

Making Sense of Emergent Properties in IT Enabled Call Centre Operations: An Interpretive Systems Analysis Approach

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by

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ABSTRACT

A major focus of contemporary IS research is the emergent nature of organisational use of information technologies: its contextual, evolutionary, often unanticipated character. Most studies have approached this topic from the viewpoint of emergence in IT based practices as a process, led by social actors. However, the investigation of emergence as a property has been neglected. The systems thinking approach is particularly concerned with emergent properties, but has hitherto been poorly developed for the socio-technical analysis of IT use.

In redress, this research presents a new framework of interpretive systems thinking for performing such analysis. This framework permits a researcher or organisational analyst to form an understanding of emergent phenomena in IT based operations as constituted by the interaction of various elements or factors in relations of contrariety, contradiction or association. The emergent nature of an organisation's activities may consequently be illuminated in terms of principle tensions or contradictions, that shape its trajectory of transformation, or form a persistent pattern in its functioning. This method of analysis is applied to two case studies of IT based call centre operations.

The case analyses demonstrate the utility of this inter-relational, integrative framework. It supports supra-individual analysis of the shaping of significance concerning IT based activities. The emergent dynamics of integration and transformation related to the use of IT capacities in call centre activities are revealed in multi-faceted, contextually specific forms, that transcend simple binary alternatives in the appraisal of IT usage (e.g. IT is rigid or flexible). The framework's main benefit is its ability to highlight contradictions that are easy to miss, or difficult to pinpoint, in IT enabled work practices. This study's third-person, property-focussed account of emergence in IT based operations provides a different but complementary emphasis to the micro agency-centred model of emergence that has dominated recent IS studies.

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CHAPTER ONE: SCOPE OF INQUIRY

1. OVERVIEW

Let us start with a bird's-eye view of this inquiry. In recent times, the *emergent* nature of organisational work operations around the use of information technology (IT) – its context-embedded, evolutionary and unanticipated character – has become a major research focus within the field of Information Systems (IS). A significant stream of IS studies has investigated the way that IT based work operations are uniquely shaped by the particular socio-historical context they are embedded in, and evince features that are unexpected. Most of these IS studies may be said to have approached the explanation of emergence in organisational functioning from an enacted first-person perspective, and from a focus on studying emergence as a process. In other words, these IS studies have elaborated the emergent nature of IT based operations from the viewpoints, decisions and actions of the organisational actors involved, thus accounting for the way in which the viewpoints and actions of such actors can, as a process over time, lead to emergent phenomena in IT based practices. As a result of this the IS field has gained considerable knowledge of organisational emergence from a processual, agency-based perspective.

I take a different, relatively unexplored starting-point and emphasis however, in studying the same phenomenon. I study emergence from 'the other side of the coin': a third-person analytical perspective, and a focus on emergence as a property. Rather than accounting for the process of emergence in IT based operations from the viewpoint of actors, I develop here a framework by which I, or any analyst or researcher studying a particular organisation, can usefully characterise the contextual shaping of its IT based work operations from an 'outside-looking-in' viewpoint, and from an understanding of emergence as an outcome, or set of outcomes, (i.e. a property) of these operations being viewed as a complex 'whole'. Systems thinking is used as a methodological device for structuring this third-person, property-focused account of emergence. This outside-in, synoptic approach which I adopt does *not* present an account of emergence, in IT based operations, that is fundamentally incompatible with, or which is in strict opposition to, the accounts of past IS studies. However, it does provide significant new benefits and fresh insights, as this thesis will demonstrate. Let us therefore begin.

1.1 INTRODUCTION

Since the early 1990s, the emergent nature of organisational functioning around the use of information technology (IT) has grown in importance as a focus of research inquiry in the field of Information Systems (IS). Prior to this, the integration of IT into organisational processes had been widely promoted in the IS theoretical and business literature from the standpoint of planned, deliberate changes, based on ideal visions and rational projections. The introduction and use of IT was presented as enabling radical improvements in work organisation and strong gains in performance (Davenport, 1993). In practice however, it became apparent that organisations were widely differentiated in their ability to carry out such planned co-adaptations of work processes and the use of computer technologies (Scott-Morton, 1991). Subsequently, IS studies investigating the form and consequences of IT based work practices and business transformation projects evoked growing recognition that it was the emergent nature of such practices or projects – their contextually shaped, evolutionary, dynamic and often unanticipated nature – that significantly conditions the processes and outcomes of IT use in specific organisations (e.g. Orlikowski, 1996a,b; Bikson, 1996).

This contemporary rise in research focus on the emergent nature of IT based activity may also be traced to calls made over the last decade, like that by Truex (1991). At the 1990 IFIP WG8.2 conference in Denmark, he noted that the IS field was “poorly developed” in the creation or application of “methods that capture the emergent nature of organisations” (p. 570). Since then, a number of IS theoretical approaches have been formulated, and several empirical studies undertaken, that have sought to illuminate the emergent nature of IT deployment and use in firms. This has led to what Klein (1996) termed the ‘emergence paradigm’: a broad and loose body of theoretical and empirical work seeking to account for the emergent nature of organisational functioning in the use of information technologies. This area of inquiry is, in the words of a noted researcher, “... particularly relevant today as unprecedented environmental, technological and organisational developments facilitate patterns of organising which cannot be explained or prescribed by appealing to a priori plans and intentions,” (Orlikowski, 1996a, p. 65).

Conspicuously missing however, from the recently arisen theoretical approaches that have been adopted to elaborate the emergent nature of IT based work operations in organisations, has been the use of *systems thinking* as a method for studying emergence. Systems thinking proposes that it is important to investigate and understand complex phenomena like organisational functioning holistically, as irreducibly integrated wholes. It places specific emphasis on identifying emergent properties, which are properties that are exclusive to such wholes, and not deducible from any of their constituent elements. The relative absence of systems based inquiry in past IS studies on the emergent nature of IT use is remarkable, given its theoretical emphasis on emergent properties and its benefit of an integrative, inter-relational form of analysis. Nevertheless, strong reasons can be adduced for this. The traditional systems approach came under severe criticism during the 1970s (e.g. Silverman, 1970) which significantly undermined its validity as a theoretical platform for providing insightful description of the nature of organisations or dynamic social phenomena. The approach was seen to be highly inadequate, because of its essential premise of treating organisations as analogous to natural (i.e. biological) or mechanical systems, with fixed, pre-determined goals: this foreclosed the consideration of any emergent, evolutionary modes of functioning (Ciborra, 1987).

However, as this thesis will undertake to demonstrate, there are good reasons for developing an approach based on systems thinking for investigating the emergent nature of IT use – albeit one with a newer, more sophisticated, contemporary form of systems thinking. Not the least of such reasons is that, since the time of its fall from prominence, systems thinking has moved on, and has developed significantly. Whereas the early application of systems thinking in the IS field hinged on the idea of *natural/mechanical systems*, recent innovations (e.g. Soft Systems Methodology) in this school of thought have moved in its application towards the study of *designed systems* (e.g. Checkland, 1981), in which systems concepts and ideas are used to clarify the learning process by which social actors decide on the feasibility of changes in IT based work environments. The time thus appeared ripe for embarking on developing the utility of modern systems thinking for IS research, in regard specifically to research on the emergent nature of IT based work operations. The stimulus to undertake this development presented itself in the form of recent observations by researchers working within a longstanding systems based school of thought: the sociotechnical systems approach (Mumford, 1997). Strong calls had been issued for this IS theoretical approach, that has hitherto been based on the

stultifying traditional form of systems thinking, to be recast and reformulated with new concepts and analytical tools for treating emergent organisational phenomena (Lin and Cornford, 2000). This approach stood in need of a new basis of systems thinking.

This exploratory study took up the challenge of recasting sociotechnical systems inquiry. It undertook to do this by extending the application of systems thinking beyond natural/mechanical or designed systems. This study develops the hermeneutic focus of contemporary systems thinking in the new direction of illuminating the interactions of organisational elements (that generate emergent phenomena) as *signification systems* – patterned inter-relationships of significance by which human activity, artefacts, events or circumstances are invested with meaning or value. As this thesis shall make evident, key advantages may be gained in studying the emergent nature of IT based operations from this extension of systems thinking. The rest of this chapter furnishes a background for latter elaborations. It first elaborates the significance of this research topic in section 1.1.2. The motivations for pursuing this study are introduced in section 1.2, as well as its empirical context of IT enabled call centre work environments. Section 1.3 undertakes to clarify the meanings of key terms in upcoming discussions, and the assumptions that have shaped my approach in studying the emergent nature of IT based operations.

1.2 IMPORTANCE OF RESEARCH TOPIC

The topic of emergent organisational functioning in the use of IT is a relatively recent focus of inquiry in the IS field. It has gained prominence in IS and management literature for practical and theoretical reasons. The theoretical reasons are more crucial.

From the standpoint of practical relevance, the rising attention paid to emergent phenomena in the IS and management literature is due to the accelerated pace of change that firms must cope with (Truex et al., 1999; Orlikowski, 1996a). This frenetic pace of change is driven by rapid developments in globalisation, competitive positioning, and the use of technology. Management staff need to incorporate flexibility and emergent strategies in planning and implementation activity, to cope with ongoing discontinuities in operational environments (Mintzberg and Waters, 1985). Galliers and Baets (1998) note that the use of IT tools has amplified the unpredictability of emergent effects on organisational practices. These factors have contributed to heighten practical concerns

over the effects of emergence phenomena in business undertakings and social activity. They have induced increased focus on methods to deal with this operational dimension.

From a theoretical standpoint, the rising prominence of IS research concern with the issue of emergence in organisational activity can be ascribed to two major reasons. Firstly, the focus on the emergent conditions of organisational functioning and change has grown as a reaction to an older established trend of technological determinism in the IS field. Technological determinism refers to the perspective that an IT system has predictable and inevitable impacts on the host organisation in which it is introduced. IT is assigned causal agency from this standpoint, being seen as a root explanatory cause of organisational changes. However, the contradictory findings of numerous IS research studies have disproved the validity of such a perspective (Markus and Robey, 1988). Morgan and Lawler (1984) concluded that it was not that the adoption and use of IT produced no effects, but that the effects that resulted were *interaction* effects. The introduction and use of IT could be associated with an amplifying of certain features of organisational functioning and transformation, but it could not be used exclusively to account for their existence.

Correspondingly, Markus and Robey (1988) asserted a significant need for the theoretical formulation of emergent models of functioning or change, that could be used to illuminate the complex, enacted and indefinite nature of much organisational activity. Such processual frameworks are needed to transcend the limitations of deterministic models, which are fundamentally precluded from handling such complexity by their simplistic basis in a mechanistic cause-and-effect notion (Cecez-Kecmanovic and Kay, 2001). Markus and Robey (1988) also established a link between an emergent model of functioning and the interpretive significance of IT (i.e. see their statement quoted earlier at the end of section 1.1.1). Subsequently, IS researchers began to impute the unique nature of change experienced by different companies to the contextually based manner in which organisational actors ascribe distinctive meanings to IT, and actively shape its forms of use accordingly (Markus and Benjamin, 1997; Barley 1988; Kraut, Koch and Dumais, 1988; Markus and Robey, 1988). Besides this, emergent models also became to be seen as important because they could account for unintended outcomes (Markus, 1994; Kaplan, 1991). Thus, the emergent nature of organisational functioning has seen greater theoretical prominence in IS research because of a recognition that deterministic

models, aimed at predicting consequences, have not been able to adequately deal with the complexity of organisational operations.

Secondly, theoretical focus on the emergent nature of IT based organisational functioning may be said to have increased in reaction to the perceived shortcomings of methodologically planned, 'rational actor' models of change. A substantial portion of early IS theory had been marked by the fundamental assumption of economic rationality in individual and collective action: organisational members were seen as subscribing to a common goal of maximising economic efficiency, and as embodying correct ways of behaviour in the implementation of IS projects (Kling, 1980). Processes of change were regarded as being strictly pre-conceivable, and amenable to shaping by formal methods. Theoretical focus in rational actor approaches have thus focussed deeply on the correct construction and observance of formal plans and methods, based on pre-conceived functions, as the way to control and predict the form and consequences of strategic and operational levels of change (Ciborra, 1991, 1987; Suchman, 1987). In addition, rational actor approaches coincided with a prevalence of stage models of IT innovation in firms, which neatly reduced the innovation process into discrete temporal episodes, reflecting linear, cause-and-effect sequences (Galliers and Swan, 1999).

