it into the release is not approved today]?
PM: No, at this point, at least I think there should be no big consequences because we're not missing any important deadlines, or something, ahmmm, development is going ahead and everything else."[Meeting Code: N-1-16 February 10 2011]

This excerpt illustrates some of the other concerns that influenced the project managers' decision to escalate approval to the CIO level[10]. These concerns could be categorized as objectives: "maintain Company 2's reputation", as well as to "deliver the project on time and budget", and "meet client's timelines". They could possibly be interpreted as objectives to improve the approval process, or even to create an issue of the VP's

[10] The "decision to escalate" has not been recorded in-actu. The only evidence of considerations prior to the DE6 is the above referred interview

apparent tardiness. Although decision DE7 seems to be about an official sign off for a release, it may be that it had more to do with other organisational issues.

The actual approval to pre-release was given in the short meeting (1 minute and 21 seconds N-2-17). The CIO has been kept informed of the GT project situation and related concerns, and was aware of the need for fast tracking the release approval. He first confirmed that all previously raised issues have been addressed (Technical, Project and Organisational Praxis Domains), verified all relevant experts have given their professional approval and that steps have been taken to reach the designated decision makers (Organisational Praxis Domain). As all appeared to be in order, he approved the change:

> *"CIO - everyone is OK except the two people that are supposed to sign off on this?*
> *PgDir – yup!*
> *CIO - I will take the responsibility. So, I will send out a note and copy the VP of Development" [Meeting Code: N-2-17 February 10 2011]*

It is not apparent in the recorded discourse whether the CIO had considered other choices available to him at that time. Specifically, the CIO did not inquire if waiting for the designated approvers, his subordinates, would be an acceptable alternative from the project's perspective. Whether he was concerned about the infringement on his subordinate's authority is not evident from the data gathered, but accepting the responsibility for this decision in the VPs absence did in fact create another organisational issue (ref. Appendix C, Chapter 6: Section 6.7 – Post Script).

Similar to the budget approval described in DE3, this episode also exhibited a certain asymmetry in practices carried out. While in DE3 the decision maker did not seem to engage in decision-making, leaving the budget issue unanswered, the executive in DE7

did not appear to explore other alternatives and focused instead on confirming the that the pre-set criteria has been met. In both cases the approval seekers presented the information, while it is the approver, in this case the CIO who was expected to carry out 'decision-making'.

The CIO in DE7, had been informed of the criteria for the approval prior to the recorded meeting. The short meeting that was called 'the decision' was only the formal acceptance of responsibility presenting the decision maker with a fully constructed decision site in regards to the release approval.

8.4.1.3 DE11 The Printing Design Approval

Decision episode DE11 was also a formal approval, in this instance, of software design. The project business analyst prepared the product owner for a decision that he would have to make in the next meeting:

> *"BA L: I think so..so if we need printing, we'll discuss it more ..Show what we got on Monday, and on Monday we can make a bit of a decision how we want to progress. How does that sound?*
> *Product Owner: Accepted. [Meeting Code: N-1-12 HP May 12 2012]*

The third decision-making episode that was initiated due to institutionalised responsibility allocation, was also scheduled in advance, but unlike DE3 and DE7, the team and the decision maker have actually engaged with the decision content by exploring and creating alternatives during the meeting. They constructed the decision site together. During the course of the meeting they discerned the printing requirement through envisioning interactions with multiple praxis domains which could influence the selection of the print solution, as shown in Figure 29:

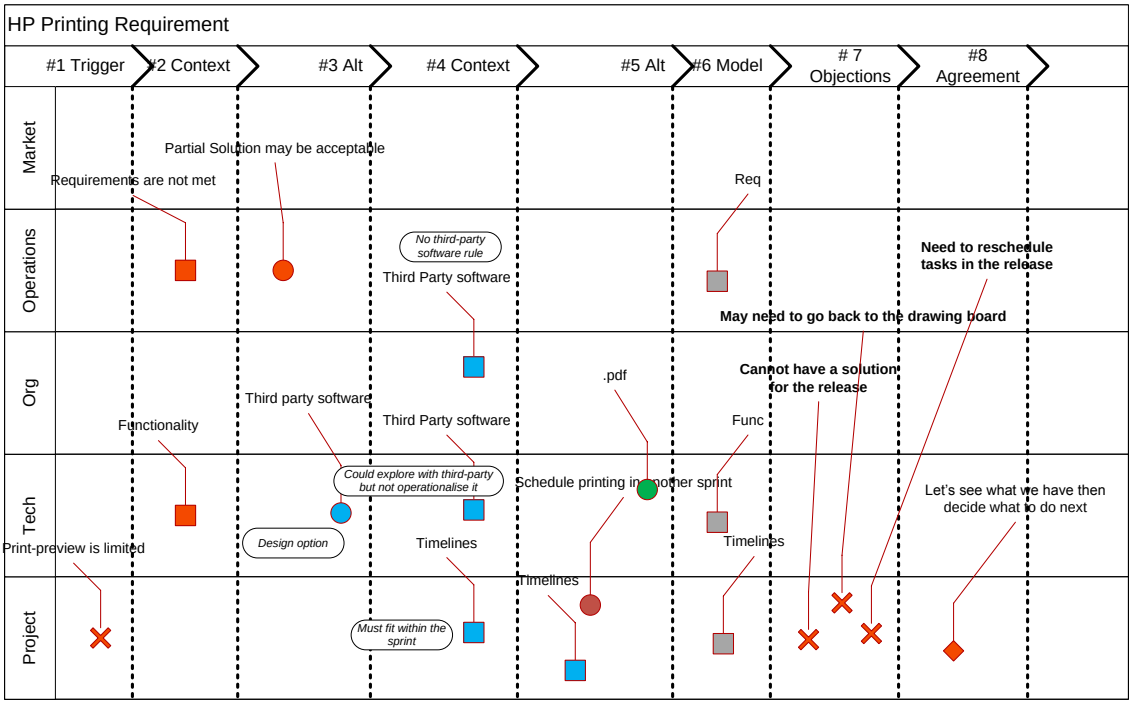


FIGURE 29 - DE11 SWIM LANE DIAGRAM

Each alternative enriched the decision site with more information about the interaction of the proposed design alternatives and praxis domains, spatiotemporally and socio-materially. Although at the end of the meeting, it was still not clear how they should proceed, as the PM stated:

> *"PM: we need to progress that in some way, but we're not sure what that is at the moment" [Meeting Code: N-1-12 May 12 2010 HP Sprint 6 Priorities]*

This meeting allowed the practitioners to stop and reflect on their practices, share their knowledge, increase their understanding of the situation, and formulate the issue at hand incrementally better than before. They constructed a decision site with reference to praxis domains.

8.4.1.4 DE1 VACATION ABSENCE REFILL

DE1 decision was local to the project and occurred in a weekly update meeting between the new product owner, offshore team member and the newly assigned local project manager. The episode was a small part of the meeting discussion that started when the project manager's prescheduled vacation was brought up by the new product owner:

> *"Product Owner: There is one small problem on the transition plan that I am kind of grappling with at the moment. Did you know Mr. PM has been offered three weeks in August? "[Meeting Code: N-1-38 HN Update meeting, June 1 2010].*

The three of them discussed the impact of the project manager's absence on the project schedule, identified an alternative (to bring an off shore resource over to UK), learned that the person on the line was available at that time, considered if he could fill in the role and agreed to do it. The solution provided a PM replacement, enabled on-site training of the off-shore team member and met the project time constraint.

> *"Dev M (Offshore Resource): I could do it, I guess, yes, what three weeks in August you're going, last three, the first three?*
> *PM: The last three weeks*
> *Dev M: All right, I could… The last three.*
> *Product Owner: There you go. Fantastic*
> *Dev M: Is there any more vacation for that time?*
> *Product Owner: No, PM A just got the middle week of that three weeks*
> *Dev M: OK, All right, so that would be all right*
> *Product Owner: All sorted out. So he's got his three week trip to London that he's looking forward to. "[Meeting Code: N-1-38 HN Update meeting, June 1 2010].*

The meeting discussion moved on to another topic. In the follow-up interview (N-1-38), when asked if any decisions were made during the previous meeting, this was identified as a 'decision' by the product owner and the project manager.

In this short decision-making episode that took place in a standard update meeting, the team recognised that the scheduled vacation may cause delays to the project (issue) and explored replacement solutions. The consideration accounted for local and offshore human resources policies, acknowledging that cancelling the vacation was not an option, and considering who could fill in the gap. They actively constructed and modified the decision site arriving at a feasible action plan. Although they did not refer to any objectives directly, their reference to vacation duration and cancellation indicates their awareness of corporate policies; the quick consideration of the team member's availability and planned trip shows that project/product budget was also accounted for.

8.4.1.5 DE2 MEETING FREQUENCY

Following the same meeting, the practitioners identified another decision event. They refer to the following agreement to change the meeting frequency as a 'decision':

> *"HN PM: Dev M, while we got you on the line ahm, HN PO and I are thinking about changing the frequency and type of project meetings that we have. What do you find useful from this particular meeting? If anything…*
> *Dev M: Well, I find it extremely useful.*
> *HN PM: OK*
> *Dev M: ahm…I think the frequency, I would say that the frequency did not have to be as frequent previous to this, but I think between now and the time of release, weekly is probably still adequate.*
> *HN PO: What I suggested to HN PM was we combine the team weekly meeting and this meeting? Because a lot of the stuff we go through in a team meeting is very similar*
> *Dev M: Yea, yeah, let's not duplicate anything, sure.*
> *HN PO: And there is nothing here that …I don't think the rest of the team, we're not talking about anything that the rest of the team cannot really talk about /no/, you know, we wouldn't talk off line anyway. /yup/*

So I think we change it so that we get kind of more of a, I guess, change it to just one meeting. /yup/

Will give the guys here more direct access to what's going on at your end and give you a bit more access to the people. I would also like to switch you over to video conference if we could pull that in as well.

Dev M: For sure, that's great.. " [Meeting Code: N-1-38 June 1 2010 HN Update meeting].

In this case, the team have agreed to change the meeting frequency presenting the offshore team member with the decision site of status quo (current meeting schedule) and a new meeting schedule. Although they did not discuss explicit 'objectives', they mentioned that in this way they would avoid duplication of team effort and improve communication between teams. The decision-making in this instance was obscured in the information sharing discourse, and has resulted in a change of project team activities.

8.4.1.6 DE4 GT NETWORK ID

The decision episode 4 took place in a very technical meeting with local technical team members and client's technical representatives via conference line. The issue at hand was whether a new network id was required and if so, how to create it. At the beginning of the meeting, it appeared that there was a choice of not creating a new id, but as the meeting progressed, it was clear that the new network id was mandatory. The participants first clarified the requirements regarding the network ID, accepted that it was required, and then moved on to evaluate the impact of this effort on the project, in its current schedule. The discussion centred on clarifying the technical content and on creating a shared understanding.

"BA: On that note, as we do agree that we need a new network id, as that's already

> *in motion from development, at some point we need to inform the ThirdPartyCo. what that ID is, as that information needs to be mapped into the batch xml order request file, and from that point on it would be echoed back into the response and ultimately into the confirmation file" [Meeting Code: N-25, Weekly Status Meeting, Jan 23 2011].*

The praxis domain trace shows that the participating team developed their understanding of the requirement for the new network with reference to the technical and operations domains and in relation to the specific project functionality. Once the requirement was accepted, the team evaluated the implementation of the new network id over the same praxis domains.

The issue in this case was not the choice of whether to create the network id or not, as the new network id was an obligatory part of the installation, although the meeting was presented as 'decision-making' about the new network id. The host team engaged in a discussion with the client as if there was a choice, until the client understood why the new network id had to be created. By calling this a 'decision' the host team may have wished to communicate to the client that their agreement is important and by engaging the client in the process of 'faux' decision-making and exploration of alternatives (no new network id) in different praxis domains, the client understood why the new id was required. Although the decision site was not transformed, the perceptions have been changed and a course of action has been set.

8.4.1.7 DE5 GT Release or Pre-Release

DE5 is a decision acknowledged as such during the meeting between the two project managers, the local GT project manager and his European counterpart. They actively considered options for implementation coming up with four alternatives, until they

settled on the one they thought was the best. The episode tracked their search for and development of alternatives which resulted in seeking the approval to proceed, captured in DE7.

The subject of this decision was the timing of GT project implementation. In Company 2, that meant finding out which release would deliver this project code. In the first part of DE5 the GT project manager (PM) and the European project manager (EPM) discussed the alternatives for scheduling implementation. The EPM suggested a third alternative, a kind of a hybrid solution. The discussion meandered between what was feasible i.e. what could be achieved technically, what could be achieved within project and release times and with given resources; what would be an acceptable solution to the client i.e. to minimise risk to their business/operations processing; what would be possible given accepted organisational processes (e.g. release processes, software development processes, etc.). In the following excerpt from DE5, the two project managers were discussing how to overcome implementation challenges, when the European manager suggested changes in the implementation schedule.

> *"EU PM: Ok. Let me go back on one more thing. Because what I want to do is jump onto your comments about contingency next. But before I do that, because that's what we're talking about, if we cannot commit to that, we must look at our contingency plans.*
> *PM: Exactly. I was very vague about contingency because we never really talked about it, so contingency could be anything.*
> *EU PM: Before I jump to that I just want to go back, if we drop to pre-release, you said it would be 11.4.*
> *PM: yup*
> *EU PM: Which is?*
> *PM: September*
> *EU PM: Now, if we drop the requirements for pre-release, is there an option to*

include it in 11.3 full release?

PM: 11.3 full release? ahmmmmm….

EU PM: to add contingency of 6 weeks rather than 3-4 months, just a question

PM: that's a really good question, and I'll bring this to the development group and I think they would be much more inclined to look into that option rather than try to do this in April. It would give us month and a half.

EU PM: OK. Let's look at this. I am not saying that's an option, but what we have in your email was either we have the pre-release 11.3 or jump to the 11.4. I was just wondering if there was an option in the middle there." [Meeting Code: N-2-14 February 7 2011]

This decision episode was carried over two meetings. Although the two project managers never discussed objectives explicitly, they made frequent references to praxis domains (e.g. considering impact on clients – market domain; considering impact on business process – own, intermediary's, clients' – operations domain; accounting for cross-organisational approval processes – local, offshore, client's – organisational domain; planning how code development could be divided – technical domain; ongoing consideration of project dates) All five praxis domains were actively referred to during the considerations.

The two project managers discussed options in view of the project delivery (code development, testing, etc.) release processes (fitting within the existing schedule), client's willingness to accept risk, the degrees of that risk, potential impact on other clients and partners, as well as the willingness of employees to work on the holiday weekend. The construction of the decision site expanded from a singular project perspective to include organisation-wide routines and policies and narrowed the choices available, starting with two alternatives, expanding to three, and choosing the one deemed most suitable.

8.4.1.8 DE9 YEAR-END T3 ISSUE

Decision episode 9 was recorded on Project Year-End and involved representatives of all Company 2's domestic clients. Following a late announcement by the regulatory body, the project team and all its stakeholders considered whether or not to change how tax percentage is calculated in the system. Technically, implementation of the required change was independent for each installation hence each client could decide how to manage the required change independently. The project manager explained in an interview what the subject of the required decision was.

> *"PM: Yes, we need to discuss how to solve the new requirement from Canadian Revenue Agency (CRA) in issuing T3 and T5s [tax statements]. These slips are due at the end of March, and the CRA made this change too late. We need to consider what the regulators say, what transfer-services will do and how our clients want to handle it.*
> *There are few options. One is to do nothing, as it is one-off situation and will not need to be poductionise [made production-ready]. Another one is to issue letters instead of issuing a new set of T3s or T5s" [Meeting Code: N-2-35, Interview with PM, February 24 2011] .*

As it was confirmed that the choice of action was up to each fund manager, the group investigated work required for each of the two alternatives. The episode evolved through phases that could be broadly interpreted as information gathering, evaluation of costs, and choice of alternative. The process was carried over three weeks in the weekly update meetings (about 1 hour each), during which the team explored potential courses of action, with frequent reference to praxis domains. Having learned the number of accounts impacted by the taxation changes was small, the group decided to not make system changes and to handle any inquiries manually. They reached a consensus to implement the least expensive and the least disruptive approach although

the most noted aspiration was to do 'what the others are going to do'. The teams' discussion clustered around particular issues in different praxis domains (e.g. how many accounts are impacted – operations praxis domain; what are the regulatory requirements? – market domain) but the final choice of action appears to have been mostly influenced by the desire for within-group consistency of approach.

8.4.1.9 DE12 Resource Allocation decision

Decision episode DE12 captured a request to approve a resource allocation, where the requester, business analyst (BA), refers to it as a decision.

> *"BA L: the reason I ask, the next sprint is due to start Tuesday and I am keen to have the Web Designer A.(WB A) work on the redesign of this and that's starting Tuesday. I am looking for a decision that WB A is going to come and help, so I was hoping that Development Manager's documentation would have helped you to make that decision*
>
> *Product Owner: Not really, I don't think there will be anything between now and Tuesday. At this point, without any further discussion, let's just assume you can use WB A to do that.*
>
> *BA L: OK, and our assumption will be he'll work his way through the list and do what he can for one sprint, and then we'll review where we are at.*
>
> *Product Owner: OK*
>
> *BA L: I will get him to send you that list. OK. Good. ..[Meeting Code: N-1-12 May 12 2010 HP]."*[11]

The requesting practitioner calls the event a 'decision', and the manager with the authority to assign the resource simply agrees to her suggestion without considering any other alternatives. As this is part of his organisational role, it seems that his giving

[11] Extended transcript available in Appendix C

of the approval is carried out in a routine manner. She explains a bit of her reasoning around the choice (his availability, previous working together, and her time to assist him) and the product owner clarifies his understanding. The approval is given, and they are each left with follow up tasks.

8.4.1.10 DE14 BLOB OR RELATIONAL DESIGN DECISION

The following instance is similar to the one just described in being a part of the standard professional practice and not a designated decision-making activity, although in this case, the participants actively generated and considered numerous alternatives before selecting a choice of action. In DE14 the development team of 5 programmers engaged in a discussion about which data format to design into the product for the current iteration. In an unplanned assembly, spilled-over from a daily scrum, they considered how the choice of a data format impacts system functioning across praxis domains, e.g. maintenance, functionality, and integration with other products, etc.

The episode started with the architect setting up the plan to use the pros and cons method to assess two format options: 'blob' or 'relational'. What followed was an unstructured discussion shifting between praxis domains, as alternatives are brought up, modified, 'tested in domains' and developed. Shifts in discussion sometimes changed the time scale of concerns, e.g. the development manager reminds everyone that the project delivery time lines are constraining the options (project life time) which is contrasted with the "cost of reengineering", emphasising that re-work would be extensive (product life time).

The team continued meandering across domains, creating solutions, envisioning potential problems, while the architect gathered the information on the white board in a

two by two table with pros and cons for each option. Figure 30 shows the trace of the conversation across the praxis domains. Some of the issues raised were the need for compatibility across future releases (operations domain, market domain), and the requirement for indexing fields (operations domain, technical domain), immediately questioning if the reporting requirement is actually present (marketing domain).

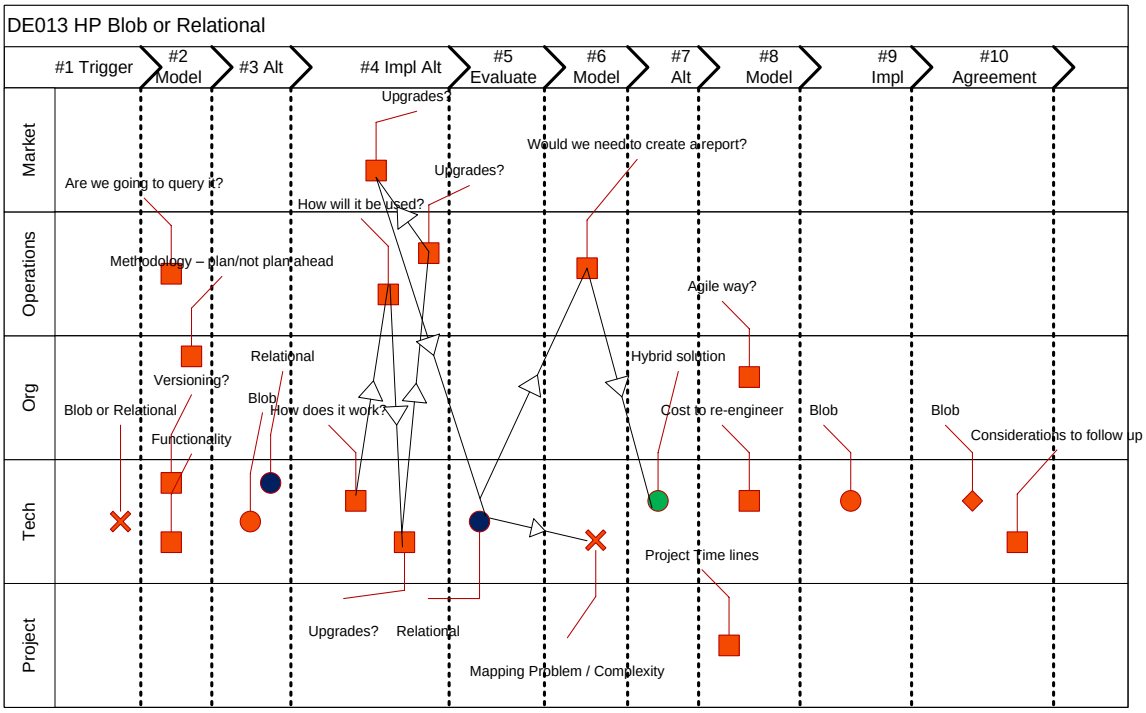


FIGURE 30 - DE14 SWIM LANE DIAGRAM

This meeting was facilitated with an awareness of the meeting time, project time-lines, and of decision-making processes (including the architect's awareness of the anchoring bias (Kahneman et al., 1982)). Probing performances across praxis domains helped the team modify alternatives, consider implementation, find obstacles and modify solutions. With each contemplation of an alternative within different praxis domain, such as compatibility with future releases of third party software (operations and maintenance domain), field indexing and report requirements (technology and market domain), and

time to market (market domain), they identified additional requirements of a solution they were constructing. They did all of this simultaneously, shifting attention from one to another, in an apparently chaotic process. Once some of the attributes of different alternatives had been identified, they were gathered in pros and cons groups, although the items in pros-and-cons column were not of the same type, and once written down, were not evaluated further. They simply collected the information, and then decided on the 'blob' option.

In this example, decision-making was carried out with extensive reference to organisational praxis domains, querying them to envision how each one of the data formats would interact with the current praxis, and also to imagine future needs from each praxis domains' perspective. Project praxis domain 'imposed' the need to deliver a solution in time for the release. Compatibility with future releases, including third party software, and security issues, were part of the operations and maintenance praxis. Although the present software requirement did not specify the need for the reporting of this particular function, the team considered if such a need should arise, thus showing awareness of the market praxis domain. It seems that the practitioners' knowledge of praxis domains, and their ability to engage with praxis domains relative to the issue on hand enabled them to reduce the number of alternatives to the one that 'works' the best for all domains. Even though they have not mentioned any objectives, the praxis domains appear to have provided them with information that enabled and constrained available alternatives.

8.4.1.11 DE16 Server Move of HN servers

This decision episode (DE16) started with a suggestion to consolidate use of servers

prior to the planned server move. An experienced and well informed product owner actively sought what appeared to be a globally beneficial solution by exploring potentially more efficient ways of carrying out work on two projects, the project that transferred the HN product to the offshore office, and the project that was relocating all hardware infrastructure, named the "Server Move" project.

The team first considered the impact of the planned move on the HN project plan and timeline, and on the other hardware; the conversation then shifted to the question of organisational reporting lines, then to consideration of if another set of hardware could host the product, and if another operating system should be installed; subsequently the team returned to the idea of upgrading the operating system and considered the impact of it across four domains, just to revisit the question if the product should first be moved off to another site; that led to an additional discussion about reporting lines, transitioning responsibilities, and exploration of hardware configuration in the offshore office. This unstructured journeying through praxis domains was focused on the issue at-hand and the practitioners' awareness of potential impacts of different courses of action across local praxis-domains and in off-shore contexts which were somewhat less known to the participants.

The initial suggestion of the HN product owner was to reduce the complexity of the move and avoid re-work by moving HN servers only once, which could also be beneficial to the local Server Move project. Whilst this would have been technically possible, it would also require a change to the desired but not yet planned approach of the Server Move project. The combined project team discussed this possibility over 7 meetings, identifying issues, building a shared understanding of the environments, including the organisational structure and influence, and ultimately agreeing to stay with the original

plan. As in other episodes, although objectives have not been explicitly mentioned, anticipation of performances in praxis domains appears to have informed the practitioners, enabling and constraining alternative generation.

8.4.1.12 DE17 Server Move – Circuit selection

This decision on the same project was also stretched over a number of meetings. This project was structurally complex; it had many technical layers that interacted in non-trivial ways with all aspects of the organisation. However, there also was relatively low uncertainty about the elements, and all aspects of this project were knowable, albeit at a cost. The team needed to select a circuit for installation and had a choice of two configurations. Either of the two alternatives considered would meet all business and project objectives, and could be provided by either vendor, with a small cost differential.

> *"PO1 : why are you delaying ordering the circuits?*
> *Manager : there is already a round circuit being ordered, but we're unable to complete the circle..the way leave issue ..because the landlord is tying this to a renewal of the lease*
> *PM : but that's not your question is it?*
> *PO1 : no, I was just wondering why we are delaying*
> *Manager: why are we delaying ordering?*
> *Engineer : cost...*
> *PM : There is a potential exposure to a year contract...at the moment we already have another order, that' been costed..if we go with this alternative circuit, although we've got promises from VM, we'll get stuck with the rental, but whichever one come first, we simply cancel the other one.. so if we order the alternative, then we'll accept and take delivery of the alternative, and if they ever get around to sorting the way leave issue, we then get the other circuit. So we will never be liable for the two rentals (£13,000 – 14,000 /year).*
> *But we cannot avoid duplicating installation cost...what we are trying to avoid the duplication of rental...that's what we're working on at the moment...but there is*

uncertainty how long will it take to implement a back up regime, which is a bit complex, and brand new to us...and will be able to put resources to it, and not getting much in terms of the training, now will we be able to piggy back of KC's expertise... if it's going to take us 3 months to get up and running with it, than there is no urgency in getting the circuits in. That's the logic.
PO1 – ok [Meeting Code: N:1:29, Team meeting, May 26 2010]

The team kept postponing a decision by a day or two, because a 'day or two does not matter'.

"PM: [To the Product Owner]
Do you have a view on this, given how long we have waited for this, I mean really
Senior Manager - I don't think it matters, day or two,
PM - all right, fine..." [Meeting Code: N-1-62 June 8 2010]

Through this long episode, the team did not generate any new alternatives, consider new questions, discuss any objectives, or explore the infrastructure environment. Although this issue of a delayed way-leave extended over 9 meetings, in each meeting they presented the current situation as unchangeable. At the end of the 2 months, the Head of Development came to the meeting inquiring why the decision had not been made.

"IS Manager: we talked about the lines [circuits] before this.
Head of Development: OK, so what is the decision on the City Office circuit?
We were going to make a decision?! Yes?!
PM: we were [said with trepidation as in 'we werreeeerrre……..]
Head of Development: So if we were going to make a decision we need to know what is needed to make that decision and make sure that is in place. If we cannot make a decision today, what?!? We wait until tomorrow?! At what point will we fall of the cliff?
When can we have that decision? What do we need to make that decision? How do we make it happen?" [Meeting Code: N-1-69 June 10 2010]

Following this discussion, the Head of Development demanded the team order another circuit and personally took the responsibility for the decision.

In this case, the project team took the current state for granted assuming there was nothing they could do to change it. Although each meeting started by mentioning the delayed circuit installation, and sometimes considered its impact on the rest of the project, the team did not actively engage in changing their perspectives of the situation or seek possible courses of action, and continued without inclination to resolve this obstacle to project progress.

8.4.1.13 SUMMARY TO EVENTS REFERRED TO AS 'DECISIONS'

Events called 'decisions' by the practitioners followed different processes, served multiple purposes and had a variety of outcomes (Brunsson, 1990). The three decision-making instances that were a result of the organisational design (DE3, DE7 and DE11) involved two parties: (a) the approval seekers and (b) the approval givers. The approval givers had the organisational authority to approve action, and formally accept the responsibility of its outcome, with the apparent assumption that the approval givers had a superior ability to 'decide', as expressed above in an interview 'they see a bigger picture' (Interview with GT PM, Meeting Code: N-2-23 in reference to DE7).

The way the decision-making activities were carried out displayed this asymmetry, with approval seekers presenting information, and approval givers expected to 'decide'. The approval seekers were made to reflect on their own praxis and make it explicit to the approvers. Their reflection is part of the design of the approval seeking process. On the other hand, the approvers are expected to "make a decision" based on the presented information (approve/disapprove). Despite being initiated in the same

manner, the three observed 'gating' cases managed decision sites in different ways. In the first one (DE3 – The Budget Approval) the decision maker appears to have ignored the site; in the second (DE7 – The Approval of the Release) the decision site was already created and the decision maker only accepted the responsibility for the choice of action, and in the third,(DE11 – The Printing Design Approval) the decision maker and the approval-seekers mutually constructed the decision site.

The other 9 episodes that were called decisions but were not planned were initiated in different ways, sometimes due to an interruption of praxis (DE9) (Tsoukas, 2010) other times as a result of an insightful reflection in praxis (DE14, DE16) (Langley et al., 1995) Some created and considered multiple alternatives (DE1, DE5, DE9, DE14, and DE16), one appeared routine (DE12) whilst others resembled information sharing rather than decision-making (DE2 and DE4). In addition to a variety of processes they followed, they also displayed different degrees of engagement with the decision situation and each other. Many of these episodes exhibited deep entwinement with organisational praxis, evidenced in their frequent reference to multiple praxis domains (DE1, DE5, DE9, DE14 and DE16) whilst others engaged less.

8.4.2 EPISODES WITH DECISION-LIKE ACTIVITIES NOT REFERRED TO AS 'DECISIONS'

The following six episodes have been identified as decision-like activities although they were not explicitly called decisions by the practitioners. These events resembled decisions in so far as they contemplated different courses of action (i.e. alternatives) and possible obstacles. The episodes were delineated from the point when an issue was first acknowledged (Nutt, 2008) and followed through to a suggestion of a "specific

commitment to action" (Mintzberg et al., 1976, p. 246). The following subsections describe six episodes indentified in this manner.

8.4.2.1 DE6 XML CONFIRM DESIGN

This decision episode was contained within a single technical meeting where the local GT technical team presented and explained the planned approach to designing XML Confirm layout to the clients' technical team. Initially the client was objecting to the proposed layout, requesting a customised design, better suited to their operations. At some point, the Dev Manager explained the Company 2 position on bespoke code.