The inadequacies of rational actor models were exposed however by realisations obtaining from subsequent IS research studies in the 1980s. These studies established that the process of IT related organisational transformation is fundamentally shaped by the 'irrational' political activity of key actors and stakeholder groups holding dissimilar interests (Markus, 1983; Kling, 1980). As a result, IT innovation processes often exhibit characteristics and consequences which were unanticipated in prior planning activity, and that can prove intractable to deliberate strategies or desired outcomes (e.g. Bowers 1995; Orlikowski, 1996b). Moreover, it became apparent that organisational IT based innovation and use was better treated as a continuous whole process, rather than as a set of discrete stages (Galliers and Swan, 1999). As a consequence of such developments in empirical findings, a growing body of theoretical effort in the IS field began to address the emergent nature of IT based organisational work practices. Expanded understanding of the emergent nature of IT based work performance is thus particularly pertinent at the present time for IS researchers and practitioners (Orlikowski, 1996a).

1.3 STUDY MOTIVATIONS AND BACKGROUND

This study drew from a confluence of several perceptions. At a general level, the motivation for this inquiry lay in the perceived necessity and potential for developing the sociotechnical systems theoretical approach in the IS field. This particular school of thought, elaborated shortly, has unique features that were seen to strongly recommend its application in studying the emergent nature of IT based organisational functioning. The central feature of the IS sociotechnical systems theoretical approach, unique among other approaches, is its fundamental basis in systems thinking. The perceived scope for extending existing IS understanding of the emergent nature of organisations, through the development and application of a systems based approach, constituted the principal inducement for undertaking this study. This and other motivations are explained next.

1.3.1 The need for a systems perspective

The systems thinking approach has been promoted by prominent IS researchers in the contemporary field (Lee, 2000; Checkland, 1999; Galliers, Mingers and Jackson, 1997; Klein, 1996). Systems based approaches have had a long history of application in the general arena of sociological theory, extending back to the 1950s. During the 1970s however, the systems approach came under severe criticism (e.g. Silverman, 1970), and as a result fell from grace in fashionable social theory. The form of systems thinking at that time was largely based on 'functionalism'. This was a key sociological framework which, promoted by leading theorists (e.g. Parsons, 1960; Merton, 1964), was premised on viewing organisations analogously as biological organisms. The method of analysis offered by that form of systems thinking however, were regarded as too simplistic for elucidating the social complexities of organisational functioning, as well as incapable of treating meaning structures or issues of signification in work milieus (Silverman, 1970).

However, since that time of its disfavour in social theory, the systems approach has undergone a considerable evolution of form and methods. This has been facilitated by advances in the fields of operational research and IS development (i.e. Checkland, 1981; Churchman, 1971). In particular, systems thinking has taken what can generally be described as a hermeneutic turn. Systems are no longer seen to 'exist' in the world, in an ontological sense, as was assumed in past systems approaches. Instead, systems

ideas and concepts are now seen as mental constructs used by an observer (or group of observers) for *framing* an understanding of a particular process or situation (Checkland, 1981). Implicit to the adoption of a systems approach or perspective by a researcher or analyst (as I, as a researcher, do in this study) is the idea that he/she will give an account "of the world, or part of it, in systems terms; his purpose in so doing; his definition of his system or systems; the principle which makes them coherent entities; the means and mechanisms by which they tend to maintain their integrity; their boundaries, ... and components; their structure." (Checkland, 1981, p. 102.)

These contemporary theoretical advancements in systems thinking have been viewed as having significantly enlarged the applicability of the systems approach in IS research (Galliers et. al, 1997). However, only in the research arena of IS development methodologies have such new, contemporary forms of systems thinking been noticeably applied (e.g. Mingers, 2000; Lycett and Paul, 1999; Checkland and Schools, 1990; Checkland, 1981).

Galliers et al. (1997) and Klein (1996) have thus issued strong calls for the fields of IS and organisational studies to catch up with recent developments made in systems thinking during the 1980s and 1990s. Thus, a significant measure of potential was seen to exist, prior to the inception of this study, for adopting the use of a contemporary form of the systems thinking method for performing IS research, especially in inquiry into the emergent nature of IT based work practices. The lack of a systems perspective offered a significant opportunity for IS theoretical development. This perception formed a central motivation for this study. Certain areas in the elucidation of emergence focal to systems thinking have not been adequately tapped in existing IS understanding. These include a broad, integrative, inter-relational focus, and conceptualisation of emergent properties that are characteristic of the totality of a particular process, and not the individual parts. Key IS theoretical approaches on the emergent nature of organisational functioning that currently occupy centre-stage in this research arena (reviewed in the next chapter) were seen to possess these inadequacies. The perception of potential to increase current IS knowledge, by developing and applying a systems perspective to the study of IT use, was seen to be particularly compatible moreover with another concern that had engaged my interest significantly, when I first started this research project. This involved a keen need for the development of the IS sociotechnical systems approach (Mumford, 1997).

1.3.2 The need to develop the sociotechnical systems approach

The IS sociotechnical systems approach is based on the traditional concepts and formulations of sociotechnical systems theory (Pasmore, 1995; Eijnatten, 1993; Emery and Trist, 1960), in the organisational studies field. This longstanding school of thought owes its origin to a study, in 1949-51, of the problems surrounding the introduction of mechanisation technologies in the coal-mines of South Yorkshire, England (Trist and Bamforth, 1951). It is concerned with the design and management of technology-based work environments in organisations. The tenets of this theory are fundamentally rooted in systems thinking. In its classical (i.e. traditional) formulation, sociotechnical systems theory posits that an organisation is a complex whole composed of two separate sub-systems. The social system, comprising the form and elements of social organisation, represents the human needs, interests and aspirations of individuals and social groups. The technical system, comprising the form and elements of product/service creation (i.e. procedures, control mechanisms, technology), represents the requirements for economic efficiency that are implicit to a company's operations. Sociotechnical systems theory asserts that successful organisational performance hinges on the degree to which the needs of the social and technical sub-systems can be managed in reciprocal balance, and collectively attuned with respect to the demands of the external operational environment (Pasmore, 1995; Trist et al., 1963). This theory is postulated that performance gains will be heightened if a collated 'fit' is achieved in organisations between different social and technical priorities (or factors) that are often incongruous (Mumford, 1996).

Those traditional ideas have informed the IS sociotechnical systems approach*, a narrow but influential stream of work in the IS field (Lin and Cornford, 2000; Garrety and Badham, 2000; Mumford, 1997, 1996; Bikson, 1996; Land and Hirschheim, 1983; Bostrom and Heinen, 1977; Mumford and Weir, 1979). Studies in this approach have, in the past, mainly been concentrated on IS development practices, and the challenges of securing successful IT based change in the workplace. Their contributions have been

* This longstanding approach is to be distinguished from the newer 'sociotechnical' approaches, that have come about in the IS field over the last two decades. Those newer sociotechnical approaches will be identified during the literature review in the next chapter. The most obvious differentiating feature is that the newer approaches have abandoned the systems thinking framework which is fundamental to the sociotechnical systems approach. This systems-theoretical basis was the central reason that the sociotechnical systems approach was adopted as the theoretical framework in this study, given the above described need for such an approach in the study of the emergent nature of organisational functioning.

mainly methodological (Lin and Cornford, 2000). The sociotechnical systems approach has been instrumental in instilling awareness among researchers and practitioners of the need for the active participation of employees, and other stakeholders, throughout the various stages of IS development in organisations (e.g. Land and Hirschheim, 1983).

Leading proponents of the IS sociotechnical systems approach, however, have asserted a clear need for further theoretical development at present. This approach is in strong need of modification or expansion of its conceptual resources, and its methods of analysis, to cater to contemporary theoretical and practical concerns (Lin and Cornford, 2000; Mumford, 1997). The scope of application of sociotechnical systems analysis is in need of expanding beyond its hitherto predominant focus on IS development activity, to include also the study of IT systems in ongoing use (Lin and Cornford, 2000). Most importantly, a critical need has been asserted for developing and recasting this approach to deal with the emergent nature of organisational functioning in the use of IT (Lin and Cornford, 2000; Pasmore, 1995). This approach has lacked concepts and analytical tools for dealing with organisational structuring over time. These needs constituted a broad motivation underlying this study.

In addition, the development of the sociotechnical systems approach was seen to offer the potential for increasing current IS understanding of emergent organisational functioning in one particularly important area. Truex (1991), had also stated, during the 1990 IFIP WG8.2 conference mentioned earlier (at the start of section 1.3.1), that IS research on the emergent nature of organisations was especially under-developed in the study of *contradictions* that arise in the process of IT adoption and use. This assertion has been strongly echoed more recently by Robey and Boudreau (1999).

Theoretical and practitioner work within the sociotechnical systems approach is fundamentally pivoted on the management or design of ‘systems’ of work organisation via a resolution of the contradictions (i.e. inconsistencies) and tensions that arise in the use of technologies. The typical form of analysis used in the sociotechnical systems approach (e.g. the ETHICS methodology by Mumford, 1996) is focussed, at an essential level, on identifying and elaborating the oppositional relations that can or do arise in the context of interaction between stakeholder interests and technological arrangements in a particular workplace. This cardinal focus in the approach, on sociotechnical relations of

conflict or inconsistency in organisational functioning, was seen as opportune. It offered the potential for answering the need in the IS field, just mentioned, of an approach that can theoretically illuminate the contradictions and conflicts implicated in the emergent nature of IT use. Thus, the application of the sociotechnical systems approach seemed strongly warranted, given the scope it offered for elucidating, from a systems viewpoint, the various inconsistencies and tensions that are engendered in particular IT based work settings. This perception was another crucial motivation in the undertaking of this study.

1.3.3 The need to study call centre operations

The selection of an empirical setting in which to study the emergent nature of IT based operations was an important one. This setting was to be used to facilitate the development and application of a new form of systems based sociotechnical inquiry. This section first briefly describes the nature of IT based call centre work environments. It then elaborates the broad motivations for selecting to study call centre operations.

IT enabled nature of call centre work environments

Call centres represent new technology based organisational forms. They have seen widespread adoption by contemporary firms seeking to innovate their customer service orientation and activities. They occupy the forefront of a contemporary trend of IT based intensification of work activity in the service sector (Taylor and Bain, 2000). Modern call centres, also known as customer contact centres, only came into existence fairly recently, at the start of the 1990s (Richardson and Marshall, 1999). The reason for their relative novelty is tied to the commercial unavailability, prior to the mid-1980s, of the blend of technologies on which they are built. Call centres exist on the capacities of an underlying infrastructure of information and communication technologies (Boddy, 2000). This infrastructure consists of a fusion between computer networks, databases, information processing systems, digital telephone networks, and exchange technologies, known as computer telephony integration (Davis, 1997). A central component in this infrastructure is the automatic call distribution (ACD) system. This is a special software that queues, tracks and 'intelligently' distributes (according to optimising algorithms and preset criteria) all incoming customer phone calls to frontline staff, generally known as customer service representatives (CSRs), who are available to take them. The

ACD provides up-to-the-minute statistical information on individual and overall group activities, used typically by supervisory staff to monitor the performance of CSRs.

The use of IT systems is central to the service work activity at such centres. The organisation and performance of work involves a close partnership between the tracking and information management capacities of IT tools and the competencies of individual employees. CSR staff rely heavily on the use of information management and database software for recording, checking and retrieving information for customer inquiries and other issues. Typically several kinds of software are utilised, one of which is invariably a customer relationship management (CRM) database system. This system is used by CSRS to record notes on the nature and outcome of each contact or interaction with customers. Other CSRs can refer to these records when dealing with the customer in the future, so as to better understand him/her and ideally provide higher rapport and service quality. The customer data captured in the CRM system is typically used to form reports that aid in identifying particular areas of service/product improvement or creation.