> *"Dev Manager: It's not that we cannot build it but that it will restrict our expansion for the future. Because we're serving many other clients, and customization limits us, it's not that it's not doable" [Meeting Code: N-2-13, GT XML Layout Discussion, Feb 4 2011].*

The generic design reflected Company 2's technical, organisational and market goals of building robust code that works with all clients and is easily maintainable. This was an assumed key objective of any software development in Company 2, due to their intricately woven hosting arrangement and was in contrast to the more locally tailored client's operations. As soon as these reasons were made explicit the agreement to proceed with the generic code was reached.

In this episode, the statement made by the development manager could be considered a reference to the key development objective, which once mentioned, assisted in concluding the prolonged discussion. Interestingly, the other participants, the local development team and the client's technical team, discussed the feasibility of code development without clarifying the fundamental differences between their praxis. The client's technical praxis domain differs from the host praxis, as the client only supports a

single installation. This example shows how praxis domains own objectives, part of the teleoaffective structures (Schatzki, 2000), and are not easily accessible to the discursive consciousness especially when immersed in praxis, as these two groups have been. Although alternatives have not been evaluated over the stated objective, the recognition of the objectives constrained the decision site.

This case could have been another instance of organisational 'faux' decision-making, carrying out a decision-making practice even if the choice of action is predetermined, as it was in this instance and in DE4.

8.4.2.2 DE8 The choice between Ad-Hoc and Production Ready design

The DE8 episode started with the inquiry into how to design the project conversion process. The issue was opened in the first recorded project meeting where developers assigned to the project team questioned the choice of the procedure they were asked to implement (N-2-1):

> *"Developer: "Is there a business reason why this all has to be done at the same time? Can we not break it into manageable chunks? I am sure you've gone through this yourself" [Meeting code: N-2-1, Initial Meeting with Developers, January 17 2011].*

The PM explained the choice of the technical approach by describing project history (project domain).

> *"PM - I have in my mind...This is a project that has been thrown on us quite quickly. Given that in some way we want to get it out of the way and done quickly. But in some ways..." [Meeting code: N-2-1, Initial Meeting with Developers, January 17 2011].*

The team discussed these two issues. The developers were worried about the large

amount of data, specific to the project client, that could result in prohibitively long operational processes, while the project manager was focused on delivering the project in the time that was allocated based on the assumptions of code re-use. The question of ad-hoc vs. production-ready code became prominent in a subsequent meeting bringing in concerns from operational and organizational praxis domains (N-2-3).

> *"Development Manager: The challenge though is we are making the change to the transfer module, in addition to the inter-fund module. We won't be able to do this in 11.2 [release], we cannot bypass regression [testing]. We need full regression we need to, so the client will have to wait a full extra release to use it on desktop, because I wouldn't put it in 11.2" [Meeting Code: N-2-3, Tax-no-Tax Project Meeting, Jan 19 2011]*

Project and organisational domain are mentioned through reference to the release schedule. [The release is organisation wide, involves all clients and is on a fixed schedule.] And, in the following text, the reference is to technology domain and its practices:

> *"Business Analyst: I think Manager A was leaning towards doing the data fix just because we want to limit the changes we do to the fund-merge logic if anything" [Meeting Code: N-2-3, Tax-no-Tax Project Meeting, Jan 19 2011]*

Reiterated by the manager himself:

> *"Manager A: I want to get rid of hard coding, that's just not correct. [Meeting Code: N-2-3, Tax-no-Tax Project Meeting, Jan 19 2011]*

With the shift to technical (permissions) and project domain (confer with the client):

> *"Developer: do we have permissions...*
> *BA: so that shouldn't be a problem. Think about it this way, even if only half percent, that would be 5,000 transactions, we could ask the client if they want to do*

them manually.

PM: we're not going to ask them that we know what the answer will be

BA: it will be a scope change, it is very clearly one mock and one production run, and if they are going to do more than that" [Meeting Code: N-2-3, Tax-no-Tax Project Meeting, Jan 19 2011]

The team negotiated between the time constraint (project domain), and the technical solution (technical domain) where the development manager's view of core practices ("that's just not correct") strongly influenced the creation of a hybrid alternative and the final choice. In this decision the focus on product life-cycle quality, organisational release process and adopted software development processes prevailed over project time line concerns.

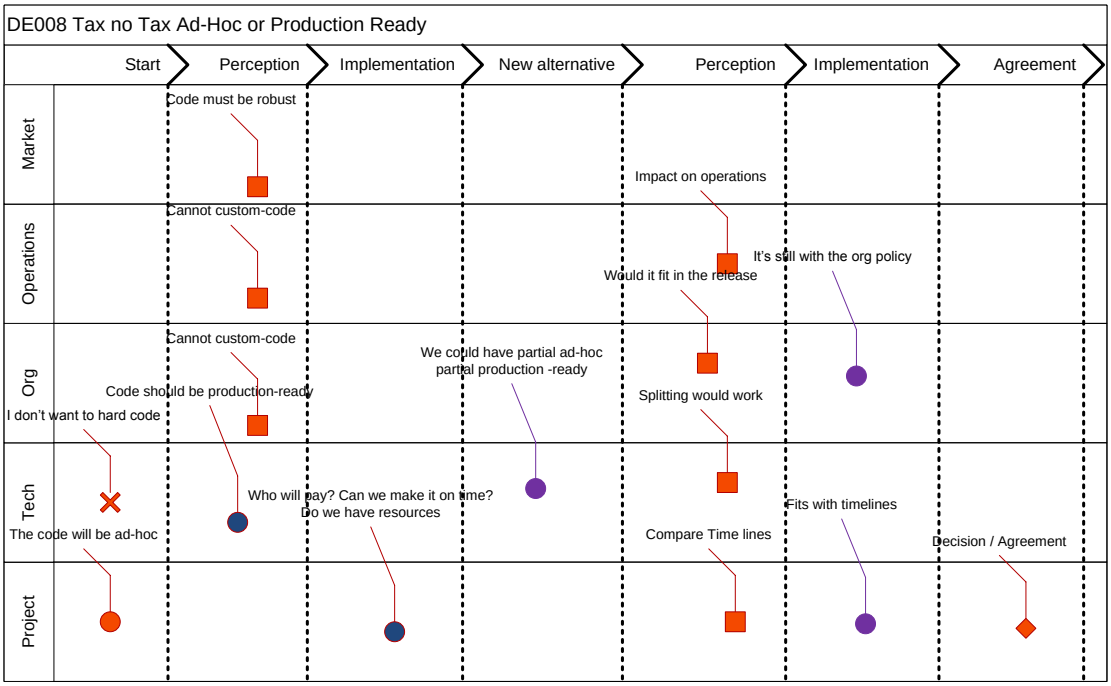


FIGURE 31 – DE8 EXAMPLE SWIM LANE DIAGRAM

The short extract illustrates how praxis domains were brought into the discussion. The developers were looking to create a good solution that minimised the risk to the

existing processes (operations and technical domain); the project manager was searching for a solution that would fit in the assigned time lines and resources, trying to reuse the code previously implemented (project and market domain); while the development manager raised concerns over product quality and maintainability in a discussion about the ad-hoc vs. production ready code (Technical / Organisational / Market domains) (Figure 31). The decision site was constructed in the interplay between the practices from these praxis domains, starting with two opposing alternatives, and arriving at a hybrid alternative whose performance in all praxis domains appeared satisfactory.

8.4.2.3 DE10 Developer's Sprint Priorities

In DE10 a programmer asked the project manager to select which action to take before the end of the sprint. The instance starts when the team recognised that delivering the scheduled story to meet the sprint deadline would mean rework at a later stage. Discussing the solution and the requirement with the business analyst, they arrived at another alternative that would satisfy the requirement for a "functioning sprint release", and would also minimise rework after another task is completed.

> *"Dev 1: I was going to work on it this afternoon. What it really means is I spend time fixing the bug which we should move anyway to Developer S.'s stuff afterwards. Does it really matter if it happens in this sprint or not? Or, we wait to fix the bugs and then we fix them based on Developer S's stuff*
> *HP PM: there are only a couple of days left. It's a bit late in the sprint to impact something significant.*
> *BA L: I mean we could do just a simple solution where is just check if the date is current system date, so there is kind of, because the issue that we've got is specific to that. [Meeting Code: N-1-4 May 20 2010 HP]*

In this instance, the three participants, the business analyst, the project manager and the developer together engaged in creating and considering alternatives. Prompted by a reflective developer who brings forth the possibility of doing one task over another, the team considers changing the course. They query a number of praxis domains to arrive at the hybrid approach that works in all.

8.4.2.4 DE13 HP Developer's Priorities

DE13 is a very short decision episode where a developer asked the project manager to prioritise between two tasks, something that should be a routine task for a project manager. The developer clearly understands that only one of the two tasks could be completed within the current sprint. He could have arbitrarily picked one, without involving the project manager, yet he asks the project manager with the expectation that he should somehow have a different, 'higher-level' view. The project manager agrees that the question of priority is important and difficult to resolve. At the developer's insistence he suggests completing the tests first (task 1) although he is uncertain and seems to need more information. When another developer offers to answer the question, the conversation shifts to another issue, presumably with task 1 selected to be done.

In this episode, the project manager did not expand his search, only considered that the testing is part of the story. It also appears that he has not considered the issue in a different perspective. He may be reflecting on the developer's software development practice, but doesn't appear to be reflecting on project or any other praxis domain.

8.4.2.5 DE15 Flipping Components

This episode captured the HP team discussion of edit functionality for the report

templates. Each team member had ideas about the features, and developers added to what was possible to accomplish. Together they explored possible solutions. At the end, the PM mentioned the scope (project domain) but the BA informed him that the feature would still be discussed with the marketing team before agreeing to do it (market domain). Aside from the specific business requirements (operations, tech and project domains), the BA considered consistency between the Company 1 products (organisational and market domains).

While selecting software design is part of their software development practices, in this instance, the practitioners interrupted their praxis in order to consider how design options interact with other organisational practices. They were looking into what they would like to have as functionality, and how that functionality could be technically realised. The team explored design ideas about the specific functionality in the context of the project, organisation and targeted market. Ideas were offered, not fully developed, considered, modified and re-offered, until they reached an agreement on a tentative design that would still be reconsidered with the marketing team.

8.4.2.6 DE18 Infrastructure Meeting

Decision episode marked DE18 includes a meeting between the GT PM and the local infrastructure team that was meant to determine the date for providing infrastructure environments to the project (Quality Assurance (QA), User Acceptance Testing (UAT), and Production (PROD). In the meeting N-2-26, held on Feb 182011, the team discussed scheduling options for the environment and challenges facing their configuration and use. Although the meeting was scheduled in advance and the infrastructure team was asked to prepare background information, the discussion

progressed without reference to any documents that could facilitate knowledge sharing.

The GT project manager facilitated the discussion, looking for ways to set up the required environments and explored various issues surrounding the configuration. The participants uncovered issues through unstructured discussion, meandering between required technical steps, their impact/constrains to business processes, resource availability, task duration, task ordering, risks associated with various actions, organisational policies, other projects, and other concerns. By going through the chronology of steps required to set up a testing environment, the project manager learned of some constraints obstructing the set-up activities, and asked when this job could be scheduled in order to meet his 'hard-deadline' in order to release the UAT to the client. March 5th appeared to be one feasible alternative, which as soon as proposed, was disputed. The team then considered if other dates could work. Proposed were February 19th (the day after the meeting), February 25th, and March 11th,. Through the discussion, each alternative date was found inadequate, February 19th was too soon, February 25th was in the freeze period, being the last weekend of RRSP season (business critical and high volume of transactions), and March 11th was too late, not allowing for any contingency. At the end of the meeting, the project manager had drafted a list of some of the required tasks, and a few action items for the infrastructure team. The meeting concluded with a plan for March 5th, with the contingency for March 11th and with a weak commitment from the infrastructure team.

The following week, the GT PM and the development manager continued to discuss the options, and involved a director of architecture (DA). In the interview after another meeting, the GT PM explained what happened in the three business days between discussions. In an impromptu meeting with the director of development, and with the

opportune presence of another expert, they arrived at a better way of setting the environment which would not disrupt current operations, put business critical processes at risk or involve extensive work. The excerpt from the interview with the GT PM describing these events is included especially to illustrate the spontaneous character of this, at least in the description by the project manager:

> *"GT PM: There was another meeting between Friday and today. I was in the director's office yesterday and today talking to him about the issues we encountered on Friday, and he got involved and he actually put together a plan and gave some directions to M. M. was creating that plan that we were just discussing, so he will have it by tomorrow, so now we won't need all this. Suddenly, the Dev Manager came up with something else, and I did not know about it until this meeting.*
>
> *R: so this was that issue with the 24 hour window for setting up UAT?*
>
> *GT PM: that's exactly the issue*
>
> *R: what happened?*
>
> *GT PM: The Dev Manager and this guy...I really don't' know what he is doing. P....I know he is involved with architecture somehow, but don't know his title.*
>
> *R: they have come up with the way around having to split UAT?*
>
> *GT PM: yes, they are kind of piggy-backing on FDY infrastructure. We share lots of infrastructure with LV City. LV DBAs have to approve all the schema changes that happen here. So LV City is quite involved with everything we do and that is part of FDY which is our parent company we have two parent companies, so LV City is involved and they provided much more infrastructure before, not this much , we now have backup sites in UK. So all our servers are backed up by UK, if ours go down, then UK takes over, and it is business as usual.*
>
> *So I don't know how much is still left in LV City but however much it is left, it seems the Dev Manager is aware of it and he could use that part.*
>
> *R: so you're using a completely [physically] different infrastructure?*
>
> *GT PM: yes.*
>
> *R: that's how you're circumventing the problem about having to split a server.*
>
> *GT PM: It sounded very depressing last Friday. This is very good, it looks we are on*

> *track, there are still lots of risks about everything, but it looks like we're progressing, so I talked to the EU PM this morning, just to see how he feels . He feels less confident on his side, than I do on my side." [Meeting Code: N-2-29 Feb 23 2011].*

In the initial meeting, the infrastructure team had the practical knowledge of their praxis domain and its interaction with other domains. The project manager proposed different date options, to which the infrastructure team responded by explaining why each date would not work. They would offer a description of the current praxis ("how things are done"), or the constraints of the current praxis ("the problem is" or "it will not work because"). Despite persistent attempts by the project manager, the team remained entrenched in their praxis and had not conceived alternative ways of proceeding. However, the Director of Architecture and the Development Manager, along with the concerned Project Manager, were able to envision a horizon of possibilities embedded but not constrained by current praxis, and together construct a decision site. They were able to arrive at a solution that meets the project requirements, one that works with all praxis domains, and is novel relative to the existing infrastructure.

Although the GT PM methodically queried praxis domains, he could not create alternatives which were outside of his expertise, especially as he was not aware of availability of additional hardware. His queries centred on different dates and not on different hardware configurations. It was only once the practitioners with knowledge of the current and extended infrastructure considered the praxis domains in view of the issue raised, that they were able to co-create a suitable alternative. This decision episode exemplified how this type of organisational decision-making works in conjunction with practical knowledge of praxis domains and depends on active engagement of other expert participants, in other words, the practice of decision-

making is purposefully carried out.

8.4.2.7 Summary to Decision-Like Activities

The instances identified as decision-like activities shared the consideration of alternatives. Like the previous set of decision episodes, they followed dissimilar processes, had diverse purposes and led to different outcomes. Unlike the other group, all of these instances were initiated due to a reflection of participants expressed as an objection to a proposed design (DE6, DE8), awareness of alternative ways of proceeding (DE10, DE13) or active exploration of opportunities due to anticipated disruption (DE15, DE18). With the exception of DE13, and part of DE18, they also all shared active engagement with the situation and entwinement with the context. DE13 displayed the similar asymmetry in engagement with decision-making as noticed in other decisions with different hierarchical roles.