The ACD (automated call distribution) system at the heart of a call centre's technological infrastructure is used to perform the 'virtual' organising of CSR efforts in handling customer calls. CSRs usually undertake different training courses so as to be prepared to handle various issues or types of calls raised by customers. Each training course a CSR completes is known, in typical call centre industry parlance, as a 'skill'. The total number of courses, or skills, that a CSR progressively attains to, is referred to as their skill-set. The ACD is configured by setting specific criteria to feed calls to CSRs according to their skill-set information, which is stored on and referred to by the system. The setup of each CSR's skill-set on the ACD can be configured so that only some skills are 'active'. Thus, a CSR may not be required to handle calls related to all his or her skills at any one period. Unanswered incoming calls on the ACD queue will only be directed to CSRs according to their active skills. The skill-set information of CSRs is easily adjusted at any time. Changes are made to the ACD's control interface through simple, click-and-drag actions with a mouse. Each CSR's distribution of active and inactive skills may thus be modified on the fly, inducing immediate, real-time changes in their scope of work responsibilities. There are usually several other options (beyond the pattern of active/inactive skills) for configuring the skill-set of CSRs. For example, priority ratings may be set in CSR skill-set information, so that unanswered

calls in the ACD queue will be fed first to CSRs with a higher precedence. The range of parameters for configuring the environment of the ACD queue is typically very wide, and varies according to different packages available on the market. Modifications to the ACD's configuration are usually made by CSR supervisory staff. The supervisor uses a central computer monitor that displays ongoing performance data on various aspects of call-handling activity. He/she closely tracks this data and suitably configures the ACD. Modifications to the ACD's configuration are done to obtain, as close as possible, a match between the availability of CSR staff resources (i.e. skill-sets) and the prevailing profile of customer needs suggested by the volume and pattern of incoming call traffic. Properly done such modifications will raise the call-handling performance (i.e. response times etc) of the centre as a whole, in regard either to all incoming calls, or to calls only of a particular category or type.

It may thus be apprehended from the preceding descriptions that call centres are fundamentally IT based organisational forms, and that the use of IT capacities is bound up closely in the functioning. This essentially IT based work environment of call centres presented itself as a particularly appropriate empirical setting in which to pursue this study's research goals, for general and specific reasons.

General reasons for studying call centres

The specific reasons, associated with particular areas of emphasis in this study, will be explained in the next chapter (section 2.4). Two perceptions formed the general motivations for the choice of call centre work milieus as an empirical setting. The first was a recognition of the lack of past IS research attention on this new and increasingly ubiquitous technology based organisational form. Call centres have received relatively limited attention in IS and management research, despite dramatic rates of adoption in many countries recently (Taylor and Bain, 2000; Datamonitor, 1998). Only a handful of studies in the IS field have investigated aspects of call centre operations (Boddy, 2000; Orlikowski, 1996a; Irving, Higgins and Safayeni, 1986), while a modest spate of studies in the organisational management field have focused on labour employment issues at the centres, such as the effects of automated work performance monitoring (Richardson and Marshall, 1999; Knights and McCabe, 1998; Fernie and Metcalfe, 1997). The need to improve this fledgling empirical treatment thus appeared pressing.

The second general motivation for investigating call centres lay in a perceived need to extend the theoretical resources of the IS sociotechnical systems approach in the specific setting of a service work environment. Mumford (1997), a leading proponent of the IS sociotechnical systems approach, reported that recent work in this stream had relinquished a traditional focus on employee development issues as the primary focus of organisational analysis. Instead, work within this approach is at present concentrated on the analytical illumination of organisational process structures, used for the strategic rethinking of priorities and effort. Mumford declared the primary contemporary role of the sociotechnical systems approach to be the creation and application of knowledge or techniques for aiding firms to be more effective and responsive towards their customers. However, much of the past formulations of the sociotechnical systems school of theory occurred within the context of studies of production or manufacturing firms, rather than the service sector, as noted by Pasmore (1993) and Pava (1987), who argued that its traditional concepts of analysis, such as variances and match/fit, originated from studies in firms typified by the use of mechanised technologies. These notions are seen as being less applicable for analysing operations involving information-intensive work or IT use.

It was thus vital to site this research within a type of workplace considered focal to service environments, in order to support further extension of conceptual resources in the IS sociotechnical systems approach. Call centres, which are central to the efforts of many companies seeking to innovate their service operations, were thus seen as a highly appropriate empirical setting for refining the specification and assessing the theoretical relevance of the systems analytical framework formulated in this study. This embedding served in the development of this framework, by facilitating an informative dialogue to occur between the observations of call centre workplace environments, and the concepts and ideas being selectively appropriated for the theoretical expansion of systems based sociotechnical inquiry. It is to be noted that there are different types or categories of call centres. The investigation of call centres in this study was limited to a general category of inbound, inquiry and feedback handling call centres, whose chief role is providing or processing information in response to incoming phone calls, letters or email messages from customers (i.e. rather than outbound call centres whose staff make unsolicited calls to people and make sales pitches). Thus, observations about call centres in this thesis apply mainly to this broad category of work milieus.

1.4 CLARIFICATION OF TERMS AND APPROACH

As a final preliminary, this section will clarify some key terms and assumptions that will be feature in the following elaboration and discussions of the thesis. The notion of emergence is first clarified, in terms of how it has been investigated and portrayed in prior IS research. The way in which it will be principally studied and elaborated in this study will then be identified. Following this, other key terms will also be clarified.

1.4.1 Emergent organisational functioning

The central concept of emergent (and similarly its root notion, emergence) has encompassed several associated meanings or implications in the IS theoretical literature. However, a broad, pertinent distinction may be made between the state of emergence as a 'process' and as a 'property', as will be made evident in the following brief review of theoretical formulations. To aid in clarifying the way the notion of emergent has been used with regard to organisational operations and IT use, initial reference may be made to the Oxford English Dictionary (1989), which identifies seven strands of meaning that approximate the way the term emergence has been used in IS and organisational theory. These seven meanings of emergence/emergent are shown in Table 1. It may be seen that the first six meanings, no. (i) to (vi), correspond to the state of emergence as a process, while meaning no. (vii) corresponds (solely) to the state of emergence as a property.

No.	Meanings of Emergent	State
(i)	arising out of a particular medium or context	Process
(ii)	that is a consequence of, or derives from, something prior	Process
(iii)	that is in the process of issuing forth	Process
(iv)	rising into notice or prominence	Process
(v)	that which arises incidentally or unexpectedly – an unforeseen occurrence	Process
(vi)	that arises unexpectedly as a result of an evolutionary process	Process
(vii)	whose effect is produced by the combination of several factors, but which is not reducible to the sum of their individual effects	Property

Table 1: Various meanings of emergent/emergence from OED (1989)

The process-oriented notion of emergence has been strongly emphasised in past IS research and theoretical conceptualisations. This is apparent in the way the following review of important IS studies have appropriated the use of this term in investigations or formulations. It may be seen that the process-oriented meanings of emergence, namely no. (i) to (vi) above, have been accentuated.

Truex, Baskerville and Klein (1999) asserted that contemporary organisations should primarily be regarded as being fundamentally ‘emergent’, which they defined as “the state of being in continual process, never arriving but always in transition” (p. 117). They thus placed emphasis on the dynamic quality in the notion of emergence: the property of being in perpetual transition and flux, reflected in meaning no. (iii). They ascribed the source of emergence in organisations to persistent interactions between their members: “these [emergent] organisational features are products of constant social negotiation and consensus building” (p. 117). Their claim reflects the derivative quality of emergence: its grounding in, and issuance from, a context of interaction, as implied in meanings no. (i), (ii) and (iii). This contextual basis is stressed in Suchman’s (1987) description of the emergent nature of human performance in IT based work practices. She described such performance as *situated* – rooted in the unique and localised sphere of contextually framed perceptions, social circumstances, available material resources, and unforeseen occurrences that organisational members engage with in the course of daily work. Nardi (1996, p. 71) noted that Suchman’s work emphasises “the emergent, contingent nature of human activities, the way that activity grows directly out of the particularities of a given situation.” Suchman (1987) also highlighted the quality of unexpectedness, as in meaning no. (v).

Lee (2000, 1999) noted that an information system and its organisational context continually invoke transformational effects on each other. He drew on the analogy of a chemical reaction: “[an IS and its organisational context] are more like the reagents that react to and change each other’s properties in a chemical compound than inert elements that retain their respective properties in a chemical mixture. This reactive process is what leads some MIS researchers to describe IS phenomena as ‘emergent’,” (Lee, 1999, p.8). This portrayal of an ongoing series of complex interactions between IT tools and the social system shaping their use blends together meanings (i), (iii) and (vii). Ciborra (1991), in arguing that strategic IS emerges from a context of localised experimentation

in the use of IT, laid emphasis on the quality of novelty that accords with meanings no. (i), (v) and (vi). In another study, he characterised the emergent outcomes of the use of IT as *drifting* (Ciborra, 1996), involving slight or ample shifts between anticipated and eventual roles. Such drift is seen to stem from the manifold interactions between “the plasticity of the artefact and the multiform practices of actors involved” (Ciborra, 1996, p.9). This idea of drift parallels meaning no. (vi). Orlikowski stressed meanings no. (v) and (vi) in her early application of structuration theory to studying the process of IT use in firms (i.e. 1992, 1996). She differentiated emergent change from anticipated changes, which had been planned beforehand and had transpired as intended, and opportunistic changes, that had not been planned prior to the project but were deliberately introduced to exploit unexpected opportunities in its course. In recent work Orlikowski (2000) has expanded her conception of emergence to also encompass the ongoing and recursive constitution of institutional structures, norms and interpretive schemes in organisations, termed by her as emergent structures. This denotes meanings no. (i), (ii) and (iii).

The process-oriented elucidation of the concept of emergence in IS theory, has persistently been associated with the meanings or significance that the members of an organisation attach to an IT system, or to the activities connected with the system’s use. This particular association was affirmed by Markus and Robey (1988, p. 595) during an elaboration on social structuring around the use of IT [*italics added for emphasis*]:

The emergent perspective attributes causality to complex indeterminate interactions between technology and human actors in organisations. Central to the emergent perspective is *the social meaning ascribed to information technology*. This perspective accounts for conflicting research findings about impacts by demonstrating the different meanings the same technology acquires in different social settings.

Similarly, IS researchers that have formulated definitions of emergent processes in their reports (e.g. Boddy, 2000; Orlikowski, 1996b; Markus, 1994), or that have studied the dynamics of emergent consequences triggered by the deployment of a new technology system (e.g. Bowers, 1994; Barley, 1986), invariably link the notion of emergence to the negotiation of social signification or meanings by organisational members regarding the use or properties of technology systems.

On the other hand, few IS research studies have directly addressed the notion of emergence as a property, in empirical investigation and theoretical conceptualisation of

organisational functioning. This meaning of emergent is tied to the quality of holism (i.e. meaning no. vii), in which a particular property is associated exclusively with a whole, and encompasses more than the sum of its parts (note: the idea of a 'whole' will be further clarified shortly).

An emergent property refers to characteristics exhibited on the level of a whole ensemble of interacting elements, but not by those elements on their own (Checkland, 1999; Weinberg, 1975; Bertalanffy, 1971). Emergence as a property is thus associated with the notion of wholeness: an irreducible or indivisible unity of a set of constituent elements. Correspondingly, emergent properties are a key feature of 'systems', which are conceptual models of phenomena as organised wholes, consisting of parts in inter-relationship and interaction (Checkland, 1981). The origin of the idea and importance of emergent properties stems from the work of several early thinkers, including a biologist, Ludwig von Bertalanffy, in the 1940s. Bertalanffy was one of the first to assert the idea of a system to study the principles of organization at various levels in the manifestation of natural phenomena (Bertalanffy, 1971). He identified the importance of key qualities or properties of behaviour associated with the higher or macro-level configuration of a phenomenon, but that could not be isolated at the lower or micro-level components or processes which formed the phenomenon. Emergent properties are thus conceptualised as occurring at the macro-level of a phenomenon or situation being studied.

In this research study, the investigation of IT based work operations was *mainly* focussed on the elaboration of the phenomenon of emergent organisational functioning as a property. This study sought to develop an analytical systems based framework that would enable IS researchers or analysts to form an evaluation of IT based operations as an emergent phenomenon. This framework, and its application in the analyses of case studies of IT enabled call centre operations, will be elaborated in upcoming chapters. It may be perceived during the elaboration of these cases that those IT enabled operations evinced features of a process-oriented state of emergence, such as evolutionary changes and unexpected consequences. However, the focus was not on explicating in detail the dynamics of this process. Rather the focus was on developing an appropriate method for capturing an insightful understanding of such work operations as an outcome (or set of outcomes) of past and present circumstances and interactions integratively considered as a complex or whole.

1.4.2 Definitions: system, whole, macro, domain, social structure

It is necessary to clarify some terms that will feature recurrently at certain points in upcoming discussions: system, whole, macro/micro, domain, and structure. The key concept of a system as used in this thesis will imply a model of an observed situation or phenomenon (Avgerou and Cornford, 1998): it is not to be confused with the situation itself. Thus, a system is clearly seen as the conceptualisation of a particular person or observer: it does not exist independently of the person, as it is the person that observes or views a phenomenon or situation as a system. The ‘systems of signification’ related to an understanding of IT enabled call centre operations in organisations, which I set out to identify and elaborate in this research study using two case studies, are thus to be recognised as my being own conceptualisation (or synthesis of understanding) regarding the nature of such operations. This notion of a system I adopt in my analyses resembles a pattern or model of understanding.

The term ‘whole’ is a key notion in the discussions of this thesis. It derives its particular implication from the way it is used in the systems thinking approach, where it is not meant to imply the vulgar sense of ‘everything’, but is an analytical distinction instead (Checkland, 1981). The notion of a whole refers to a *organised* set of interacting elements or factors that are perceived by an observer to be *relevant* or pertinent to the understanding of a particular concept or phenomenon (Checkland, 1981; Weinberg, 1975). The notion of a whole thus implies an ordered arrangement, in which the parts that make up the whole are positioned, or participate together, in an organised manner. The notion also implies the viewpoint of an observer (i.e. a researcher or analyst). Thus, in my thesis, the way I analyse each case account of IT enabled call centre operations as a ‘whole’ corresponds to the way I crystallised an integrated understanding of disparate, fragmented data I had obtained in the case studies.

Another purely analytical distinction that appears in upcoming discussions is the use of the terms ‘macro’ and ‘micro’. The term macro will be taken to imply a broad or wide scope of consideration, in contrast to a narrowly bounded or localised scope of consideration implied by the term micro. These distinctions of macro or micro are thus admittedly contextual and arbitrary, but I view them as useful ones to draw upon. Since

this research is concerned with developing and applying the use of systems thinking, a macro scope of analysis is frequently referred to, as being necessary for and consistent with the incorporation or integration of a broad set of elements and factors into inter-related, integrated analytical ‘wholes’.

The term ‘domain’ also recurs, typically during in phrases referring to a domain of IT based work operations (or IT based work practices). This term broadly encompass *both* the actual elements and processes of (IT based) work operations or practices in an organisation, as well as the social, historical and material context or setting in which the operations occur. The concept of a domain of IT based work operations is multifaceted and unbounded (i.e. there are no clear boundaries differentiating ‘context’ and ‘text’, or indicating where a context ends). Such complexity and unboundedness is characteristic of all real-world settings, as in the case of the two organisations whose IT enabled call centre operations were studied in this research. It is a difficulty any IS study aimed at elucidating an account of the contextual shaping of IT base work operations must cope with. In this research, the framework of systems thinking that is introduced was aimed particularly at providing a useful analytical mechanism for delineating the domain of IT based work operations of an organisation in a multi-faceted, and orderly-bounded way.

Another key term that recurs in this thesis is ‘social structure’. Lopez and Scott (2000) have distinguished three main types of social structure: institutional structure, embodied structure, and relational structure. Institutional structure refers to “rules or resources” of behaviour (Giddens, 1979, p.66; Giddens, 1984) such as norms, roles, rules, interpretive frames or power, that enable or constrain the actions of social actors (i.e. individuals or groups). Institutional structures are akin to Wittgensteinian ‘rules of the game’. Following Giddens (1984), institutional structure are viewed as not having an independent, material existence: they are virtual, abstract entities which are only ‘instantiated’ in human action or practices, as being both the medium and outcome of such practices. A type of institutional structure that will be emphasised in this thesis is social ‘institutions’. Institutions refer to ingrained systems of premises, patterns of action and expectations, or regulative structures, that provide the basis of validity for, or that shape, the way organisational members perceive and act (Avgerou, 2000; Scott, 1995; King et al., 1994).

Embodied structures refer to institutional structures (i.e. norms, rules, scripts, interpretive codes) that are physically realised or embodied in material artefacts, and thus shape or constrain the behaviour of social actors (although institutional structures also shape the behaviour of human agents, they are not 'embodied', since ontologically they exist out of space-time, and are only realised at the moment of the constitution of action i.e. Giddens, 1979, p. 65). Relational structure refers to the patterned relations or inter-relations between humans and/or artifacts in a group, or between the elements of a system. Systems thinking is strongly concerned with relational structure: the relatedness of the parts of an organised whole (Katz and Kahn, 1966). The systems approach places prime value however, on achieving a broad, inter-relational, integrated form of analysis, and will thus typically include analytical consideration of institutional or embodied, in addition to relational, structures.

In adopting a systems thinking approach as method of inquiry, this study sought to be broadly inclusive and integrative in its analysis of the way IT enabled call centre operations are shaped in organisational environments. It was thus seen as necessary, in order to be thus comprehensive, to make a related distinction between 'structures' and 'conditions' in this thesis. Conditions, in contrast to the virtual existence of institutional structures, shall be taken to designate material resources or circumstances that enable or constrain the behaviour of individuals and groups.

Thus, in summary, the preceding sections have furnished the groundwork for the upcoming chapters by clarifying the scope, significance, motivations and terminology pertaining to this research inquiry. The full report of this study begins next.

CHAPTER TWO: LITERATURE REVIEW

2. INTRODUCTION

Since the early 1990s, the IS and management literature has devoted increasing attention to the emergent nature of work performance and transformation around the use of IT. This aim of this chapter is to review current understanding of the emergent nature of IT based work practices in organisations, and to identify the key potential for further research and theoretical elaboration that shaped this inquiry.

The chapter is outlined as follows. The first section (2.1) broadly review the way in which the emergent nature of organisational functioning around the use of IT systems has been elucidated by prominent theoretical approaches and empirical studies. From this review, the potential for further research is identified on the basis of shortcomings in current IS knowledge. The second section (2.2) discusses this potential, as a basis for forming this study's aims and themes of inquiry. The sociotechnical systems approach is consequently presented as an appropriate theoretical platform from which to address the identified key shortcomings. The third section (2.3) critically assesses the adequacy of sociotechnical systems theory as a conceptual platform for explicating the emergent nature of IT based work practices. The theoretical limitations of this systems school of thought are thus specified as requirements to be met in developing a new sociotechnical systems analytical framework for studying the emergent nature of organisations. The fourth section (2.4) reviews past studies of call centre work environments, the empirical setting chosen for supporting the development and application of this framework. The last section (2.5) consolidates these observations on the potential for further research by defining this study's research question, and its themes of inquiry.

2.1 EMERGENT ORGANISATION: THEORY AND RESEARCH

The emergent nature of organisational functioning and change has been treated, directly or indirectly, by numerous studies in the IS and management literature. This section is not aimed at providing an exhaustive review of this work. Instead, it seeks to comprehensively map out this domain of inquiry, by elaborating the major theoretical

approaches and empirical studies that have contributed to its growth and prominence. In general however, key studies of emergent organisational phenomena may be classified by their focus on either one of two broad topic areas. These topic areas are: (i) IT based organisational work operations; and (ii) IS development practices. The focus of inquiry in this research study is specifically confined to the first area i.e. IT based operations. However, theoretical and empirical developments within the second topic area (i.e. IS development practices) were seen to be relevant to the specification and elaboration of this inquiry. Therefore the following review of theoretical approaches and research studies will be organized around these two topic areas.

2.1.1 IT based work operations

The first topic area pertains to theoretical focus on the nature and transformation of IT based operations in organisations. This also encompasses theoretical attention on the agency of actors and artifacts, different types of structures and conditions, and other aspects of an organisation's domain of operations, that impinge upon (and are changed through) the process of IT use. This first topic area has received most of the IS research attention on the emergent nature of organisations. The major theoretical approaches that have been adopted to illuminate the emergent nature of IT based work practices, and their interaction with institutional features of the operational domain, are contextualist theory, structuration theory, actor-network theory, socio-cognitive approach and IS-organisation coevolution theory. These approaches, as well as key empirical studies, are elaborated next.

The first theoretical approach to significantly offer a treatment of the processual, evolutionary nature of organisational transformation was created by Pettigrew (1985a, 1985b). He formulated this approach, called contextualist theory, during a longitudinal study he conducted of the pervasive, strategic changes occurring at ICI, a giant British company, in the early 1980s. The contextualist approach was produced from necessity. The management and IS literature of that period had largely modelled and portrayed organisational transformation in terms of factor relationships between independent and dependent variables. Pettigrew found those theoretical frameworks to be inadequate, however, because of their a-historical, a-contextual and a-processual basis. He therefore

formulated this approach with the explicit aim of eliciting enriched understanding of the dynamics of change in particular organisations.

Contextualist theory is concerned with the continuous interplay between three analytical components: the context of change, the content of change, and the process of change (Pettigrew, 1987). The context refers to the socio-cultural environment in which changes occur: it includes both an inner context, namely social structures and properties within the organisation, and an outer context, or the larger socio-economic and political environments of the industry and the markets that the organisation operates within. The content refers to the organisational elements that are undergoing transformation, while process refers to the continuous, interdependent sequence of actions and events that constitute the alteration. Discriminating those various components of context, content and process in an organisation thus allows for an investigation of the salient linkages between the characteristics of the enfolding institutional environment and the ongoing actions of employees. The emergent nature of organisational functioning is elaborated through an extended bi-planar analysis. Key inter-level relationships posited between contextual variables and content factors on a vertical plane are examined during several time sequences (representing past, present and future conditions) on a horizontal plane.

Studies using the approach have illustrated the key influence of the company's historical context and operational environment in shaping management action, emergent outcomes, and degree of receptivity to assimilating new social arrangements (Madon, 1993; Pettigrew, Ferlie and McKee, 1992; Pettigrew, 1985b). Pettigrew (1987, p. 470) summarised the contribution of this approach: "the transformation of the firm is seen as an iterative, multi-level process, with outcomes emerging not merely as a product of rational debates, but also shaped by the interests and commitments of individuals and groups, the forces of bureaucratic momentum, gross changes in the environment, and the manipulation of the structural context around decisions." The contextualist approach is most suited for undertaking long-term, longitudinal research of institutional changes. However, perhaps due to the requirement it places for prolonged, longitudinal research, the contextualist approach does not appear to have figured prominently in IS research over the past decade.

In the 1990s, a considerable body of IS research grew around the application of Giddens's structuration theory (1984) to the study of organisational transformation. The importance of that theory lies in its attempt to reconcile the constraining properties of institutional structure with the reflexive intentionality of human agency. It achieves this by positing structure as a duality: the actions of individuals both form, and are informed by, the institutional structures innate to their social context (e.g. structures of meaning, power, legitimacy). The theory's grounding of the production of institutional structures in ongoing and contextually situated human actions makes it a sophisticated conceptual resource for studying the perpetuation and transformation of institutional properties in IT practices (Orlikowski, 2000). Dissimilar interpretations of this theory have informed different streams of IS research: Jones (1999) provides a critical review. With regard specifically to clarifying the nature of emergent organisation however, two broad types of structurationist approaches may be distinguished in IS literature. These differ in the treatment of IT as endogenous or exogenous to the mechanism of structuration.

The first approach, exemplified by the structurational model (Orlikowski, 1993, 1992; Orlikowski and Robey, 1991) and adaptive structuration model (DeSanctis and Poole, 1994; Poole and DeSanctis, 1990), has positioned technology as endogenous and central to the structuration process. Respective applications of these models are found in Boddy (2000), and Majchrzak, Rice, Malhotra, and King (2000). In Orlikowski's (1993) model, IT is viewed as being an embodiment of institutional properties and structures, such as normative rules, control policies and political interests. Giddens's ideas are translated directly by Orlikowski into a conception of technology as a structurational mechanism. IT is posited to be a duality, being seen to be both a constituting influence upon (i.e. enabling or constraining), and the constituted product of, human action. A key notion introduced by Orlikowski to account for the amenability of IT to being shaped by the actions of organisational members is the concept of 'interpretive flexibility'. This concept emphasizes the variability of IT's properties. Rather than being a fixed product, the features and use of IT are open to the changing ascription of different significations or meanings, and subject to ongoing construction and configuration, by various actors (i.e. designers, decision makers, end users) in organisational domains.