8.4.3 Episodes that are sprint planning sessions

The last group of decision episodes presents a special case of 'sprint planning' sessions. While these sessions were not called 'decision-making' meetings, practitioners would sometimes refer to what they were doing as 'selecting the scope', 'choosing stories', 'planning' or simply 'estimating'.

Ten meetings were set up with the specific purpose of 'sprint planning' and this section describes observations from projects CP and HP, in Company 1. These two projects opted to follow locally adapted agile method for software development. In this methodology, product requirements are described in user stories ("stories") and gathered in a list called 'backlog". The "product owner" assigns priority to the stories based on his assessment of business value and desirability of functionality for the

upcoming release. At the end of each sprint a planning session is scheduled and the team assesses the complexity of remaining stories. Here is how the architect explained it (excerpt from an interview):

> *"R: What does "managing the backlog" mean?*
> *Architect: It means we have a big list of things to do, and that list is prioritised and estimated according to the agile-points method. I manage the backlog in the sense that I make sure the things that are important are on the top of the list, and we have estimates for. And when we do sprint planning I am in charge of selecting what should be done in this sprint from infrastructure point of view, and negotiating with the product owner that he is comfortable with that, and with infrastructure. He pretty much does what we're suggesting, and with this one it is interesting because printing and downloading is very important functionality to him" [June 21 2010 HP, Interview, Meeting Code: N-1-000110]*

Rather than plan project work using the traditional work-breakdown-structure (WBS) to estimate work hours required to complete it (Kerzner, 2013), project scope is described in stories that represent complete units of functionality (e.g. login story, print preview story). Each story is evaluated in "complexity points" that signify perceived difficulty of writing code to realise described functionality. A complexity point is a team specific measure developed through use. Suggested sets of complexity points are Fibonacci sequence (1, 2, 3, 5, 8, 13, 21, 34, etc.), t-shirt sizing (XS, S, M, XL, XXL, XXXL), car types, dog breeds, etc. The team agree to and develop understanding of the scale through use.

The backlog is ordered by stories' priority and estimated complexity, and the ranked list is used to select scope for the next iteration based on the total number of complexity and the team's 'velocity'. Each team establishes their own "velocity" which is the rate of how many complexity points the team consistently deliver in each iteration.

Projects CP and HP conducted 10 planning meetings. The following extracts illustrate the types of activities that transpired in estimation meetings. The project manager and a developer who will be completing the 'story' exchange the following:

> *"CP PM: how many story points would you allocate to that one, based on what you allocated to the other ones?*
> *Developer P.: I would say three.*
> *CP P: three? OK" [Meeting Code: N-1-19 May 19 2010]*

The exchange seems unproblematic; both parties understand the process and seamlessly proceed. The following demonstrates the process of estimating story points with the full team [full version of this excerpt is included in Appendix C – 17.3 Project CP]:

> *"CP Project Manager (PM):Do you want to do the story about the custom script? I know it's a bit erratic now but do we know how many story points? We could discuss the story and allocate the points...this has got a high priority...*
> *Matthew (Developer): This is user friendly, I think there are two things,...there is a custom script that they need to incorporate as a part of running CLP driver, so for example ensuring that a version of CLP script gets run as part of the CLP drivers processes..And there is also question of stuff outside of CLP driver being able to run various things like schedules, or other scripts that in a way have nothing to do with returns but there is some conflict*
> */develops into a technical discussion /*
> *CP PM: Is there enough information to allocate story points at least? I don't want to carry the design conversation now…*
> */they prepare the numbers individually/*
> *CP PM: ready?*
> */they all show the estimated story points at the same time/*
> *Matthew: Five...I was a bit cautious.*
> *CP PM: I was worried about testing...sounds easy to code... but...*
> *Matthew: There is a bit of testing but not more than what we've done... If we do a*

stored procedure or whatever to release stuff...my personal view is that we could go down to three...

CP PM: And what about you? You said 8; can you justify 8 over 5?

Nickolas (Developer): I am not sure that SP …

Matthew: Is that stored procedure doing anything than what is not already doing?

Nickolas: They went to a release.

Matthew: But we've got that logic already, haven't we? We do the test whether something is available for processing we're looking across the whole…

CP PM: and that' is in one place as well. Cannot be that much…

Nickolas: but we don't look for request type two.

Matthew: Yes, we don't look for any request type, so we will have to check for a request type to find exactly what the type is, doesn't strike me as that difficult adding one more thing to a 'where' clause...we need to have that within our control process anyway...ahmmm…the stored procedure is then just extracting a bit about what we've already got, it looks to me like a known code.

CP PM: How do you feel about going from 8 to 5? What makes it an 8 for you?

David (Developer): I put an 8 on a safe side because of potential impact on performance...

Matthew: I agree we need some new regression tests, but will we have to change much of that? Because the request type from CLP stuff should not be visible

David: So we will have to develop other tests.

Michael (Developer): so we need a bnp to test the types to see how these would be put.

Jerry (Developer): always be cautious

CP PM: I am happy there are three 8s and two fives anyway...and I am sort of wondering if we should err on the side of caution...To recap… last time... let's compare to that ..Because we gave that 13(in the sprint planning)

David: Ii think...less comparable...but ...it is similar

CP PM: Only 3 story points?

Matthew: I still don't think it is higher.

CPM PM: We can review /later/...let's put the 8 for now. Nothing is set in stone. [CP Project, Meeting Code: N-1-42 June 2 2010 CP]

The process of considering a story and assigning complexity points was executed many

times during a single planning session. The team would not discuss their estimation prior to showing their numbers, and after the numbers were disclosed, they would discuss wide discrepancies. Each sprint planning session would estimate at least 10 and possibly more stories.

This very specific set of activities was characterised by prescribed procedure, rules of engagement, and required participants knowledge and engagement, and are described as a special kind of practice in the next section, together with two other practices of decision-making.

8.4.4 Remarks about the frequency of decision-making episodes

Finding only twenty eight decision episodes may appear a small number given the number of projects (9), and duration of observation (four months), especially in view of the expectations stated in literature and espoused by the practitioners. The opinions expressed by the executives resonate with the literature on project management, purporting anticipation of decision-making activities in project praxis (e.g. Engwall, 2003; Jamieson & Morris, 2004; Kwak & Anbari, 2009; Söderlund, 2011a; Williams & Samset, 2010; Williams, 2002). The data collection strategy section (6.3.2, page. 104) explained the choice to observe scheduled project meetings by invitation only, selected with specific aim to avoid sensitising participants to the research focus on decision-making practices and to capture unaltered occurrences of decision-making. This research strategy lead to attending many project meetings (130 meetings, 94 hours of audio recordings) which yielded only 28 decision-making episodes, of which 10 were routinely scheduled task estimation sessions. As the projects under observation did not keep a

'decision log' and, with the exception of formal sign-offs, did not otherwise report on decisions made as part of a particular project, I cannot report how many unobserved decisions may have been made on these projects overall.

However, practice perspective proposes that a lot organisational activity is carried out as unreflective practice (Tsoukas, 2010) and a large part of observed meetings were simply routine praxis. For example, out of 23 meetings recorded on CP project, 15 were short daily update meetings, two were long sessions demonstrating project progress, one was a management update meeting, and 5 were sprint planning sessions. Short daily update meetings, called 'scrum' in some agile methodologies, are time-boxed to 15 minutes, during which team members update each other on what they have been working on, what is stopping them from progressing, and what they will focus on next. One purpose of these meetings is to identify on-going issues and opportunities for collaboration. In contrast to non-scrum meetings, debates about issues are discouraged during scrum meetings (e.g. design discussions to which participants refer to as "solutionising"). Instead, issues identified in scrum meetings are intended to be worked on after the meeting is concluded. The CP team was very diligent in respecting the 15 minute time constraint for scrum meetings, which could partially explain why no other decision episodes were detected in those daily sessions. The following exemplifies the type of conversation that took place daily:

> *"Dev 1: I finished the 'submitting parallel acceptance criteria' and the 'query queue acceptance criteria', the 'log-in story' that Dev 3 had fixed; I tested that it all works, it looks good; I made a start on testing the 'kill-process story' which, so far, is looking fine. I need to actually look at some numbers on that but I got a bit distracted with the locking issue, that I sent the email about earlier this morning, which needs a little bit more investigation at some stage but I am just going to*

leave that for the time being.

CP Project Manager: ok.

Dev 1: So today, I finish the testing for that. I want to try to get the 'delete acceptance criteria' finished which I started last week, just to make sure I got all the questions answered for that. I may give you a call about that later just to make sure I understand everything. I think most of the questions got answered so I need to get on with that, and then there is the 'reporting failure acceptance criteria' I was going to work on as well. If I get all that done then it's testing.

CP PM: Good. Is that all of the acceptance criteria done then?

Dev 1: I think it is then, yes,

CP PM: good, that's good [May 11, CP SCRUM Meeting Code: N-1-07]

This is how CP scrum meeting proceeded daily, with each of the five team members in turn informing the rest of the team what they have been working on, what they have completed, and if there were any issues.

"Dev 2: so today I was working on the bug they found out…I've been attempting the software installation, it's connected to the db but I am not sure why…Dev 3 has asked around to find out what these messages are..so he's going to ask…and I have been looking at string analysis, there is a problem with deletes, it's five times slower, so I've been looking at logs [May 25 2010, CP SCRUM, Meeting Code: N-1-00025].

The scrum master (the CP project manager) also ensures the software tracking tool is kept up to date:

CP PM: Are you going to bring the tracking system up to date?

Dev 5: Yes. I have been looking at the delete function, in the meantime I have been setting handlers, we should be able to test it tomorrow...oh, I should mention, the screen update will add on the right hand margin, I will be adding check blocks, appended to each row, so you either check or you'll have in the heading check all, and then you press a delete button, and it would fire up a delete procedure for each row that has been checked [May 25 2010, CP SCRUM, Meeting Code: N-1-25]

This particular project was especially non-eventful. The team was very diligent at keeping scrum meetings as intended, respecting the set meeting procedure and the time limit. Additionally, the project had unambiguous requirements, the team demonstrated solid understanding of the technology in use and they collaborated well.

Similar types of activities transpired in other project meetings as well. HP project team conducted daily scrum meetings as well (24 out of 45 recorded meetings), while all other projects routinely held weekly status meetings. Correspondingly, the status update meetings were occasionally monotonous. Six meetings (five on HP and one on CP) focused on demonstrating project results achieved, called demo-, show-and-tell, or retrospective meetings. These meetings averaged about one or two hours each and were mostly focused on showing new product features.

As an example from projects following waterfall methodology, weekly update meeting on the 'Year End Project' in Company 2 was regularly concluded quickly, going through the standard agenda to confirm all is in order. That was repeated over three of the eight weeks of observation, until a requirement to implement changes for T3 processing was announced which resulted in a decision-making episode recorded in DE9.

Status updates, show-and-tell, demo meetings are routine activities on projects. It is where project members meet, communicate, coordinate and collaborate, and sometimes 'solutionise'. The aim of this research was to capture decision-making activities occurring in routine praxis and project meetings were one of the organisational events where this was possible. As the 10 sprint planning sessions and other 18 episodes demonstrate decision-making sometimes ensued in scheduled project meetings, as well as in unplanned hallway discussions or breakout gatherings, which were sometimes

opportunely captured, and, at other times, missed. However, project meetings are by no means the only organisational arena where project and project-related decision-making ensue (ref. Figure 10, page 104).

8.5 CONCLUSIONS TO CHAPTER 8

To understand how organisational decision-making practices relate to corporate objectives, the first goal of this empirical research was to establish if the observed sociomaterial context is set up to promote rational decision-making and to understand how research participants perceive their praxis in context.

The first two subsections of this chapter presented the findings on organisational sociomaterial context and participant's perception of their environment. The analyses of available corporate documentation and interviews with the executives confirmed that both organisations espouse traditional approaches to management and uphold the ideal of instrumental rationality. This was evident in their strategy formulation and communication, with both organisations relying on objective hierarchies to communicate strategic direction, common explicit use of those objectives to evaluate project and individual performances and an expectation that these objectives would make a difference in daily decisions. Furthermore, the executives have expressed confidence in the benefit of standard management tools (e.g. Gantt charts, enterprise wide programme management systems) although they acknowledged on-going challenges in the tool use. They also recognised a gap between shorter strategy planning cycles and presently applied project management methods, and articulated the need for managerial 'adaptability' in praxis. The participants' subjectivation to instrumental rationality was also reflected in participants' description of their

environment, use of the standard management concepts, and their responses to inquiries about strategy, decisions and goals. Both organisations on the whole exhibited rational orientation with reliance on management tools and manifest expectation of rational decision-making at all organisational levels.

To discover decision-making practices carried out in project praxis in such environments observed decision-making activities were bracketed into decision episodes during the transcription process. The episodes were selected either because practitioners called the events 'decisions' or because the practitioners considered multiple alternatives for action. Some of the analysed decision-making episodes were planned and others spontaneous, and some were part of the approved project methodology. With the exception of the sprint planning sessions, which followed the prescribed procedure, the other 18 episodes differed in how they constructed and managed the decision site. Specifically, decision episodes demonstrated different types of practitioners' engagement with each other, varying focus on the key issue of decision-making, and in how they considered the issue's entwinement with the sociomaterial context. It appears that not all instances that were called 'decisions' carried out decision-making activities. The outcomes of the identified cases also varied, sometimes resulting in changed perceptions even if no choice was available, as was the case with 'faux' decision-making in the consensus building event recorded as DE4, whilst other times, an issue would remain open with no apparent change over many meetings, as was the case in DE17.

Despite the sociomaterial context where rationality has been conventionalised, and where tools and techniques have been employed with the specific aim of institutionalising instrumental rationality, observed decision-making episodes did not reveal use of objectives, and especially not for the purpose of means-ends evaluation

promoted in project management and decision-making literature. Although one episode utilised a communication of an objective to assist in decision-making (DE6), none has evaluated means over ends as part of decision-making activities.

Five of 18 decision episodes displayed only one-sided engagement by the practitioners, the situation most common in cases of approval-seeking, as were: DE2, DE7, DE12, DE13 and DE17. However, not all approval-seeking situations resulted in the asymmetrical engagements, as demonstrated in decision episode DE11. The decision DE18 stands out from the other one-sided engagement cases because the participating team of infrastructure experts appear to remain disengaged from the issue on hand, in contrast to the project manager who keenly queried praxis domains in search of a solution. In this instance there was no difference in organisational rank between the participating project manager and the present infrastructure experts, yet the project manager alone searched and considered the alternatives. On the other hand, in DE3, the team was engaged with each other, conversing and exploring the product demo, without addressing the essential subject of the meeting. The asymmetry in participant's engagements, evident in their discourse, and the lack of focus on the decision issue, raises the question of whether these five instances represent organisational decision-making practice at all.

These cases illustrate that organisational decision-making is not always carried out when events are called 'decisions' (DE2, DE7, and DE12), are especially asked for (DE13) or are set out for the explicit purpose to 'make a decision' (DE3), highlighting that organisational decision-making is a purposive, discursive practice (Hendry, 2000) that participants choose to carry out (Cabantous & Gond, 2011).

Furthermore, the instances in which decision-making practices were carried out were investigated to detect shared characteristics. In addition to the sprint planning sessions, eleven other cases (DE1, DE4, DE5, DE6, DE8, DE9, DE10, DE11, DE14, DE15 and DE16) exemplified practitioners' discursive engagement with the issue on hand, with focus on the issue in particular organisational sociomaterial and spatiotemporal context. Although the eleven episodes were instantiated in a variety of ways, sometimes being part of the institutionalised decision-making (e.g. DE11) other times being prompted by a spontaneous insight of an engaged practitioner (e.g. DE16) (Langley et al., 1995), they all demonstrated team engagement with the issue, stayed focused on the issue at hand, and considered its entwinement with multiple praxis domains. In most episodes, the practitioners did not make a direct reference to objectives, using instead the praxis domains as sources of alternatives and of obstacles that enabled and constrained decision site construction, in a dynamic process of discovery.