Technology is thus depicted as possessing emergent qualities, of varied duration, resulting from the practices of appropriation by organisational members (Orlikowski,

1993). During its design stage, the material features and interpretive properties of an IT system are at their most plastic and emergent state, as they undergo evolving fabrication and refinement. Subsequently, following implementation and the setting in of routine use, IT's material features are seen to stabilize and ossify. Technology's interpretive properties continue to be emergent however, as users change their attitudes and actions throughout its lifespan (Boddy, 2000). In the adaptive structuration model of DeSanctis and Poole (1994), IT is also depicted as an embodiment of institutional structures and properties, that are collectively termed as its 'spirit' (i.e. ethos). Jones (1999) points out that this model also places emphasis on the manner social structures are produced and altered *within* the technology. However, the fundamental premise of this structurationist approach, that social structures are embedded in a technology's material properties, is inconsistent with Giddens's idea of structuration theory (Jones 1999). In his formulation, structures are inseparable from human agency, and only exist as virtual entities; they are not inscribed into technology.

A second approach of IS structurationist work has avoided such ontological conflation by treating the technology's material properties as exogenous to the recursive cycle of structuration (Orlikowski, 2000; Boland, 1993; Walsham, 1993; Walsham and Han, 1991; Barley, 1990, 1986). In this approach, the *use* of technology is seen as the source of emergence of institutional structures and properties in organisational activity. The most developed articulation of this second approach is the practice-lens model of structuration by Orlikowski (2000). In a significant revision of her earlier structural model, she jettisons the idea of technology as an embodiment of institutional structures, and of technology usage as a passive appropriation. Instead, she places central focus on the emergent structures of repeated and ongoing technology use. By doing this, she overcomes a problem in her earlier model: reconciling its premise that an IT system and its embodied social structures are frozen after implementation with the observation that users continue to engage in emergent uses and interpretations of the system through its lifetime. Orlikowski also infuses a more proactive notion of human agency into her new model, by drawing on Weick's concept of enactment.

The concept of enactment conveys the idea that organisational members exercise choices and reflexivity in their actions, acting selectively according to interpretations and projections (Weick, 1995, 1979). This notion not only stresses the role of perceptual

processes by which organisational members actively construct a picture of their world: it also expresses a recognition that they directly shape their environment through their own actions (Scott, 1998). The adoption of this concept permits Orlikowski (2000) to account for unexpected uses of IT: "... [users] can and do circumvent inscribed ways of using the technologies, either ignoring certain properties of the technology, working around them, or inventing new ones that go beyond or even contradict the designers' expectations and inscriptions" (p. 407). This reconceptualisation imbues a greater sense of a provisional and situated quality to characterisation of IT based activity. Orlikowski unites these ideas in her pivotal concept of *technologies-in-practice*, which refers to the enacted production and reproduction of institutional properties and structures through the recurrent, context-specific use of technology. The notion of technologies-in-practice represents a hybridised, abstract conceptualisation of IT, which takes into account its contingent social and technological properties.

Given that structuration theory informs a considerable stream of research studies on institutional emergence in the IS field, the limitations of this approach need to be recognized. Lopez and Scott (2000, p. 97), in a major review of extant theories of social structure, reported that several researchers have pointed out that structuration theory is under-developed in accounting for influential factors and features of social organisation from a *systemic* standpoint. This limitation stems from the theory's focus on individual agency and its linkage to institutional structures. The modalities of structure the theory concentrates upon (i.e. structures of signification, domination and legitimisation) are seen as being reproduced recursively through recurrent individual behaviour. However, other conditioning features that do not have a basis in individual agency, within a broad scope of an operational domain, are displaced or inadequately treated by this focus. For instance, such material *conditions* as the extent to which the architecture of a company's IT system is integrated or fragmented, or the immutability of its legacy systems, or the lack of resources in its external environment, can impose constraints on the actions of its employees that are not directly addressed by this theory. Hence, as a meta-theoretical approach, the structurationist approach seems to be in need of being supplemented by a broader, more encompassing focus. For this reason, it may be argued, Walsham (1993), in suggesting a joint meta-framework for studying change processes in organisations, 'fortifies' the use of structuration theory by merging it with contextualist theory, which may be seen to be broader in its scope of analysis regarding the conditions of change.

The importance of an organisation's political context and power relationships in shaping its use of IT was established by IS studies in the early 80's (e.g. Markus, 1983; Kling, 1980). However, elaborations of the evolutionary nature of power relations that saturate IT practices were lacking in conceptual richness, until a significant number of IS studies in the 1990s began to take recourse to the ideas and rich vocabulary of actor-network theory (Callon, 1992; Latour, 1987). Actor network theory considers the social and technical aspects of human activity to be indivisible. It conceives of the interactions between heterogeneous organisational and technology elements, which it refers to alike as actors, in terms of networks of linkages. Actor network theory's essential premise is that human activity is fundamentally shaped by a negotiated or contested aligning of the interests of key actors, both human and non-human (Walsham, 1997; Hanseth and Braa, 1998). Hence, institutional norms and standard social practices pertaining to the use of IT systems are seen to emerge from the political activity and mobilizing of power distributions by various individuals or groups in firms (Vidgen and McMaster, 1996; Monteiro and Hanseth, 1996; Bloomfield, 1995; Bloomfield and Vurdubakis, 1994).

The analytical strength of this theory lies in the new concepts it supplies for illuminating the political dynamics behind the formation of collaborative networks of human and technological elements in organisations (Walsham, 1997). Organisational actors deliberately undertake a process of translation, whereby they 'enrol' other actors to their viewpoint, or 'inscribe' intermediaries, such as artefacts, IT systems or software tools with scripts of action (i.e. embodied structure). Thus, a network of alliances is constructed (i.e. relational structure). The development of each network is characterised by convergence, designating the strength of congruence that is engendered by a series of translations, or by divergence, referring to expansion of a network by the transference of an actor's viewpoint to other actors and intermediaries (Callon, 1992). Though actors seek to stabilise their network, such hybridised associations of humans and artefacts require constant consolidation and repair, as changes elsewhere within the network, or encroachments by other networks, threaten to transform or dissolve it.

The actor-network theoretical approach is very useful for highlighting emergent properties in organisational IS practices (Monteiro and Hanseth, 1998). However, a key shortcoming of this approach, as maintained by several researchers (e.g. Walsham,

1997; Williams and Edge, 1996), is its failure to account adequately for the influence of institutional properties within a macro scope of analysis. Actor-network theory is seen as endowing too much local autonomy and power to organisational actors. Both Reed and Habers (cited in Walsham, 1997) claim that the approach is too asymmetrical in its analysis, in focussing on the way that the micro actions of actors contribute towards the production of the macro institutional order, to the neglect conversely of how the macro order shapes the local interactions and conventions of actors and intermediaries. While this theory's analytical mechanism and concepts have thus invoked greater clarity and fine-grained analysis in studying the formation of micro social structures (Monterio and Hanseth, 1996), it may appear to be less qualified for incorporating the broader picture of social institutions and material conditions instrumental to the shaping of IT based work operations in organisations.

A small number of IS studies on emergent organisation may be loosely grouped together by their common dependence on notions from cognitive theory, although they are much less homogenous in conceptual underpinnings than the theoretical approaches hitherto described. They are categorised here as the socio-cognitive approach. These studies focus mainly on the cognitive environment in which organisational members undertake IT based work activities and innovation processes, as well as the dynamics of change engendered by this environment. In key studies within this stream, Ciborra and Lanzarra (1994, 1990) formulated the compelling idea of a formative context, which refers to the cognitive dimensions of organisational behaviour and arrangements. The formative context encompasses such aspects as the assumptions, frames, routines and imageries that employees possess as they interact with and decide on the uses of IT in specific situations. This notion of a formative context synthesizes institutional forces of change and inertia. Emergent outcomes are seen to issue from the dynamic interplay between both forces. The encouragement of continuous *learning* among organisational members by experimentation, improvisation, and significant reflection over experiences of "fractures, inconsistencies, [and] deviations from routines" (Ciborra and Lanzarra, 1994, p.74), is the principal means by which an company's formative context can be cultivated to engender emergent uses of IT that are novel and innovative (Ciborra 1999, 1991; Andreu and Ciborra, 1998). In a study of a large computer manufacturer, Ciborra and Lanzarra (1994) found that the process of IT innovation and use was significantly

shaped by the interaction between the pre-existing and emergent formative contexts of the organisation.

Kallinikos (2002), in another key study within this approach, parts significantly from the prominent constructivist viewpoint in the IS field which maintains that the emergent outcomes of IT use in organisations stem from the capacity of organisational members to ascribe a significant range of meanings to IT (i.e. interpretive flexibility), and to mould its properties of use within particular contexts of operation. He contends that this view is an inaccurate assessment of the structural malleability and constitutive impact of such systems. He develops a counter argument based on earlier work, that had explicated the proposition that work cognitivisation is the most consequential feature of contemporary IT based work practices (Kallinikos, 1999, 1995; Zuboff, 1988). In those studies, IT systems were found to introduce rigidly structured and inflexible signifying conventions into workplace milieus. In contradistinction to the constructivist viewpoint, Kallinikos asserts that the emergent, situated nature of contemporary organisational functioning is conditioned by the dynamics of interplay between the context-embedded actions of organisational members and the context-free nature of IT systems. Computer technologies are disclosed as cross-contextual systems, that are assembled from highly abstracted and idealised images of work and social organisation. As imposing systems of cognitivisation, they are seen to invite only strictly circumscribed and standardised ways of participating in the world, irrespective of the unique circumstances of particular contexts of use. Drawing on the example of ERP systems, that have imposed inflexible routines and rigid procedures of work organisation in many firms, Kallinikos comes to the conclusion that emergent outcomes are not unbounded, nor specifically contingent upon interpretive latitude to the extent that has been notably supposed: “Local reshaping and drift away from the original goals to which any technology was originally brought to bear upon (Ciborra, 2000) take place along highly selective paths, and with forms other than those commonly assumed” (Kallinikos, 2002, p.16).

The seminal work of Weick (1995, 1993) in the organisational studies field, on the cognitively shaped emergent forms of organisational functioning, has influenced a number of IS studies within the socio-cognitive approach. Seligman (2000) adopted his concept of sense-making (Weick, 1995) as the basis for formulating a process model of IT adoption. The sense-making process is seen as having seven properties: grounded in

identity construction; retrospective; focussed on and extracted by cues; enactive of sensible environments; social; ongoing; and driven by plausibility rather than accuracy. Correspondingly, the process of IT adoption and use was conceived by Seligman (2000) as being informed by a recurring and evolving cognitive framework of anticipations and assumptions, held by the adopter. This cognitive framework undergoes evolutionary changes as deviations from, or disconfirmations of, previous held beliefs or assumptions are encountered and accommodated. This model of the emergent nature of IT adoption practices is restricted, however, by its focus on the *individual* adopter. It appears to be more useful for studying small group behaviour or micro processes related to IT use.

Weick's (1993) notion of organisational design as 'improvisation' is central to Orlikowski's (1996) formulation of the situated change perspective, a theoretical model of emergent organisational change around the deployment of IT. This perspective also draws from work on situated cognition by Hutchins (1991) and Suchman (1987). This model posits that organisational change comes about subtly but incrementally, through an ongoing series of improvised adaptations and adjustments in work practices. These adaptations are made by organisational members in response to unanticipated demands, or in order to exploit convenient opportunities, in their work situations. Change is thus seen as being rooted in ordinary, everyday circumstances, and endemic to the perpetual task of coordinating and adjusting resources and human effort. This model of change as a continuous process contrasts with other models that view change processes as episodic or cyclical, and at times revolutionary in outcome (e.g. Anderson and Tushman, 1990; Tushman and Romanelli, 1985).

In studying the introduction of a Lotus Notes system in a call centre performing software support operations, Orlikowski (1996) found that apparently significant shifts in the company's work practices over time represented only the summation of repeated micro-events of adaptive and reciprocal adjustments. Other IS studies have provided support for this argument, that the pace and scope of emergent organisational change is continuous and incremental (e.g. Cecez-Kecmanovic and Kay, 2001). However, notable studies of firms also exist, such as Pettigrew's (1987; 1985b) contextualist theory based study of ICI, which have encountered organisational transformation not as an unbroken cumulative progression, but as a series of radical, discontinuous episodes instead. While the situated change model thus appears to be in need of further testing/refinement, it has

contributed (along with pioneering studies by Ciborra, 1991; and Ciborra and Lanzarra, 1994) to heighten the profile of improvisation as a crucial component of work practices. Ciborra has further extended the foundational role of improvisation in IT based activity through a broader and more detailed conceptual treatment (Ciborra, 1999).

Another theoretical approach to the study of emergent organisational operations is represented by the IS-organisation coevolution model, developed in the course of a longitudinal study by Cecez-Kecmanovic and Kay (2001) on the introduction of a new IT system in an investment banking firm. The conceptual basis of this model is drawn from studies in the technology literature that have employed a sociocultural evolution model to describe the organising process. The main features of this model are change sequences of variation-selection-retention, and their hierarchical classification in terms of three categorical levels: components, services and system. Components designate social or technological elements of work operations; services refer to actions performed for clients; the system level refers specifically to policies and standards for regulating the firm's work practices. Those change sequences of variation-selection-retention are seen to operate in each of those three levels.

A variation-selection-retention sequence may be illustrated thus: a discontinuity in existing IT technology interjects variation into organisational work practices, leading employees to consider or experiment with novel ways of task performance; selection occurs when one out of alternative variants of performing a specific activity is chosen; and retention succeeds as a new practice is routinised and refined incrementally through recurrent use. Cecez-Kecmanovic and Kay (2001) had observed frequent manifestations of such change sequences throughout their two-year study, but they did not occur in a neatly ordered, linear progression. Instead, innovation in work activities and IT use, and changes to institutional properties (e.g. norms and policies), were seen to take place in a messy disassociated manner. The researchers traced the aggregate effects of the changes from the grassroots to the global level, using their hierarchical framework. In addition to intended consequences, the implementation of the IT system also led to unanticipated effects, such as changes in the status differentials of analysts working for the company.

The coevolution model had been seen by its creators as usefully differentiating between local and global levels of emergent transformation (Cecez-Kecmanovic and

Kay, 2001). It posits the outcome of macro organisational change as being a cumulative progression of complex changes at the micro level. However, an apparent shortcoming of this model may be said to be its uni-directionality: changes at the micro level are seen to 'force' changes in policies and standards at the macro level. Moreover, although the label system by which the macro-level is nominated lends it the suggestion of a broad scope of analysis, such analysis is only limited to changes in the policies and standards of service production invoked by the 'grassroots' pressures of micro-events. As a result, it may be asserted that Cecez-Kecmanovic and Kay's (2001) coevolution model does not demonstrate sufficient analysis or appreciation of how factors at a macro level of the organisation, such as conditions within its extended chain of operations or in its external operational environment, influence or impinge upon (i.e. enable or constrain) changes at the micro-level. Preceding paragraphs have thus described key theoretical formulations and studies regarding the emergent nature of IT based operations in organisations. The next section looks at approaches and studies within the second topic area.

2.1.2 IS development practices

This topic area encompasses theoretical focus on the need for the continual re-development and adaptive re-design of software systems in companies, in consequence of the nature of organisations as dynamic, evolutionary entities, with recurring revisions in their IS requirements (i.e. from new business functions, revised operational goals, fluid strategies). Major IS theoretical approaches that have focussed on this area are the organisational emergence approach, activity theory, and sociotechnical systems theory.

The organisational emergence approach encompasses the work of researchers who have stressed the need to recognise the fundamental instability of organisational functioning, and the need correspondingly for reforming IS development methodologies to deal with this reality (Truex et al., 1999; 1991; Lycett and Paul, 1999; Kawalek and Leonard, 1996). Truex et al. (1999) argued that organisations are always in a state of emergence, and thus possess no specifiable (or predictable) equilibria. Organisational features, such as culture, meaning, social relationships and decision processes, are seen to be devoid of structure or patterned regularities. This state of persistent flux arises out of the constant negotiations and interactions between agents, and the play of dialectical forces fuelled by politics and conflict at the centre of social organisation. Lycett and

Paul (1999) echoed this viewpoint, asserting that social regularities are emergent and constantly shifting. In consequence, established IS development methodologies need to be revised to handle requirement specifications which are incomplete, ambiguous, and subject to dynamic negotiations, and to incorporate continuous design and maintenance activity (Truex et al., 1999; Kawalek and Leonard, 1996). The argument of Truex et al. (1999) however, appears to be under-specified in its theoretical basis and elaboration. It may have overstated the extent of volatility in organisations. To deny that organisations have stable structures is problematic since it ignores the existence of inertia, which is an integral part of the fabric of change in many firms (Andreu and Ciborra, 1998; Keen, 1981). Nevertheless, their work has brought useful attention to the need for IS design practices to address emergent phenomena.

A theoretical approach which has recently come to prominence, in studies of the design of computer systems within their contexts of use, is activity theory (Bertelsen and Bodker, 2000; Kuutti, 1991). This approach is seen to be especially suited for the study of emergent organisational phenomena in IS development practices (Truex, 1991; Bodker, 1991). This theory takes object-oriented (i.e. motivated) human activity as its basic unit of analysis. Such activity is held to be mediated by social artefacts such as IT tools, concepts or language. The objects of activity are partially given and partially emergent. Understanding an activity thus requires consideration of its systemic context (Bertelsen and Bodker, 2000): all activity occurs within a social community, and is also mediated by rules, methods, division of labour etc. The most significant postulate of this theory is that activity systems are seen to be fundamentally 'disturbance-producing' in nature: contradictions, incompatibilities, paradoxes and tensions are held to be central aspects of their functioning (Engestrom, 1987).

It is this dialectical formulation that equips this theory for illuminating emergent processes. Responses by individuals or groups to contradictions and tensions inherent within an activity are a principal source of evolutionary change or unforeseen outcomes (Engestrom, 1987; Blackler, Crump and McDonald, 2000). Analysis of IS development practices, within an activity theoretical framework, focuses particular attention on the social structures and conditions surrounding IT use in work activity, and the historical context in which activity is embedded. This facilitates identification of the disturbances or tensions that feed the continuous re-development and adaptation of IT tools and work

procedures in the host organisation (Truex, 1991). The significance of activity theory's contribution to IS development practices is seen to lie in its focus on contradictory tensions in work performance, and the insights it is thus able to provide into the logics of emergent change in organisations (Truex, 1991). Analysis of the contradictions and oppositions inherent in organisational activity around the use of IT has been said to be a significantly under-developed area in IS theory and research (Robey and Boudreau, 1999; Truex, 1991).

Disturbance reduction may be said to be the main aim of another, much older approach that has only recently started to consider the implications of emergence for IS development activity: the sociotechnical systems approach (Mumford, 1999; Mumford and Weir, 1979). As described in the introduction chapter, this IS school of thought is based on sociotechnical systems theory (Pasmore, 1995; Emery and Trist, 1960), which considers organisations, from a systems thinking standpoint, as being complex wholes, made up of reciprocally influencing social and technical sub-systems. Work within this approach has hitherto been largely confined to the arena of IS development practices, where it has been instrumental in highlighting the importance of user participation as a component of development methodologies. The sociotechnical systems design approach advocates that successful IT implementation and use requires an explicit fit (or match) between social and technical factors, so that the resulting IS is jointly optimised to fulfil the organisation's goals (Mumford, 1996). A few researchers within this approach have recently begun to engage theoretically with the emergent nature of organisations. (i.e. Bikson, 1996; Lin and Cornford, 2000).

Bikson (1996), in utilising the sociotechnical systems design approach in a study of the introduction of a groupware systems at the World Bank, found that the outcomes of IS implementation activity did not become fixed after a specific juncture, and that they were quite different from those originally envisioned. He consequently asserted that sociotechnical systems theory (which was formulated on open systems theory) had originally accounted for emergent consequences by positing that social and technical systems are *open* in nature: that they are ongoing, and are to be expected to yield effects not predictable in advance. Outcomes of IS implementation therefore continue to evolve and change over time, as social and technical sub-systems interact continuously and incur reciprocal adjustments and adaptations (Bikson, 1996). However, Bikson did not

elaborate how the sociotechnical systems design approach was to incorporate this awareness into its existing means of analysis (this task was undertaken by this research).

Lin and Cornford (2000) argued that the school's traditional design method, of systematically deriving a specific fit between the social and technical, is not suited for dealing with emergence. That method is based on the assumptions that software systems are developed in-house, and that their functions (i.e. use specifications) are predefined. However, most systems are now acquired as packages. The functions to which they are employed more often emerge in the ongoing process of use and federation with other IT systems, than are predicted in advance at the time of planning. Lin and Cornford (2000) thus recommended shifting the focus of the approach's traditional design method to in-use design, and reversing its underlying sequence from analysis-design-use to use-design-analysis. They asserted that the IS sociotechnical systems theoretical approach needs to be reconsidered and *recast* conceptually, in order that it can deal adequately with the emergent nature of organisational functioning (Lin and Cornford, 2000). Other leading proponents of the sociotechnical systems approach have clearly echoed this call (e.g. Pasmore, 1995).

2.2 POTENTIAL FOR FURTHER RESEARCH

The preceding sub-sections (2.1.1 and 2.1.2) have reviewed primary theoretical approaches and empirical studies that have dealt with the subject of the emergent nature of organisational functioning, within two broad topic areas respectively: (i) IT based operations in organisations; (ii) IS development practices. This section will elaborate the potential for further research which, gleaned from the foregoing survey, contributed to set the scope and aims of this research inquiry. This identification and discussion of further research potential will only pertain to the first topic area (i.e. emergent nature of IT based operations), since this is the specific focus of interest of this research study. However, references will also be made to theoretical developments in the second topic area (i.e. IS development practices) relevant to the argument at hand.

In general, the illumination of the emergent nature of IT use in organisations is a pressing concern of research for the contemporary IS field (Orlikowski, 1996a; Truex, 1991; Robey and Boudreau, 1999). The preceding review of the IS and management

research literature carried out in this study served to identify two key areas of potential in which IS understanding of this topic could be advanced. These two areas of research potential were derived from the following general shortcomings perceived in existing IS theoretical effort: (1) inadequate theoretical development in addressing the systemic scope of the operational domain of IT based work operations; as well as (2) inadequate illumination of the contradictions and tensions implicated in IT based operations. These two points, and the particular avenue this research study proposed to adopt to address both areas of potential together, are elaborated next.

2.2.1 The emergent nature of IT based operations

The prominent conceptual approaches and empirical studies that have addressed the processual, evolutionary basis of IT based operations (reviewed in section 2.1.1) may be said to reflect, implicitly, three broad and fundamental forms of *theoretical emphasis* applied in studying and explaining the nature of emergence in organisational functioning. It is important to note that these forms of emphasis are not fundamentally incompatible, since they may be seen to overlap analytically in terms of antecedents and outcomes of the emergent nature of organisational functioning. They may be seen to differ, however, in terms of the weighting or prominence which they give to particular antecedents and outcomes of emergent phenomena in organisations. These three forms of theoretical weighting, described next, may be nominated as: the situated enactment emphasis, the political actor emphasis, and the systemic emphasis.

The ‘situated enactment emphasis’ is evident in the work of prominent studies in the structurational and in the socio-cognitive approaches (with the exception of work by Kallinikos, 2002), identified in the preceding review (section 2.1.1). The distinguishing characteristics of this emphasis are the assertion of the interpretive flexibility of IT tools (Orlikowski, 1992; termed as ‘plasticity’ in Ciborra, 1996), as well as the focus on the situated, enacted, and improvisational character of IT use in organisations (Orlikowski, 2000; Ciborra, 1999). The central assumption of this theoretical emphasis is that the emergent nature of IT based operations is rooted in the situational contingencies and particularities of the work environment that organisational employees are subjected to daily. Significantly, organisational members are characterised as having the ability to actively respond to, or even exploit, the unique demands faced within local settings of

IT use. This theoretical emphasis places primary weight on the *agency* of organisational actors: their own autonomy in interpreting or shaping the ends to which IT tools and capacities are applied. Emergent outcomes, characterised as drifting by Ciborra (1996), are asserted to result from the ability of organisational members to ascribe their own social meanings to the nature and implication of an IT system's features, and thus to undertake selective manipulation and configuration of the system (Boddy, 2000; Orlikowski, 1996b; Markus, 1994; Markus and Robey, 1988).