The similarities between decision site construction in the observed episodes offers a glimpse into specific practices practitioners have developed to account for the complex organisational interconnectedness without the need to explicitly construct objective hierarchies. These are further analysed and discussed in the following chapter.

Chapter 9 DISCUSSION

"Rather than conceiving of rationality as some singular and limited *cognitive* and thus ultimately psychological phenomenon, I will suggest that it would be useful to think of it as an *interactionally* bounded phenomenon. Bounded methods of *local* rationality produce locally reasonable actions and even decision which are *also* (indeed, must be) accountable ways of solving some immediate problem so that the solution stands the test of organisational needs and goals" (Boden, 1994, p. 21).

This chapter starts by introducing two distinct decision-making practices developed from the empirical findings presented in Chapter 8, the practice of Querying Praxis Domains, and the practice of Neguesstimation. The chapter explains how the practice of Querying Praxis Domains enfolds corporate and project objectives in a decision site and how it achieves alignment without separation of means and ends in the process. This is followed by a discussion that considers conditions required to carry out these practices, contemplates how a spectrum of organisational decision-making practices could be differentiated, and reflects on the absence of rational decision-making praxis.

9.1 INTRODUCTION

This research examined how project practitioners' decision-making activities integrate the rationalising elements of organisational discourse (Hendry, 2000), specifically project and corporate objectives, into decision-making activities in project praxis. The focus on these concepts was a result of the value given to them in research on project management (e.g. Cicmil et al., 2006; Jamieson & Morris, 2004), in decision-making research aimed at improving organisational decision-making (Bell, Raiffa, & Tversky, 1988; Keeney, 1982, 1992) and in the attributed explanatory power of these concepts in "production of rationality" in organisations (Cabantous & Gond, 2011, p. 5).

The first two research questions specifically inquired about the sociomaterial context of the observed organisations and the practitioners' perception of the environment. The inquiry established that the sociomaterial context was of instrumental rational orientation manifested in an organisational project environment framed by project and corporate objectives and supported by project tools designed to encourage rational decision-making. This provided a naturally occurring setting where performative praxis of rational decision-making would be likely to emerge (Cabantous & Gond, 2011). The findings further confirmed that practitioners share the belief in the benefits of rational decision-making and confidence in tools designed to promote it.

Furthermore, the findings presented 28 decision episodes recorded in praxis. Consistent with the previous research on organisational decision-making introduced in Chapter 3 and 4, the observed instances served different organisational purposes, some allocating responsibility (e.g. release approval: DE7), legitimising action (e.g. DE3), others blocking action (e.g. circuit selection: DE17), and some generating alternatives without reaching a

choice (e.g. printing design: DE11) (Brunsson, 1990). Few episodes seemed to follow a sequential process, 'driven by diagnosis' (e.g. DE1, DE2, DE9), others appeared anarchical (e.g. DE14), and many exhibited 'iterative sequence' (e.g. DE5) (Langley et al., 1995, pp. 263–264). The episodes also displayed the characteristic of 'convergence', were focused around issues, making visible the 'construction of an issue', and were sometimes driven by practitioners' 'insights' (Langley et al., 1995, p. 266 and 269).

Detailed analysis of recorded episodes revealed patterns in how practitioners' engaged with the issue on hand. The 10 sprint-planning sessions were part of the adopted project methodology and were guided by clearly defined procedure, rules and materials. The other 18 episodes were initiated in response to various stimuli, and demonstrated multiple process types. Although, the observed decision-making episodes did not exhibit characteristics of rational decision-making, the majority of instances were contextually reasonable and some demonstrated a degree of similarity, a 'family resemblance' (Sandberg & Tsoukas, 2011) and these were investigated in more detail. Additional analysis of how practitioners constructed and managed decision sites, suggested that project actors have developed a specific practice to help them dynamically align activities at the project level to a changing organisational environment, without the prerequisite to explicitly cite corporate or project objectives. The practice, named here the "Practice of Querying Praxis Domains", achieves the coherence between the day-to-day project level activities and the totality of organisational praxis through issue-centric praxis domain query. This chapter defines the practice of Querying Praxis Domains by explaining the type of activities carried out, presenting specifics of the process, and explaining the practice's scheme. The description of the integrative practice observed in sprint planning sessions, the practice

named 'Neguesstimation' follows, with the prescribed way of constructing and modifying the decision site, and its specific schemes of perceiving, thinking and acting (Bourdieu, 1990).

As the observed sociomaterial context is characterised by rational orientation, participating practitioners are trained in, and espouse the ideal of instrumental rationality, and at least some participants had practices of rational decision-making available to them, it is surprising that rational decision-making practice has not been observed in project praxis. Following the description of two observed practices, three areas of organisational decision-making practices are discussed in more detail. The first sub-section considers the sociomaterial conditions constitutive of, and constituting the observed practices. The next section compares the practice of neguesstimation and the practice of querying praxis domains, underscoring the differences and similarities between them. This enables an elaboration of differences between the observed practices and the performative praxis of rational choice as described by Cabantous et al. (2010). The view of organisational decision-making as a spectrum of different practices introduced by Tsoukas (2010) in Chapter 4 is expanded upon with a suggestion of a differentiation method between organisational decision-making practices. The third section discusses a possible explanation for the absence of instances of rational decision-making.

9.2 Practice of Querying Praxis Domains

Regardless of how the episodes were initiated or labelled, in eleven out of 18 episodes, project participants were engaged with the issue, within its socio-material context, searching praxis domains for a way forward. The observed episodes exhibited a 'family

resemblance' (Sandberg & Tsoukas, 2011) in the manner in which decision sites were constructed and modified. The practice of querying praxis domains is carried out in a team discussion, focused on the raised issue, and with the underlying aim of moving the project forward. Through sharing their knowledge about the particular issue in the specific context, the project team together imagines what is involved in carrying out different tasks in their organisations (e.g. who, where, when, how, with what, etc.), as they develop their understanding of the particular situation. The practice aims to discover how issues and solutions interact with all organisational praxis domains in order to select the most organisationally appropriate action.

Most often, the practice first queries the current state of praxis and considers domain performances relative to the issue on hand; it iterates recursively through anticipated interaction between the identified issue(s), the course(s) of actions, and the praxis domains. Through querying praxis domains current praxis is revealed, issues are uncovered (e.g. "It will not work because…"), new ways of doing are suggested (e.g. "We could do this") or experts' concerns are raised ("Why are we doing it that way?"). The practice's aim is not only to understand an issue in context, but to discover a course of action that would move the project forward (Brunsson, 1990; Laroche, 1995; Tsoukas, 2010). During the process, the decision site expands and contracts, until it contains a suitable action plan.

This continuous and active engagement between practitioners with organisational praxis domains was evident in the process trace diagrams in frequent shifts in conversation focus. Tracing the discourse in the decision-making episodes with reference to the five praxis-domains revealed an intricate entwinement between the perception of praxis domains, issues and alternatives development, showing evidence of purposive activity to

achieve alignment between project activities and organisational praxis. The activity flowchart illustrated how practitioners' perception of the current environment, generation of issue-centric alternatives, and consideration of alternatives in the perceived environment, mutually shaped each other through the process of organisational decision-making. Taken together, the two diagrams presented project level organisational decision-making as contextually embedded, a situational activity that constructs a decision site through recursive interaction with organisational praxis. In other words, the observed activities were characterised not by a repeatable process but by specific "schemes of perception, thought and action" (Bourdieu, 1990, p. 54) that form the core of a practice.

9.2.1 PROCESS

The practice of querying praxis domains progresses recursively and iteratively, through frequent changes of focus between organisational praxis domains and levels of consideration, while remaining issue- and action-centric. The process appears unstructured, reactive, and creative, with varying lengths of time spent on different concerns (it could even be seen as 'chaotic'). However, the practice remains focused on issue(s)-on-hand and praxis domain interplay, while it recursively updates the perception of the decision site, and continues to iterate until an action viable in all praxis domains is confirmed.

This practice is not documented or verbally described, although the participants knew how to carry it out (Schatzki, 1996). Participants seamlessly respond to prompts to imagine courses of action spatiotemporally and sociomaterially when contemplating issue(s) interaction with praxis domains even if they could not describe the practice just carried out (Bourdieu, 1990).

The practice of querying praxis domains can be instantiated by a creative reflection while immersed in praxis (e.g.DE16) (Figure 32, curved arrow on the left #1, oval #1), be a result of praxis disruption (curved arrow on the left #2) of an exogenous kind (e.g. DE9) (oval #2) or be a part of formal decision-making (e.g. DE3) (oval #3).

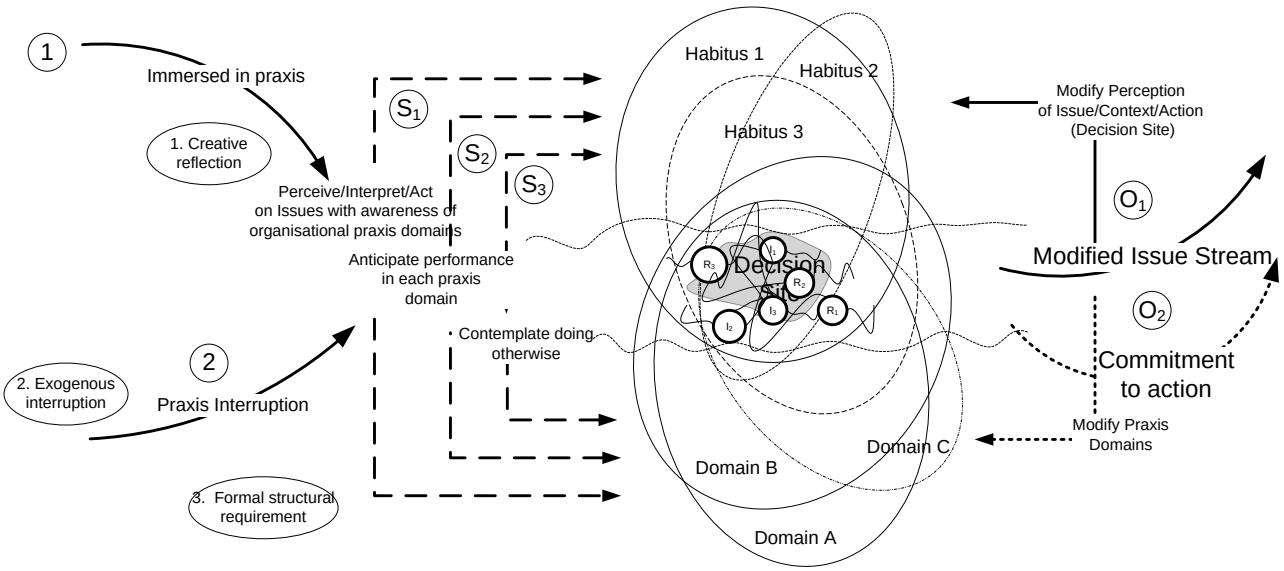


FIGURE 32 - PRACTICE OF QUERYING PRAXIS DOMAINS

The performed part of this practice, referred to as the performative aspect (Feldman & Pentland, 2003), can be portrayed in three recursive steps: (1) considering an issue in praxis domains, (2) anticipating praxis domains performances relative to the issue, and (3) modifying practitioners' perception of domains, and of the issue in the local sociomaterial context. These three recursive steps construct a decision site, enabled and constrained with the scheme of praxis domains, that remains issue-focused and action-orientated.

This practice always leads to a changed perception of a decision site and therefore to some transformation of issue streams (Figure 32, curved arrow on the right #O_1) with

cumulative trace changes to practitioners' organisational knowledge and skills (i.e. part of their habitus). Often, this practice leads to a progressive project action that sometimes modifies praxis domains (Figure 32, curved dashed arrow on the right #O_2).

Material aspects appear not to be constitutive of this practice. Observed episodes did not regularly use any objects, tools, or methods. Visuals, if used, were created ad-hoc, did not follow a particular protocol, and were not always recorded. No standard material inputs or outputs have been observed, as was the case, for example, in the practice of neguesstimation.

9.2.2 Scheme of Querying Praxis Domains Practice

"Schemes of perceiving, thinking and acting" form the basis of a range of possible practices available in a given situation, and in turn form the habitus (Bourdieu, 1990, p. 54). These schemes are collectively shared and social in nature and simultaneously constrain and enable (Giddens, 1986) a field of possible actions (Schatzki, 1996).

The practice of querying praxis domains perceives organisational context as dynamically interrelated praxis domains (Figure 32, bidirectional square arrow #S_1), anticipates courses of action in different praxis domains (Figure 32, bidirectional nested arrow #S_2), and considers actions and domains with the possibility of doing otherwise (#S_3). The three sub-schemes together define the scheme that constructs and modifies a decision site.

9.2.3 How Practice of Querying Praxis Domains Practice Manages Decision Site

In the observed project settings, experts from various organisational fields were brought together, each a carrier of a different set of practices, with espoused objectives

hierarchies which they do not need to discuss (Figure 32, habitus 1, 2, and 3). (For example, the decision episode DE6 (8.4.2.1)) At the project level, they interpret a situation invoking to some extent different organisational domain praxis schemes, resulting in diverse horizons of meaning (Figure 32, cross section of domains A, B and C). As practitioners negotiate their understanding of the decision situation through shared discovery of participating organisational practices and their interrelationships specific to the issue at hand, they construct a transient decision site that links actions at the project level with other practices in the organisation. These practices are linked within, local to global, and across, spatiotemporal and sociomaterial, the domains. Therefore, the practice incorporates portions of multiple domains' hierarchies at the project level without having to separate hierarchies of objectives from practices (Figure 32, shaded portion of the cross section).

In anticipating courses of action practitioners partially inhabit other praxis domains and envisage possible action combinations, creating a decision site where current issue(s), praxis domains and plausible actions meet. With each iteration, the decision site is updated, resulting in recognition of novel viable action, detection of obstacles, and reshaping of the site, which might lead to a new iteration. Querying across praxis domains brings domain specific practices closer to hand, and creates a combined horizon of meaning that includes only those alternatives that are feasible within all domains perceived by the participating practitioners. In combination, the praxis domains and practitioners' habitus supply potential courses of action and provide an arena in which actions are imagined.

9.2.4 PRAXIS DOMAINS AS PROXIES FOR HIERARCHIES OF OBJECTIVES

By reference to different praxis domains, practitioners imagine how multiple practices

interlace, and therefore, incorporate relevant practices' rules, procedures, and their teleoaffective structures in their consideration. Although objectives are not explicitly referred to, the practice of querying praxis domains embraces various project-local and organisational aspects and uses them to appraise alternative courses of action. By serving as points of reference in construction of the decision site, praxis domains implicitly convey organisational aims in the context of a decision episode.

This research suggests that instead of choosing alternatives as means to stated objectives, practitioners identify and select organisationally sensible actions through comprehensive praxis domain discovery. It is through this practice that objectives, as part of a teleoaffective structure associated with praxis domains, are brought closer to discursive consciousness (Giddens, 1986) and incorporated in decision site formation. In other words, praxis domains serve as a functional equivalent to constructing partial hierarchies of organisational objectives.

9.3 Practice of Neguesstimation

The practice of estimating complexity points is a specific organisational practice of decision-making with ostensive and performative aspects (Jarzabkowski et al., 2012; Feldman & Pentland, 2003; Pentland & Feldman, 2005). The ostensive part of practices makes it possible for practitioners to refer to the specific performance as a routine, while the performative aspect refers to actors' daily activities (Feldman & Pentland, 2003).