The theoretical foundation of this emphasis might be traced to such influences as the notions of enactment and improvisation by Weick (1995; 1993) described earlier (section 2.1.1), as well as Suchman's (1987) elaboration of the 'situated' nature of work activity, referred to in the first chapter. This emphasis has arisen, it may be asserted, in reaction to the previous trend of technological determinism and rational actor models in the IS field, described in the first chapter (section 1.2.2). The fundamental references to enactment and improvisation by Orlikowski (2000, 1996a), in her formulation of the practice-lens model of structuration, and the situated change model, of IT use, as well as the emphasis by Ciborra (1991; also Ciborra and Lanzarra, 1994) on improvisation and active experimentation in the socio-cognitive approach, are prominent examples of the manifestation of this emphasis in IS theorising. The influence of this emphasis may also be traced in the IS-organisation coevolution model (Cecez-Kecmanovic and Kay, 2001), which claims that emergent organisational change occurs cumulatively upwards from the active choices made by individual or workgroups at the 'grassroots' levels of the company.

The 'political actor emphasis' constitutes another perspective on the nature of emergent phenomena in IT based practices. This theoretical emphasis is exemplified by a growing spate of recent studies based on the use of actor-network theory (e.g. Vidgen and McMaster, 1996; Monteiro and Hanseth, 1996; Bloomfield, 1995), as well as other IS research studies in the past (e.g. Markus, 1983; Kling, 1980). The central assumption of this emphasis is that the use of IT systems in organisations is fundamentally shaped by a negotiated or contested aligning of the interests of key organisational stakeholders. IT based work operations are consequently seen to 'emerge' from political activity. This emphasis too, like the previous one, stresses the autonomous agency of organisational members in shaping the nature of IT deployment and usage in organisations. It differs

from the situated enactment emphasis however, in making the phenomenon of power to be the main force in the contextual shaping of IT use. Primary emphasis is thus given to the distribution of power among organisational actors, as reflected by the ability of such actors to organise or command networks of resources for achieving their interests.

A third form of theoretical emphasis in studying and explaining the emergent nature of IT based work operations has been less conceptually developed and specified, hitherto, than the previous two. This may be termed as the 'systemic emphasis'*. The distinguishing features of this theoretical emphasis are its broader, inter-relational and integrative scope of analysis, and its relatively decreased emphasis on the effective role of human agency, in comparison with the other two emphases just described. The origin of the emergent nature of organisational IT use is seen not only to lie at the micro level of interaction among organisational actors. Instead, the emergent nature of IT based work practices is seen to be due to factors within the internal realm of an organisation, and to forces and circumstances in its external environment. The emergent nature of IT use in companies is thus perceived to arise from key influences and dispositions within a *broad* scope of its domain of operations.

In addition, in contrast to the other two previously described forms of theoretical emphases, this form of emphasis does not give especial or undue prominence to the active intentional agency of organisational actors i.e. their ability to shape or selectively interpret the ends to which IT is used. While such ability on the part of individuals or stakeholder groups is seen to be an important factor, the emergent nature and outcome of IT use is also held to be shaped significantly by circumstances and conditions that lie *outside* the control or agency of such actors. The central assumption of the systemic emphasis is that the emergent nature of IT based work practices in an organisation can only be sufficiently accounted for by considering the complex *wholes* of actions, events, means, circumstances and factors that comprise the organisation's operational domain. Thus, the evolutionary, unanticipatable nature and outcomes of IT usage is seen to derive from the influence of features within the micro contexts of work activities (e.g. the local conditions in a company) and the broader, macro context (e.g. the industrial

* The notion of a systemic approach in organisational studies may be traced to the work of Katz and Kahn (1966), who pioneered the open systems approach in that domain. They asserted that a systemic focus was required for understanding the source of the origin or modification of organisational structures (1966, p. 313). This encompassed taking into account factors within the broad scope of the internal context of the organisation and the external environment in which it operates.

environment, national or international market) in which these activities are embedded. These three key forms of theoretical emphasis are summarised in Table 2.

Theoretical Emphasis	Source of Emergence	Primary Characteristics	Theories Used & Exemplar Studies
Situated Enactment	Emergent nature of IT based work practices is rooted in ability of organisational members to respond selectively to the demands posed by the situational contingencies and local particularities of a work environment	<ol style="list-style-type: none"> 1. Assumes and highlights the 'interpretive flexibility' of IT, and the corresponding ability of social actors to ascribe contextually framed social meanings to the features and use of IT 2. Stresses the autonomous agency of organisational members (i.e. selective interpretation of IT use, improvised responses etc) in generating emergent outcomes 3. Emphasis on fluid, dynamic institutional structures 	structuration theory, socio-cognitive approaches [Orlikowski, 2000; Ciborra, 1999, 1991; Ciborra and Lanzarra, 1994; Orlikowski, 1996b; Markus, 1994; Markus and Robey, 1988]
Political Actor	Emergent nature of IT based work practices results from political activity – a negotiated or contested aligning of the interests of key stakeholders	<ol style="list-style-type: none"> 1. Stresses the autonomous agency of key organisational stakeholders (i.e. their ability to inscribe IT features with desired scripts of action, and mobilize networks of alliances to secure interests etc) 2. Highlights the political activity and mobilizing of power distributions by various actors, in generating emergent outcomes 3. Emphasis on loose, open-ended relational structures, and on embodied structures 	actor-network theory [Vidgen and McMaster, 1996; Monteiro and Hanseth, 1996; Bloomfield, 1995]
Systemic	Emergent nature of IT based work practices obtains from the integrated influence of factors and interactions within a company's broad domain of operations (including both an organisation's internal setting and its external environment)	<ol style="list-style-type: none"> 1. Assumes that emergence phenomena in organisational functioning can only be adequately explained by considering the a firm's operational context as a 'whole' i.e. as an inter-related complex of actions, events, means, circumstances, structures (fluid and persistent) and factors that make up this context 2. Gives as much stress to events, circumstances and structures, that lie outside the short-term control or agency of organisational stakeholders, as it does to the active interpretations, decisions or interventions of those actors 3. Emphasis on regular, inter-dependent and integrated relational structures 	contextualist theory, sociotechnical systems approach [Pettigrew, 1985b; Bikson 1996]

Table 2: Contrasting theoretical emphases on the emergent nature of IT use

The systemic emphasis, still in an incipient stage of theoretical development in the IS field at present, had been pioneered by studies using the contextualist approach in the late 1980s and early 1990s (as described earlier). The contextualist approach had discriminated between an organisation's inner and outer context, as a means of setting a more comprehensive scope of analysis of key inter-relationships in the change process. Studies in this approach indicated that the emergent transformation of work activity is

due not only to the active interventions or the promotion of interests by organisational members. It is also due to the influence of other constraining structures, conditions or factors, internal and external to an organisation, such as 'legacy' work arrangements, inertia or government legislation (Madon, 1993; Pettigrew, 1985b). The relative paucity of IS studies that have used systemic-oriented approaches such as contextualist theory, however, has meant that the systemic emphasis is much less developed theoretically than the other two emphases in the study of IT based work operations in organisations. Correspondingly, it has been much less prominent in research studies of the emergent nature of organisational functioning.

The various theoretical approaches associated with both the situated enactment and political actor emphases differ from those of the systemic emphasis in the treatment of or focus on social structure. Structuration theory and socio-cognitive approaches such as enactment or improvisation theory, place strong emphasis on the active, intentional agency of organisational members. Institutional, embodied and relational structures are seen from the point of view of being actively constituted through human action. These structures that impinge on the use of IT in organisations are treated in a more fluid, loose way than in traditional social theorising, which had given emphasis to structures which are more persistent and rigidly constraining (Lopez and Scott, 2000). Similarly, the actor-network theory emphasises relational structure in a loose, open-ended manner, with no fixed boundaries or stability: actor-networks are continually expanding through the acquired alliance of new nodes, and contracting through the loss of older ones by inactivity, or relinquishment to other encroaching networks. In the latest direction of his work, Latour (1996), the co-founder of this approach, even seeks to eliminate or transcend the idea of social structure. He expresses dissatisfaction over the concept of a network, which he claims still retains an undesired quality of permanence.

Accordingly, it may be asserted that the situated enactment emphasis and the political actor emphasis are representative of a current swing in IS theorising towards a emphasis on social structure as actively constituted, easily changed (at the micro level of individual action), and non-constraining or non-binding. Perhaps the most extreme articulation of this trend is found in the works of Truex, Baskerville and Klein (1999, 1991), who dispense altogether with the idea of structure (i.e. as something irrelevant), stating that organisations are in a state of perpetual transition and instability, on account

of the active negotiations and interactions of their members. The systemic emphasis is characterised by a different focus and treatment of structure. The weight is on relational structure, of a regular or enduring kind, and of a 'tightly' integrated or inter-relational form as to constitute an indivisible 'whole'. However, in being *integrative* in focus, the systemic emphasis also takes account of: (i) embodied structures; (ii) institutional and relational structures which are fluid or open, in being actively constituted through the actions of social actors; as well as, (iii) durable or constraining institutional structures, and established conditions, that shape the activity of actors, but which are *not* changed in turn. In other words, this emphasis also gives consideration to the specific ideational or material circumstances of an organisation that are derived from its particular social-cultural or historical context, and that are beyond the ability of organisational members to control or selectively ignore in the short-term. The systemic emphasis, by not over-accentuating the agency of organisational actors, makes room for an equivalent focus on the ability of social structures and constraining conditions within a firm's operational domain, like bureaucratic procedures (e.g. in Pettigrew, 1985b) or legacy IT systems, to predispose or reinforce the way such actors perceive or act.

The insufficient development of the systemic emphasis represents a significant potential for further IS research on the emergent nature of IT based work operations in firms. During the preceding literature review of this topic area (section 2.1.1), it had been reported (or asserted) that the theoretical approaches used to promote the situated enactment emphasis, namely structuration theory, certain socio-cognitive frameworks, and IS-organisation coevolution theory, as well as the actor-network theory approach which has been used to promote the political actor emphasis, had all alike shared, to a greater or lesser extent, a common limitation. This consisted of insufficient theoretical consideration being given to the capacity of factors or conditions, within a macro scope of an organisation's domain of operations, to shape the emergent nature and outcomes of its use of IT. Given a current trend of theoretical focus on the situated enactment and political actor emphases however, and a parallel lack of development of the systemic emphasis, the danger exists of an imbalance of IS understanding regarding the emergent nature of organisational functioning. Inadequate regard to the conditioning influence of factors and circumstances within the broad scope of organisational domains, in shaping the emergent nature of IT based work operations, may persist in the IS field.

It has thus been noted that inadequate IS research attention has been given to elucidating the nature of emergence phenomena in a domain of IT based work practices from the viewpoint of a broad scope of analysis of such a domain. This limitation in the first topic area may be contrasted with the state of the second area (i.e. IS development practices), where the application of approaches such as sociotechnical systems theory and activity theory has meant that the broad, systemic scope of emergent organisational functioning and transformation has been accorded much more adequate attention. Thus, a significant amount of research potential currently exists for developing the theoretical elaboration of the systemic emphasis within the topic area of IT based operations, and for assessing the comparative utility of that emphasis in relation to those other two forms of theoretical emphasis.

Given this potential for further illumination of the emergent nature of IT use, the undertaking of a study based on a systems approach, utilising the ideas and principles of *systems thinking* (Midgley, 2000; Checkland, 1999), appeared as highly warranted. The principal characteristic of the systems thinking approach (detailed later, in section 2.3.2) is that it seeks to be comprehensive and integrative in its method of analysis (Midgley, 2000; Checkland, 1999). This approach emphasises taking into account the *whole*^{*} of a particular phenomenon, and is focussed on elaborating the interaction between the parts, and between the parts and the whole, of the phenomenon. These features of its form of analysis suggested that systems thinking would be especially conducive for addressing the hitherto identified need to account for the way broad contextual circumstances shape the nature of IT based work practices in firms. The encompassing focus of a systems approach encourages an evaluation of social structures and material conditions that lie outside the short-term influence or control of organisational members, in addition to those structures that fall under their immediate control or influence. This approach was thus seen as particularly suited for studying the emergent nature of IT based operations.