This is an integrative practice (Schatzki, 1996) of estimating work effort in complexity points, introduced as part of the agile software development method (c.f. Lee, 2010; Cusumano et al., 2009; Cockburn, 2006; Boehm & Turner, 2003) and is an essential part in planning scope for the next project period (called 'sprint'). As the practice involves

negotiation and quick, intuitive, estimation of the task complexity to the best guess ('guess-estimation') it was named "neguesstimation".

9.3.1 PROCESS

The practice of neguesstimation aims to arrive at a collective estimate of software-development-task difficulty in complexity points (described in 8.4.3, page 223). The practice follows a prescribed procedure: it starts with the backlog of stories from which (1) the team leader identifies a story to estimate (Figure 33); (2) each team member independently estimates the story in complexity points, selecting one of a set of predetermined values; (3) each developer records their estimate, and when prompted by the team leader (4) shows their choice of value, leading to (5) team negotiation to (6) arrive at a collectively accepted estimate.

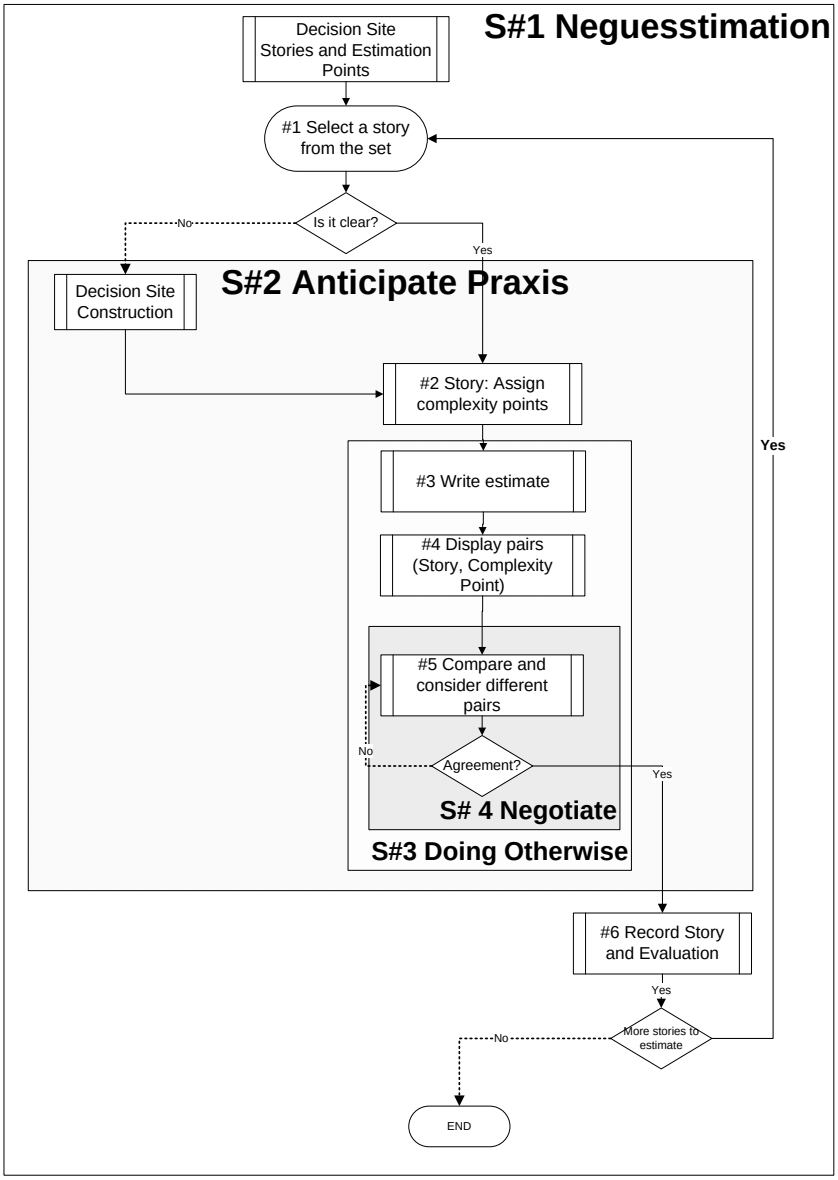


FIGURE 33 - NEGUESSTIMATION PROCESS

The four squares which form the background to the flowchart in Figure 33 (S#s) seek to convey how nested schemes imbue meaning throughout process steps.

9.3.2 SCHEME OF NEGUESSTIMATION PRACTICE

The scheme of neguesstimation practice consists of four intertwined sub-schemes: (1) the scheme of the locally adapted procedure for estimating complexity points (Figure 34 bidirectional square arrow #S_1) (2) the scheme of anticipation of (local) software

development practices required to realise the story as part of the specific product and team ($\#S_2$), (3) the scheme of consideration of alternative estimates ($\#S_3$), and (4) the scheme of team negotiation ($\#S_4$).

By encouraging quick assignment of complexity points, with minimal prior discussion, and using locally developed complexity points, this decision-making practice engages practitioners in the local software development practices, unhindered by project management concerns (schemes $\#S_1$ and $\#S_2$). Once individual estimates are revealed, the negotiation scheme encourages collaborative debate still enveloped by the software development practice, resulting in team reflection upon estimates and collective acceptance of one final ('for now') estimate. This practice is grounded in a single, software development praxis domain and not only not required to consider other praxis domains, but intended to stay immersed as much as possible with the praxis of code development while encouraging reflection upon it, drawing on the practical consciousness (Giddens, 1986) of participating experts.

9.3.3 How Neguesstimation Practice Manages Decision Site

The practice of neguesstimation is carried out at scheduled meetings at the end of each sprint. The 'entry point' to practice (Figure 34, curved arrow on the left #1) shows this is a planned, routine, occurrence in projects that follow this methodology. The practice of *neguesstimation* provides practitioners with a shared understanding and awareness of its rules and procedures, all of which enables and constrains their actions in estimating and compiling the list of stories for the next sprint. As observed, the practitioners did not question the validity of the story point evaluation procedure, the complexity ranking system, need for a particular requirement expressed in a story, or anything else in the process. They "simply act[ed]" (Tsoukas, 2010).

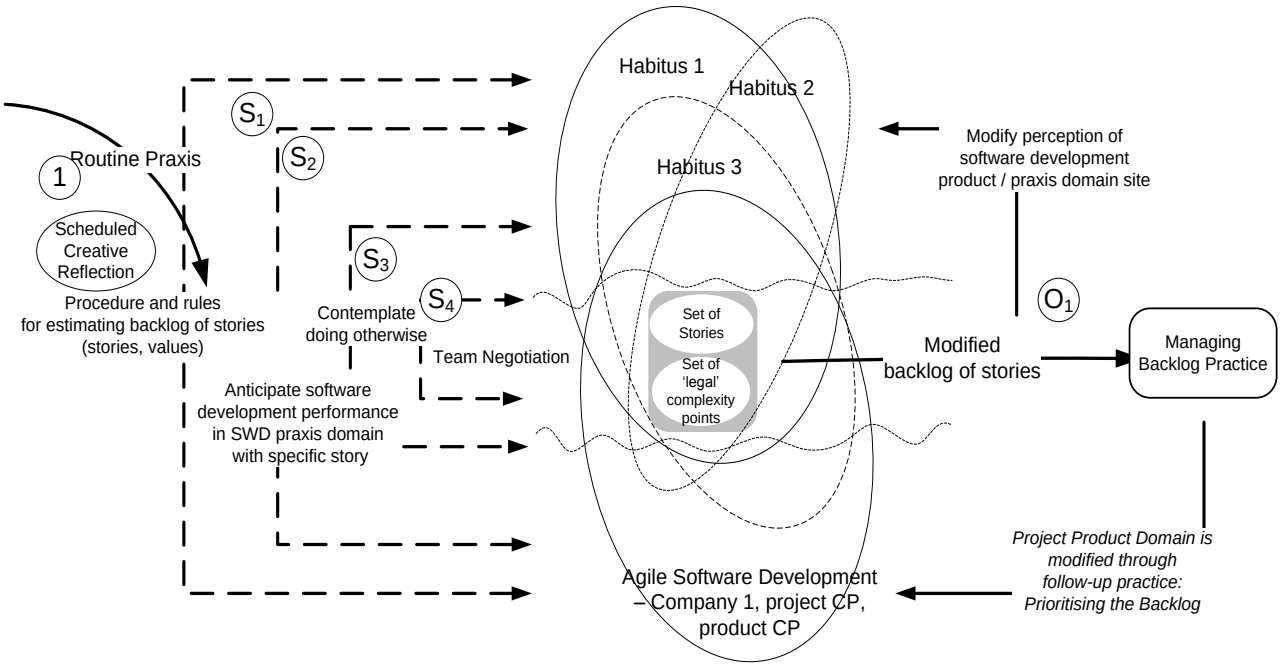


FIGURE 34 – NEGUESSTIMATION

The decision site is constrained by a set of stories, and a predefined scale of complexity points. Nested bidirectional arrows indicate the recursive enfolding of this practice through the close interaction between particular sociomaterial context (specific product, team defined complexity points, team dynamics, etc.), participating practitioners and the schemes, as the practice performs the prescribed procedure.

The input to practice of neguesstimation is a backlog of stories, and its outcome is a list of estimated stories used for a selection of the sprint scope and activity planning (Figure 34, arrow on the right, marked with O_1). This practice commonly uses tools for tracking the stories through their development life-cycle and sometimes uses other devices (e.g. smart phones, paper) to assign and display complexity points.

9.3.4 Complexity Points as Proxies for Task Work Effort

Product requirements in this software development approach are presented as "stories" and they are a functional equivalent to a traditional project work-breakdown-structure (task decomposition) whilst complexity points substitute for work effort measure, otherwise most often expressed in hours required to complete the task (work-effort). Unlike the process of creating the work-breakdown-structure (Kerzner, 2013; PMI, 2013), the neguesstimation practice's scheme enfolds practices of software development rather than the schemes of traditional project management as it engages with the developers' practical consciousness, deliberately framing the estimation process in complexity points. The locally developed rate of delivery, expressed as 'team velocity', is used to assist in setting the next sprint plan.

In addition to delivering the means for estimating sprint scope this practice also promotes team collaboration by collectively reflecting on and questioning all task estimates. This is in sharp contrast with the traditional way of estimating project work effort by individuals, or teams, responsible for their delivery, that does not include peer discussion of estimates, and instead relies only on the project manager to accept the estimates.

9.4 Decision-Making Practices and Sociomaterial Context

This section considers the relationships between the identified organisational decision-making practices and their sociomaterial context. To carry out any practice, the practice must be part of a practitioner's habitus while the sociomaterial context must provide

appropriate conditions for the practice to be carried out (Bourdieu, 1998). For example, to carry out the practice of neguesstimation, agile methodology must be accepted by relevant stakeholders (e.g. team, management, clients, etc.), sociomaterial requirements met (spaces to meet, ways to share the information, etc.) and the practice must be part of the practitioner's habitus.

The observed practice of querying praxis domains requires, and creates, an organisational environment where practitioners habitually share their knowledge and where the praxis status-quo could be questioned. By carrying out the practice of querying praxis domains, organisational actors expose the limitation of their knowledge relative to the matter on hand. Whilst the practice is enabled by, and promotes a collaborative environment, it can also be impeded by a lack of practitioners' domain knowledge (e.g. DE8) or lack of their engagement (e.g. DE18). Furthermore, practitioners are enabled and constrained by their organisational role that allocates organisational authority and responsibility to act in a certain way, which is also part of their habitus.

The findings (Chapter 8) illustrated that having an organisational responsibility for making a decision did not always necessitate decision-making activities. In the drawn out DE17 episode, a three member lead team (product owner, project manager and key engineer) although aware of the delayed circuit, did not attempt to address the issue in any way over the course of 9 meetings. Similarly, the developer's request for prioritisation of his tasks (DE13) did not prompt any observable decision-making activity on behalf of the project manager. In both instances, the result was project delay.

In most of the other episodes where practitioners did reflect on their praxis, it seemed

that not all reflection was of the same type. When developers engaged in explaining their practices, as in DE6 or in DE8, or when they were contemplating design options in DE15 they appeared absorbed by the subject matter. In contrast, in DE18 the project manager queried praxis domain one-sidedly while the participating infrastructure team perfunctorily answered questions. This detachment of the infrastructure team constrained the decision site creation limiting it to date-alternatives. The horizon of possibilities was only modified with the new hardware configurations when other infrastructure experts engaged with the issue.

Six of the episodes labelled 'decisions' by practitioners, did not carry out any observable decision-making practice. They were the above mentioned DE3, DE13 and DE17, and routine team information sharing episodes DE2, DE4, and DE12. These findings highlight that organisational decision-making is a social practice that is carried out purposefully by engaged, reflexive practitioners, at the discursive level, with available decision-making practices appropriate to the sociomaterial context they are in.

The differences in how and when the practices are carried out, underscores the mutually constitutive relationship between sociomaterial context, practitioners and praxis (Bourdieu, 1998; Giddens, 1986; Sandberg & Tsoukas, 2011). The availability of a decision-making practice alone, or the organisational role, or the sociomaterial context, were not independently sufficient to successfully create and manage a decision site. As the findings demonstrated, having a sociomaterial context designed to promote rational decision-making (Shenhav, 2002), and practitioners subjectivised to management and engineering professional fields (Reckwitz, 2002b), was not enough for instances of rational decision-making practices to emerge in the observed project praxis (Cabantous & Gond, 2011). This implies that if organisational decision-making practices are to be

developed and implemented, the context, the practitioners and an appropriate decision-making practice must co-evolve. The practice of neguesstimation illustrates how such a practice could evolve and become part of the industry standard.

This empirical study revealed that experienced project managers have developed a locally appropriate practice that lead to organisationally sound actions. For the practice of querying praxis domains to be made transferable three aspects would have to be addressed. First, the practice would need be described so that practitioners can do the practice, recognise it and know how to respond to it (Schatzki, 1996) giving it an ostensive, in addition to the current performative aspect (Feldman & Pentland, 2003; Jarzabkowski et al., 2012). Second, to further enable practitioners to engage with the practice and tailor it to their situation, a way of customising it to the local context could be devised, similar to the guided customisation and display of complexity points in neguesstimation practice, giving the practice a material aspect (Orlikowski & Scott, 2008; Reckwitz, 2002a). For example, a dial of praxis domains that corresponds to the specifics of a particular organisation, programme, and project could be developed. Third, a set of methods developed based on observed management practices could legitimatise the practice, provide a common vocabulary and enable a continuous bidirectional social construction of management practices between scholars and practitioners (Nicolini, 2013; Sandberg & Tsoukas, 2011; Tengblad, 2012).

9.5 The Spectrum Of Organisational Decision-Making Practices

This section considers the differences observed in decision-making praxis relative to the practice of rational choice as described by Cabanotous and Gond (2010). The two observed practices of organisational decision-making, neguesstimation and querying praxis domains, differ in their content (estimation points vs. various organisational issues), in processes they follow (predefined procedure vs. free-form discovery), how they are initiated (scheduled vs. any type of reflection), their outcomes and their way of constructing a decision site. However, they also share some characteristics, and their similarities and differences are discussed below.

The practice of neguesstimation is a locally adapted industry practice, with specific and documented guidelines for implementation which practitioners follow and remains grounded in the local software development domain, with focus on a specific project product, and applied technology. On the other hand, the observed practice of querying praxis domains is not documented or recognised by the practitioners as a specific practice, and appeared inaccessible to discursive consciousness (Giddens, 1986). However, these two practices also have some common aspects. They share two of their sub-schemes: one is the scheme of 'praxis anticipation', and the other, the scheme of 'doing otherwise'. The scheme of praxis anticipation engages participants' practical consciousness and contributes to decision-making praxis the deep practical and holistic knowledge of the participants. While the scheme of 'doing otherwise' promotes reflection on current praxis.

Performative practice of rational decision-making (Cabantous et al., 2008; Cabantous & Gond, 2011) starts with awareness of 'doing otherwise', and relies on the logic of causality and calculability (Cabantous et al., 2010). As all three practices of decision-making share the sub-scheme of reflecting on praxis with the possibility of doing it differently, this scheme may be what connects the practices of rational decision-making with the two observed practices.

The practice perspective on organisational decision-making allows us to imagine a spectrum of different organisational decision-making practices (Tsoukas, 2010) with different degrees of integration with specific organisational praxis. The findings of this thesis offer empirical evidence in support of this perspective as the two observed practices have a different degree of integration with local practices. The neguesstimation decision-making practice is deeply embedded in the local software development praxis and is recursively tailored to the local sociomaterial site. Anticipating story code-development in a particular product, team and organisational context, engages developers' creative engineering habitus making practical consciousness somewhat accessible at the discursive level with the help of a locally defined complexity scale. Furthermore, to carry out neguesstimation practice, the ability to perform local software development practices is required.

The practice of querying praxis domains is also enfolded in the local sociomaterial context albeit in a different way. The scheme of this practice perceives organisational sociomaterial context as multiple interrelated and dynamically changing praxis domains and contemplates problems and solutions in relation to them first, before considering doing otherwise. Similar to the practice of neguesstimation, the practice of querying praxis domains engages the practical consciousness of participating practitioners

through anticipation of performances of praxis domains but does not necessitate the ability to carry out the practices of each domain. Nevertheless compared to the practice of neguesstimation, the practice of querying praxis domains is less integrated with the practices being reflected upon. Although, both practices lead to organisationally sensible actions, neither separates means-and-ends, opting instead to reflect on current praxis by harnessing practitioners' practical consciousness. On the other hand, the practice of rational choice, characterised with the scheme of means-and-ends (Cabantous et al., 2008; Cabantous & Gond, 2011), would be at a greater distance from the underlying praxis. Practices of decision-making that rely on the scheme of means-and-ends do not assume the knowledge of the local praxis and are often detached from the issues' sociomaterial context (Tsoukiàs, 2008).

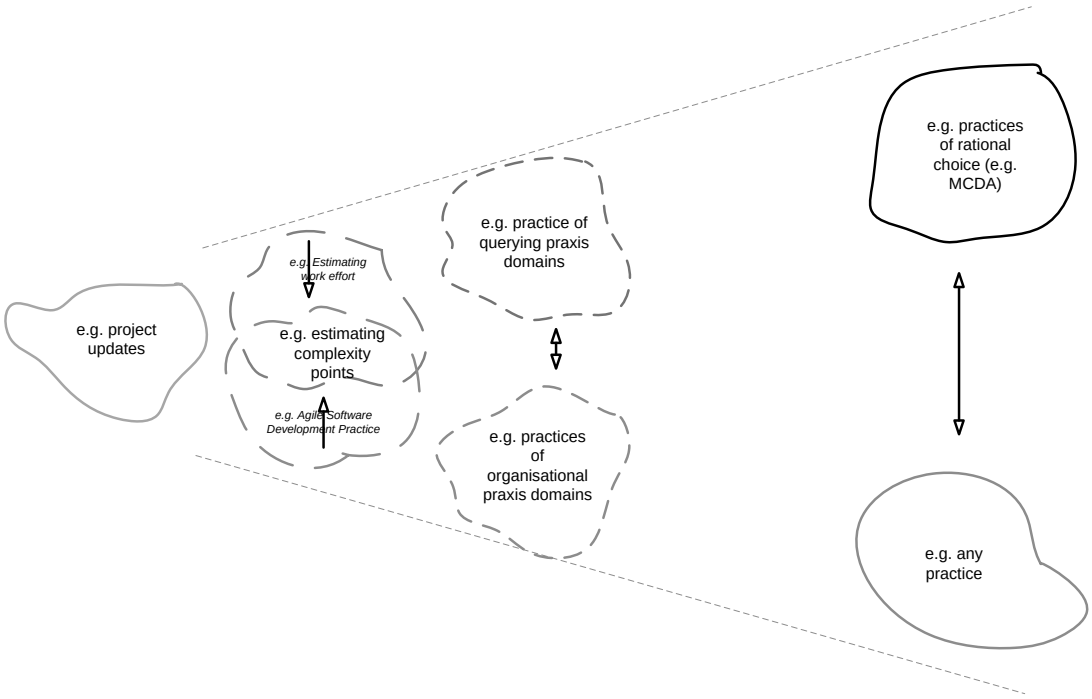


FIGURE 35 - SPECTRUM OF ORGANISATIONAL DECISION-MAKING PRACTICES

Figure 35 illustrates how practices of decision-making could be differentiated relative to their integration with the local praxis. Specifically, this diagram shows how some organisational decision-making practices require practical organisational knowledge to be carried out (e.g. neguesstimation tightly coupled with software development), and aims to contribute to an understanding of the deliberative coping of practitioners when immersed in their praxis Tsoukas (2010). This type of consideration might be helpful when deciding which decision-making practices would be the most appropriate to be developed for different organisational roles and procedures.

9.6 The Absence of Rational Decision-Making Practices

In both observed organisations, instrumental rationally has become a convention, espoused in practitioners' beliefs, engineered in organisational structures and purchase of tools, and commodified through employment of specialised professionals (Cabantous & Gond, 2011). The observed project environments have been set up with the explicit aim to "clarify the means-ends relationship"' to reduce ambiguity and increase control through application of "abstract management concepts" (Thomas, 2006, p. 103). As at least some participants had practices of rational decision-making available to them, it is surprising that rational decision-making praxis has not been observed.

The practice theories point to different engagement of practitioners in praxis (Tsoukas, 2010) where action is performed routinely and where intentions, desires and emotions are a routinized part of practices (Reckwitz, 2002b). Practitioners immersed in their practice, perform actions that are purposive and reasonable, while not always being a "product of a reasoned design, still less of rational calculation" (Bourdieu, 1990, pp. 50–51). This research focused specifically on practitioners immersed in their organisational

praxis to understand how they respond to decision-like situations and to explore if the provided organisational tools are helpful in framing decisions. The findings illustrate how situational perception co-evolved with consideration of praxis domain actions, and how practitioners recognised which means are available to which ends in a recursive construction of a decision site where "goal-setting does not take place by an act of the intellect prior to the actual action, but is instead the result of a reflection on aspirations and tendencies that are pre-reflective and have *already always* been operative" (Joas, 1996, p. 158).

In contrast to the practices observed in praxis, performative practice of rational decision-making (Cabantous et al., 2008; Cabantous & Gond, 2011) interprets practitioners' perception of issues in sociomaterial context in terms of logic of causality (Cabantous et al., 2010) and is thus further removed from the local praxis, and practitioners' practical consciousness. Its absence in the observed projects confirms the notion that project management may be an 'attempt to normalise the non-normal in organisations" (Thomas, 2006, p. 104). Practice perspective informs that practitioners, although experts in their fields, may be unable to articulate their practices' objectives required for the means-ends type of decision-making (Chia & MacKay, 2007; Dreyfus & Dreyfus, 2005), and attempting to do so may lead to specifying objectives that are an inaccurate interpretation of practices' real intentions (Wickens, 1968) and potentially limit participants' "intuition and creativity" (Tsoukiàs, 2008, p. 139). Consequently, interlacing practices, rather than objectives, may create a more comprehensive decision site.

9.7 CONCLUSION TO CHAPTER 9

This chapter concludes the discussion of the findings of this research project. The answers to the first two research questions, presented in Chapter 8 established a strong rational orientation in the observed sociomaterial context and in the practitioners' perception of their organisational environment.

To fully answer the third research question which inquired specifically into how project practitioners construct and modify decision sites and if they use corporate objectives, this chapter described the two observed practices of decision-making, a single-domain focused practice of 'neguesstimation', and the practice of 'querying praxis domains', and explained how they construct decision sites through different processes and schemes. The relationship between articulated organisational objectives and project decision-making practice appears to be enfolded within the practice of querying praxis domains, in the ways in which the practice uses the praxis domains to construct and manage a decision site. By discovering how practices interact across domains, sourcing alternatives and obstacles in domains, with respect to the sociomaterial and spatiotemporal aspects, the practice of querying praxis domains arrives at organisationally sensible actions without direct reference to corporate and project objectives. This thesis argues that praxis domains serve as proxies for hierarchies of organisational objectives.

The chapter highlighted the sociomaterial conditions that could help or hinder specific decision-making practices. For neguesstimation, it is the organisational acceptance of a particular methodology while for the practice of querying praxis domains the conditions extend to the presence of a collaborative environment, organisational role and levels of

engagement. Variations in observed decision episodes underscored that organisational decision-making is a purposeful activity, a social practice, constituted by multiple practitioners simultaneously and creatively carrying out available decision-making practices appropriate to the present sociomaterial context. The empirical result suggests that to transfer a practice three constitutive aspects must be addressed. The first is to describe the practice and give it vocabulary (Schatzki, 1996), the second is to design its ostensive aspect (Feldman & Pentland, 2003; Jarzabkowski et al., 2012), and the third is to legitimise it through active engagement between scholars and practitioners (Nicolini, 2013; Sandberg & Tsoukas, 2011; Tengblad, 2012).

Although dissimilar on many levels, the two observed practices share the sub-scheme of 'anticipation of practice performances', which engages with practical consciousness (Giddens, 1986), and the sub-scheme of 'doing otherwise' which supports situated reflection on current praxis (Luhmann, 2005). A spectrum of organisational decision-making practices (Tsoukas, 2010) was discussed with reference to potential differentiation relative to practice integration which could be utilised in selecting decision-making practices for different organisational roles and procedures.

The absence of rational decision-making was explored in view of the two observed practices of decision-making and their engagement with practitioners' practical consciousness. Although project objectives provide guidance and a 'rationalising element' (Hendry, 2000) to project practitioners, they cannot encompass the breadth and depth of meaning that organisational praxis domains embody. If engaging practitioners' practical consciousness results in a comprehensively constructed decision site, there may be a potential to design project decision-making support tools that harness it.

Chapter 10 CONTRIBUTIONS AND CONCLUSION

"In contrast to logic, a mode of thought that works by making explicit the work of thought, practice excludes all formal concerns. Reflexive attention to action itself, when it occurs (almost invariably only when the automatisms have broken down), remain subordinate to the pursuit of the result and to the search (not necessarily perceived in this way) for maximum effectiveness of the effort expended. So it has nothing in common with the aim of explaining how the result has been achieved, still less of seeking to understand (for understanding's sake) the logic of practice, which flouts logical logic. Scientific analysis thus encounters and has to surmount a practical antinomy when it breaks with every form of operationalism that tacitly accepts but cannot objectify the most fundamental presuppositions of practical logic, and when it seeks to understand, in and for itself, and not to improve it or reform it, the logic of practice which understand only in order to act " (Bourdieu, 1990, p. 91)

The last chapter highlights the research contribution to the development of understanding of "The Logic of Practice" (Bourdieu, 1990), contribution to the emerging stream of research that perceives organisational decision-making as a social practice (Becker, 2013; Bolander & Sandberg, 2013; Cabantous & Gond, 2011), and a contribution to understanding how praxis domains serve as a functional equivalent to partial organisational objective hierarchies in project praxis. The implications for project management practice and suggestions for future research are discussed, followed by the final remarks that conclude this thesis.

This empirical study aimed to understand how hierarchies of objectives that are commonly used in modern organisations to communicate corporate strategy relate to decision-making practices at the project level. The interest in decision-making in project praxis, and specifically the focus on the relationship between decision-making activities and articulated corporate objectives, was motivated by challenges encountered in project management praxis (cf. Söderlund, 2004a, 2004b; Carayannis et al., 2005; Thomas, 2006; Smyth & Morris, 2007; Söderlund, 2011b; Morris, 2011), and specifically by concerns about project alignment with strategy (Loch & Kavadias, 2011; Milosevic & Srivannaboon, 2006; Morris & Jamieson, 2004a; Jamieson & Morris, 2004; Pellegrinelli & Bowman, 1994; Slevin & Pinto, 1987).

For many modern organisations projects have become a vehicle for strategy implementation (Partington et al., 2005; PMI, 2013; Smith-Daniels & Smith-Daniels, 2008; Smyth, 2009; Winter et al., 2006). Traditionally, the alignment between strategy and projects was meant to be achieved with the use of hierarchies of strategic objectives and their association with specific projects (Armstrong, 1982; Artto & Dietrich, 2004; Morris & Jamieson, 2004b; Morris, 2011) and project success is frequently ascribed to clarity and stability of project objectives (Jamieson & Morris, 2004; Chapman & Ward, 2003; Kerzner, 2013; PMI, 2013). However, it is not clear what influence project objectives have on action at the project level.

The traditional perspective on project management originated in engineering foundations, and defines projects as unique endeavours where quantifiable objectives have the central role (Chapman & Ward, 2003; Kerzner, 2013; PMI, 2013). As project organising pervaded contemporary organisations, new research perspectives have explored other aspects of project management, and defined projects as an

organisationally embedded activity with sometimes ambiguous and evolving objectives (Bresnen, 2006; Cicmil & Hodgson, 2006; Cooke-Davies et al., 2007; Engwall, 2003). Differences in how the concept of a project is defined influence the perspective on decision-making in projects. While the functionalist perspective assumes that project managers are implementers only, required to make project level decision framed by project objectives (PMI, 2013), the contemporary research on project management perceives project participants as organisational strategic actors required to make organisationally sound decisions whilst managing projects (Atkinson et al., 2006; Bresnen, 2006). That means that project managers are expected to balance multiple stakeholders' interests, to be aware of business strategy, and to be able to manage, potentially, conflicting objectives (Hebert, 2002; Morris & Jamieson, 2004b; A. J. Shenhar et al., 2001; A. J. Shenhar, Milosevic, Dvir, & Thamhain, 2007; A. J. Shenhar, 2008; Thiry & Deguire, 2007; Thiry, 2007). To assist in managing hierarchies of objectives, multi-objective frameworks have been proposed to aid in project evaluation (e.g. (Barclay & Osei-Bryson, 2009; Fincham, 2002; Maylor et al., 2008; Milosevic & Srivannaboon, 2006; A. J. Shenhar et al., 2001) suggesting the potential use of multiple objectives in project level decision-making. Surprisingly for such a strategic organisational activity, project level decision-making has not received much attention in research (Bourgault et al., 2008; Powell & Buede, 2008; Williams & Samset, 2010).

Seeing projects as an organisationally embedded activity, casts project level decision-making as a special case of organisational decision-making. The extensive research on organisational decision-making focuses mostly on social processes of decision-making constrained by organisational norms and goals (Gore et al., 2006) and offers a multitude of perspectives of decision-making phenomena in organisations. Despite differing views

on the concept of decision-making, it is widely accepted that decisions remain an important part of organisational life (Laroche, 1995) and influence what practitioners do (Brunsson, 1990; Chia, 1994).

Recently, scholars have attempted to conceptualise organisational decision-making as an activity carried out by reflexive practitioners, that somehow manages streams of issues out of which decisions and action sometimes emerge (Langley et al., 1995). Tsoukas (2010) developed a more precise definition of the concept of the issues stream as a concern shaped by a triad of practitioners, practices and sociomaterial context, and underscored the difference in the mode of engagement that lead to the employment of different types of rationality. However, neither Langley et al. (1995) nor Tsoukas (2010) explain how issue streams are formed and transformed by organisational actors immersed in their praxis.

The abundant research in the field of organisational decision-making highlighted many ways in which organisational decision-making differs from rational decision-making that is idealised in classic management theories (Hatch & Cunliffe, 2012; Shenhav, 2002). However, the ideal of instrumental rationality remains deeply ingrained in most of the research on organizational decision-making (Cabantous et al., 2008) and in management education (Czarniawska, 2003). Cabantous and Gond (2011) argue that rational decision-making is a collective and "purposeful effort", or in other words, a performative practice which "contributes to bringing rational choice theory into being" (Cabantous & Gond, 2011, p. 5). In addition to the theory of rational choice, the rational decision-making practice is supported by tools and expert professionals that in combination "enable actors to make rational decisions" (Cabantous & Gond, 2011, p. 6). The authors suggest that the production of rational decisions is continued through

conventionalising, engineering and commodifying rationality (Cabantous & Gond, 2011).

While the research on project management has expanded to include a wide variety of perspectives on organisational projects, the practice of managing projects in organisations appears to have remained firmly entrenched in the functionalist paradigm (Carayannis et al., 2005; Morris, 2011; Smyth & Morris, 2007; Söderlund, 2004a, 2004b, 2011b). In practice, the function of project management is often perceived as an effort to "increase predictability, calculability, control and efficiency" with a focus on tools and techniques in an attempt to 'institutionalise instrumental rationality' (Thomas, 2006, p. 103) and with the aim to aid project practitioners in overcoming the limitations of their 'bounded rationality' (Simon, 1948). This sociomaterial context leads to the expectation of intermittent occurrences of rational decision-making in project praxis with potential utilisation of corporate and project objectives.

As the research project of this thesis focused on project level activities carried out by organisational participants immersed in their project praxis, the research was conducted from a practice based perspective (Flyvbjerg, 2001; Whittington, 2006b; Jarzabkowski & Whittington, 2008; Sandberg & Tsoukas, 2011; Tengblad, 2012; Thomas, 2006; Sydow, 2006; Nicolini, 2013; Feldman & Orlikowski, 2011). The key concepts of theories of practice, practice, praxis and practitioners, have been used to describe how practitioners immersed in praxis in a particular sociomaterial context, recursively construct a decision site, through interaction between their habitus (Bourdieu, 1977) and the specific context. In the present thesis, organisational decision-making is understood as any type of practice that manages streams of issues by creating a decision site. A decision site is an area of actions available to the practitioners that includes a portion of the web of problems and resolutions perceived by participating practitioners (Cohen et al., 1972;

Langley et al., 1995). Therefore, the inquiry into decision-making in project praxis is formulated as an exploration of the formation and transformation of decision sites.

The first and second research questions inquired about the specifics of the observed sociomaterial context and practitioners' perception of their praxis, to determine if the mechanisms of rationality production are present (Cabantous & Gond, 2011). The third research question focused on understanding how decision sites are constructed and managed in project praxis.

To observe project decision-making praxis in unobstructed flow of organisational praxis "*in-vivo*" and "*in toto", in actu, and in situ* (Langley et al., 1995, p. 261) the empirical part of this research was designed as an embedded multiple-case study research design (Yin, 2009) and employed a combination of data collection methods (Nicolini, 2013; Robson, 2002; Saunders et al., 2009). Data was gathered through semi-structured interviews, document reviews and audio recording of project meetings, where decision-making with conflicting objectives was expected to be a common occurrence (Barclay & Osei-Bryson, 2008, 2009; Morris & Jamieson, 2004a; O'Leary & Williams, 2013). Decision episodes were identified during the transcription process in the data analysis phase. Instances referred to as "decisions" and those where multiple courses of action were considered were marked for further analysis. The identified decision episodes have been described using different representations, and compared in multiple ways.

The empirical findings confirmed that observed sociomaterial contexts exhibit the mechanisms of rationality production. The two companies participating in this research were well established in their fields, employed standard management tools and techniques, and engaged engineering and management professionals. The interviews

validated practitioners' confidence in the management ideal of instrumental rationality and common use of the concepts of project and strategic management. It was expected that in such an environment, the spontaneous practice of rational decision-making would be encountered.

The empirical results reveal organisational 'native' practitioners to be reflexive and engaged actors capable of managing issue streams by carrying out decision-making practices that sometimes transform organisational issues (Langley et al., 1995). The surprising result of the data analysis was that no instances of rational decision-making were encountered. However, two other practices of decision-making have been discovered and described, the practice of querying praxis domains, and the practice of neguesstimation.

The empirical research presented in this thesis offers three contributions. Firstly, the results contribute to understanding the "logic of practice" (Bourdieu, 1990) in organisational projects. Secondly, the thesis contributes two decision-making practices to the emerging stream of research that perceives organisational decision-making as a social practice (Becker, 2013; Bolander & Sandberg, 2013; Cabantous & Gond, 2011), Thirdly, the findings explain how praxis domains serve as a functional equivalent to partial organisational objective hierarchies in project praxis. These are elaborated in the following sections.

10.1 "THE LOGIC OF PRACTICE"

The empirical evidence confirms that the practice of rational choice is the exception, rather than the norm of human behaviour, even in situations where sociomaterial context is designed to promote instrumental rationality (cf. Tsoukas, 2010). Despite

practitioners' subjectivation (Reckwitz, 2002b) and organisational structures and procedures aimed at promoting rational choice, rational decision-making practice has not emerged as a default practice in organisational project decision-making (Becker, 2013). However, the absence of the means-ends scheme should not lead to the conclusion that practitioners' behaviour is 'pathological' (Cohen et al., 1972, p. 16). The findings of this research assert that sensible organisational actions are a result of practical rationality (Sandberg and Tsoukas 2011).

Decision-making has often been perceived as a cognitive process of "cerebral rationality" (Langley et al., 1995, p. 262). The practice perspective affords a view of organisational decision-making where alternatives and objectives, and actions and thoughts, are embodied in practices and are not separate entities (cf. Bourdieu, 1990; Cetina, Schatzki, & Von Savigny, 2000; Nicolini, 2013). This thesis elaborates the practice-based perspective on organisational decision-making that works with other organisational practices, and is inclusive of practical wisdom in combination with other types of rationality (Sandberg & Tsoukas, 2011).

Contrary to the instrumental rationality of rational decision-making practices (Cabantous & Gond, 2011), which focus on precise dissection and analysis, the practice of querying praxis domains and the practice of neguesstimation embrace organisational reality in a holistic way, and construct a decision site imbued with deep practical knowledge. The detailed descriptions of the two specific decision-making practices elucidate how project teams manage issue-streams in praxis and contributes to the current understanding of how the "logic of practice" (Bourdieu, 1990) could be harnessed in organisational decision-making practices.

10.2 PRACTICES OF ORGANISATIONAL DECISION-MAKING

This research presented the description of two specific organisational practices that transform issue streams into organisationally sensible actions, and described them by their specific schemes and ways of managing decision sites. The practice of organisational decision-making, called "the practice of querying praxis domains" is characterised by comprehensive contextual issue-centric and action–oriented deliberation across organisational praxis domains and appears to be preferred over the tools and procedures aimed at 'manufacturing instrumental rationality' (Cabantous & Gond, 2011) (e.g. project methodologies, objective hierarchies, etc.). The other defined practice of organisational decision-making is the integrative (Schatzki, 1996) and locally adapted practice of estimating complexity of software development tasks, labelled "neguesstimation". Both practices create and transform decision sites by engaging participants practical consciousness (Giddens, 1986).

A concept of 'decision site' has been developed and used to describe decision-making practices. A decision site was defined as a multi-dimensional area constituted by decision-making practices in current sociomaterial context, and extends the concept of issues streams introduced by Langley, Mintzberg, Pitcher, Posada and Saint-Macary, published in 1995. Expanding the idea of issues streams, this thesis contributes to understanding how practices of organisational decision-making construct and manage decision sites in different ways.

The findings show that practices of organisational decision-making are not only the discursive part of strategy practices, or rationalising elements, as Hendry (2000) described them, but organisational practices in their own right. The observed practices

of organisational decision-making have identifiable schemes of perceiving, thinking and doing (Bourdieu, 1990), sociomaterial aspects and teleoaffective structures (Schatzki, 2000, p. 124). The practices are carried out purposefully by engaged and reflexive organisational actors and are appropriate to the sociomaterial context they are embedded in.

In providing a detailed description of specific decision-making practices, grounded in empirical data, this thesis provides empirical evidence in support of a spectrum of organisational decision-making practices (Tsoukas, 2010). Furthermore, the research offers a novel way of analysing decision-making practices with reference to decision sites and sub-schemes, with the potential for cross-practice comparison. These results contribute to the emerging field of research on practices of organisational decision-making (Becker, 2013; Bolander & Sandberg, 2013; Cabantous & Gond, 2011; Tsoukas, 2010) .

10.3 Praxis Domains as Proxies for Objectives

This research specifically inquired about the function of objectives in project decision-making. This familiar concept that dominates discourse in project management, strategy implementation, and decision-making, although acknowledged by participants, did not appear to have an explicit role in their praxis.

The findings illustrate how 'practical rationality' (Sandberg and Tsoukas 2011) engages practitioners perception of praxis domains to manage organisational issue streams (Langley et al. 1995) in project praxis with tacit awareness of corporate objectives, using praxis domains as functional equivalents to project and corporate objectives. The concept of 'praxis domains' emerged through qualitative data analysis, as clusters of

concerns practitioners frequently referred to. An organisational praxis domain was defined as a mesh of dispersed and integrative organisational practices that form composite "networks of action chains" (Schatzki, 2000, p. 103) which are broadly associated with a specific organisational purpose. Praxis domains encompass a fairly constant collection of practices, are characterised by domain specific use of sociomaterial resources, work rhythm, interpretative schemes, and domain specific issue streams. Praxis domains share organisational practices which meander in between them. Five praxis domains were identified: market, operations, organisational, technical and project.

The practice of querying praxis domains demonstrates how practitioners construct a transient decision site formed in the interplay between practitioners' perception of praxis domains, and anticipation of practices' performances in the praxis domains. The practice of querying praxis domains engages with the organisational reality close to practitioners practical consciousness (Giddens, 1986), in a holistic way, and constructs a decision site imbued with deep practical knowledge. The findings suggest that in constructing and modifying decision sites, praxis domains serve as a functional equivalent to partial organisational objective hierarchies.

The practice perspective informs us that practitioners immersed in their praxis, take for granted practices' organisation, thus the practitioners do not need to share the practices' objectives amongst themselves. While not mentioning objectives whilst immersed in their praxis, practitioners may still be utilising them as a guidance, or a 'direction of preference' (Keeney, 1992, p. 34). On the other hand, if practitioners wanted to describe the practice's teleoaffective structure (Schatzki, 1996) they may not be able to, as practice's schemes are often at the inaccessible level of 'practical

consciousness' (Giddens, 1986).

10.4 Implications and Future Research

The practice perspective conceptualises organisational projects first and foremost as a mesh of practices, where rational choice is sometimes, although rarely, performed, in concert with many other organisational practices. This perspective challenges the view of projects as functional units fully defined by their objectives, as well as the view of projects as temporary organisations that implies a separation from the rest of the establishment. Imagined as meshes of practices, projects are seen as an indivisible part of organisational praxis, where project goals, budget, and timelines are an important part, but only as part of organisational practices. This means that any stated objective, whilst it could be acknowledged and even recorded or discussed by participating practitioners, would not have as much impact on shaping the horizon of meaning as practices that are taken-for-granted in an organization – unless the scheme of means-ends has been purposefully engaged.

In view of these findings, practitioners could reconsider how they define, manage and control projects. Using an organisationally tailored framework of praxis domains to guide activities at the project level, rather than objective hierarchies may be another way to connect project action with strategic direction. This, for example, could be accomplished by creating a graphic representation of local praxis domains and common practices that might assist in project level decision-making by ensuring all areas are considered.

Understanding how unaided decision-making is carried out by experts immersed in organisational project contexts that are already framed by objectives, might prompt a

development of supporting practices that could remind practitioners of the desired objectives, making them more salient (cf. Kuechler & Vaishnavi, 2006). On the other hand, if decision-making practices of means-ends schemes are to be carried out, whether by practitioners or specialised professionals, understanding local practices first could assist in developing objective hierarchies.

Further studies of the identified practices might contribute to improving decision-making praxis in organisations by understanding existing, developing new and disseminating organisational decision-making practices. Anecdotal evidence from other software development companies shows that, for example, the practice of querying praxis domains is not carried out in all situations where it could be useful. Based on the observed experience with this practice, it is reasonable to assume that decision-making processes in software development projects, and potentially in other projects in plural environments, could be improved by developing similar kinds of practices. For example, the practice of querying praxis domains could be evolved with a locally adapted praxis domains' framework and development of a scaffold procedure (similar to the guiding procedure for "neguesstimation"). Whether and how this practice, and other practices, could be transferred to other settings, and to what effect, would be a subject of future research.

While the practice of neguesstimation is very closely entwined with the practice of software development, the practice of querying praxis domains requires less specific practical domain knowledge and more awareness of participating praxis domains and their interaction. This degree of entwinement between practices required to carry out decision-making practice could be a potential source of practice modification or new practice creation and could be explored further. Follow up research could explore how

integrative decision-making practices (e.g. decision analysis) could successfully interface with observed practices of decision-making and if they could become a part of project decision-making practices.

Although the concepts of leadership, individual expertise and group dynamics, have not been in scope in this research, they could be an interesting starting point for a future research that would focus on the relationship between these important areas of organisation studies and decision making practices. Future research could examine, for example, how group dynamics influence particular decision making praxis, by observing situations where multiple teams carry out the same practice. Such was the situation following the team split in the project HP, where the newly formed sub-teams would continue to carry out the same practice of neguesstimation in three separate teams, after they have customised it together. Unfortunately, the team split took place at the end of the observations and no data is available in the current data set. To observe how different teams influence decision making practices, a longitudinal study could be set up to follow the same project manager with multiple teams. Observing the same team's performance with a different project manager would provide a rare opportunity to assess the reverse side of the relationship and see how the project team's dynamic change with the change in project management. Focus on project in a 'rescue' stage, where a new project manager is brought in but the team and the project are the same, could provide a good setting for such research.

Most importantly, learning from expert management practices would enable not only better project management praxis but work towards development of a theory of management practices, that would continue to evolve as the theories influence praxis and praxis informs theory (Nicolini, 2013; Sandberg & Tsoukas, 2011; Tengblad, 2012).

10.5 FINAL REMARKS

With the account of two decision-making practices in project praxis *in-situ, in-actu and in-toto*, this thesis offers a practice-based interpretation of the ways that project managers manage organisational and project issues and demonstrates that even in purposeful and rationally designed organisations, where instrumental rationality is taken-for-granted, human activity is first and foremost a mesh of practices where the means-ends scheme is very rarely engaged.

Routinely carried out at the level of practical consciousness, organisational practices steer organisational performance with only occasional incisions (Chia, 1994) of reflection when the practices of decision-making are carried out. Despite actors' understanding of instrumental rationality and availability of required tools, the p*erformative praxis of rational decision-making* did not emerge in the observed projects (Cabantous & Gond, 2011). Contrary to the calculative rationality of practices of rational choice, which focus on precise dissection and analysis, the discovered practice of querying praxis domains embraces organisational reality in a holistic way, and constructs a decision site imbued by deep practical knowledge, creating a much richer site than a static objective hierarchy could hold.

In sum, this research provides an alternative, practice-based perspective on processes of organisational decision-making that particularly highlights the practical rationality (Sandberg and Tsoukas 2011) that shapes decision processes in the absence of performative rationality.

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