Another major reason for the apparent necessity of using a systems approach in research in the first topic area is that the existing lack of application of such an approach has led to the absence in conceptual treatment, in that area, of the property-oriented

* the notion of whole in systems thinking is not meant in the vulgar sense of 'everything', but refers to a organised arrangement of elements, factors or influences perceived by someone (i.e. an observer) to be relevant or pertinent to the understanding of a particular concept or phenomenon (Checkland, 1981; Weinberg, 1975)

meaning of emergent described in the first chapter. This is the notion that an emergent property derive from the process when viewed as a 'whole': a feature is emergent when it arises out of the interaction of several different elements, but cannot be ascribed to any of the individual elements alone (Checkland, 1999). This key aspect of emergence is a crucial concern of systems thinking, which holds that such features are relational and stem from a context of interaction: "we are dealing with a system of interlinked components that can only be adequately defined in terms of the interrelations of each of them in an ongoing developmental process that generates emergent phenomena – including what we refer to as institutional structure," (Buckley, 1967, p. 125). The lack of a systems approach, in the elucidation of the emergent nature of IT based work practices, has thus precluded the illumination of emergence phenomena which are properties of the 'whole' (or of 'wholes'), rather than the elements, of an organisation's broad domain of operations.

Consequently, given the apparent benefit of using an approach based on systems thinking in studying the emergent nature of IT based operations, the IS sociotechnical systems approach (Mumford, 1996; Bikson, 1996; Mumford and Weir, 1987) stood out as a promising candidate for this venture. This older, longstanding school of thought is fundamentally grounded in systems thinking, and has long given emphasis in its form of analysis to the totality of the interrelationship between behavioural and technological elements of work practices (Bikson, 1996). Moreover, this systems based approach has traditionally emphasized the crucial importance of, and the need to consider, the larger context or environment in which organisational functioning and change occurs (Bikson, 1996; Emery and Trist, 1960). In consequence, there appeared to be significant potential in adopting this approach as a means to illuminate the shaping influence of factors and circumstances within the broad domain of an organisation's IT based work operations. Leading proponents of the approach, as noted earlier, have stated a need to augment its conceptual resources to deal with emergent organisational functioning, and to broaden its theoretical focus beyond a predominant concern with IS development practices (Lin and Cornford, 2000; Mumford, 1997). Researchers from this school of thought, working in the second area (i.e. IS development), have begun to tailor its design methodology to engage with issues of emergence. However, there has been negligible effort hitherto, within the sociotechnical systems approach, aimed at illuminating the emergent nature of IT based operations. It thus appeared critical to extend this systems approach in that

first topic area. Added impetus for this derived from the consideration of a second key shortcoming, elaborated next.

2.2.2 Contradictions and tensions in IT use

Truex (1991, p. 570) had pointed out that contradictions or tensions arising in organisational processes of IT use are a significantly under-developed theme in current IS research on the emergent nature of organisational functioning. Similarly, Robey and Boudreau (1999) made a strong call for IS research efforts to adopt “a theoretical logics that can account for contradiction in observed phenomena” (p. 172). They proposed the use of theoretical approaches which employ a *logic of opposition* in investigating the effects of IT use in organisations. Approaches based on oppositional logic attempt to ground an explanation of organisational functioning and transformation through the identification of inconsistent or conflicting institutional forces that promote or obstruct the process of change. The existence of such inconsistencies or tensions often leads to the unanticipated outcomes which characterise the emergent nature of IT based work organisation and performance.

These claims of the significance, to IS research, of theoretically addressing the incoherencies and conflicts inherent in IT centred work activity, find strong support in the management and sociological fields. Burns (1981, p.3) stressed in particular that: “... organisations seem to be assemblies of relationships and activities which operate in accordance with several quite different sets of principles and presumptions – different rationales”. He concluded that such rationales are often significantly at odds with each other. Giddens (1984, p. 193) asserted that the notion of a contradiction is indispensable to the study of social organisation: “... contradiction expresses the main ‘fault lines’ in the structural constitution of societal systems.” As highlighted in the preceding review, the use of activity theory by studies of IS development practices has meant that some treatment has already been accorded to elucidating the ramifications of contradictory phenomena in organisational domains in the second topic area. However, there exists a marked absence of conceptual treatment of contradictions and tensions within the first topic area of IT based operations. There thus seemed a strong need for employing a theoretical approach that could treat this issue in elaborating the emergent nature of IT

use. The sociotechnical systems approach was again seen to constitute an appropriate standpoint from which to advance such a treatment.

The type of theoretical analysis that has traditionally typified the sociotechnical systems approach has had one distinguishing characteristic. It has consistently framed the conditioning of organisational activity and employee efforts in terms of fundamental contradictions (i.e. inconsistencies), tensions, and incoherencies, keenly discriminated in technology-based work environments. The theoretical and research literature of this school of thought refers repeatedly to such contentions: social needs vs. technical needs; efficiency goals vs. quality of employee work life; employee autonomy vs. management control; change vs. stability; professional vs. artisan culture; rational vs. 'irrational' behaviour; and motivation vs. alienation etc. (Mumford and Weir, 1987; Pasmore and Sherwood, 1978; Bostrom and Heinen, 1977; Emery and Trist, 1960). Susman (1976, p. 153) had defined the 'quintessential dilemma' of sociotechnical systems design as the "irreconcilable ... schism between the technical and the phenomenal worlds". The school's celebrated job design principles (Cherns, 1987; Lin and Cornford, 2000) are geared towards finding the most effective parity between inconsistent instrumental and affective dimensions of work organisation. A salient track of sociotechnical systems inquiry in the organisational studies field is seeking to develop analytical techniques for prioritising the 'trade-offs' in technology based organisational design (Majchrzak 1997; Majchrzak and Finley 1995).

The cardinal trait of IS sociotechnical systems analysis may thus be defined as: a sensitive recognition of the socio-structural contradictions and disharmonies that inform and circumscribe the limits of IT based work performance. IS sociotechnical systems design is pivoted on reconciling, under an effective balance, the incongruities between priorities (or factors) in the social and technological realms of organisation (Mumford, 1996). Correspondingly, it became apparent that extending the theoretical capability of the IS sociotechnical systems approach to deal with emergence phenomena would be congruent with providing the IS field with theoretical resources for addressing the issue of contradictions in the area of IT based work operations in firms. The investigation of such inconsistencies and tensions is strongly consonant with the use of systems thinking as a means of inquiry. The systems perspective places primary emphasis on analysing the relations between the elements of a phenomenon (Midgley, 2000). An illumination

of the contradictions and tensions implicated in the IT based operations of organisations warrants taking account of different elements of the environment of an organisation's functioning that are set in *opposition* to each other. Its fundamental basis in systems thinking has thus enabled the sociotechnical systems approach to elucidate the conflicts and inconsistencies that characterise organisational functioning. Thus, the adoption of the sociotechnical systems approach in the study of emergent organisational functioning would simultaneously fulfil the need to apply a systems thinking based approach in the study of the emergent character of IT use in firms.

The preceding discussion of two key inadequacies in current IS understanding of the emergent nature of IT based operations has thus evinced that the sociotechnical systems approach would be strongly suited for use in addressing both shortcomings, and advancing IS knowledge. It was also recognised here and in the earlier review that this approach needs to be augmented with new concepts and method of analysis to deal with the emergent nature of IT use in organisations. Through such theoretical extension, the sociotechnical systems approach may be qualified for use in illuminating the emergent nature of IT based operations in organisations from a systemic vantage-point, and from foregrounding the contradictions or tensions inherent to such operations. This would be consonant with the theoretical stance recommended by Giddens (1979), of treating the process of organisational functioning as being composed of parts in tension, and of understanding the whole of that process as implicated in its parts.

Given these observations, it is necessary next to review the research literature on the sociotechnical systems approach and systems thinking. This scrutiny will serve to identify the distinguishing characteristics, and the existing conceptual limitations to be considered, in formulating a systems thinking based analytical framework for studying the emergent nature of IT based operations in organisations, one that both exemplifies and extends the IS sociotechnical systems approach.

2.3 SOCIOTECHNICAL SYSTEMS ANALYSIS

The IS sociotechnical systems approach (Lin and Cornford, 2000; Mumford, 1996; Bikson, 1996) has thus been proposed as a particularly appropriate framework for studying the emergent nature of IT based work practices. Some further clarification is

necessary, however, before proceeding to discuss the features and limitations of this particular systems approach. This approach needs to be distinguished from other newer IS approaches that have also been designated as 'sociotechnical', that have come about in the IS field during the last twenty years. These new sociotechnical approaches, which may be considered perhaps to be distant theoretical relatives of the older sociotechnical systems approach, include: the 'social shaping of technology' approach (MacKenzie and Wacjman, 1985); the 'social construction of technology' approach (Bijker, 1995; Bijker and Law, 1992); the actor-network theoretical approach (Callon, 1992; Latour, 1987); as well as the 'technology as text' approach (Grint and Woolgar, 1997). They are briefly described next.

The social shaping of technology (SST) approach maintains that technology is shaped by the political, economic, social and technical settings in which it is developed, implemented and utilised. SST seeks to subject this process of shaping to mechanisms of social accountability. The social construction of technology (SCT) shares much in accord with SST, but is focussed more on the design and construction of technology in particular socio-economic contexts. SCT seeks to depict how technology is constructed by multiple actors, and along multiple paths. In its initial stages of development, the features of a technology are characterised by a range of options, but over time, as actors promote particular design options, the technology become 'stabilised' on a particular configuration of chosen features. The actor-network theoretical approach was described earlier during the review. The technology as text approach refuses to concede, like SCT, that technology can become stabilised, and could thus be capable of having definite objective properties. Using the base metaphor of a text, it argues that the properties of a technology continue to be a social 'construction' throughout its lifetime of development and use, subject to changing attributions of meaning by its users. This strong relativistic position thus forecludes the ascription of any objective properties or effects to the role and nature of technology in organisations.

Like the sociotechnical *systems* approach, the newer sociotechnical frameworks generally share an identical concern for analysing the elements of organisation/society and technology in interaction. These new sociotechnical approaches however, all differ conspicuously from the sociotechnical systems approach, in having strictly rejected the following traditional features of that older approach: (i) the use of a systems thinking

framework; (ii) an instrumental conception of the value of knowledge; (iii) a clear, unproblematic division between the social and technical dimensions, or elements, of an organisation. Though these conventional characteristics of the sociotechnical systems approach are in keen need of reformulation, in order to be reconciled with contemporary concerns and understanding (this is discussed in the following sub-sections), there were key reasons for adopting this approach in this study.

The primary reason for adopting the use of the sociotechnical systems approach in this study, given the existence of newer, arguably more sophisticated sociotechnical approaches, was its basis in systems thinking. The systems basis of this approach was seen to offer particular merits for studying the emergent nature of IT use, in areas of emphasis those other approaches were deemed to lack. The systems thinking framework central to the sociotechnical systems approach makes it strongly fitted for: (i) studying the influential elements and factors within a broad scope of a firm's operational domain from an integrative and inter-relational standpoint, as well as (ii) elaborating emergent properties that are exclusive to an operational domain as a whole i.e. when the elements and circumstances which comprise it are viewed as an ordered arrangement. Moreover, considerable development has occurred, over recent decades, in the theory of systems thinking: this will be elaborated shortly, in section 2.3.2. These circumstances presented an opportunity to reform and extend this traditional systems approach to deal with the emergent nature of IT based organisational functioning, at a level of analytical complexity equivalent to that offered by newer theoretical approaches. Another critical consideration that led to the choice of the older sociotechnical systems approach, over more recent sociotechnical approaches, was its principal focus on foregrounding the inconsistencies and conflicts in organisational functioning, explained earlier. These key features recommended the adoption of the sociotechnical systems approach over other sociotechnical frameworks in this study.

The next section will review the limitations of the existing mode of theoretical analysis adopted by the IS sociotechnical systems approach, and identify ways in which it can be developed to deal with the emergent nature of organisational functioning. The elaboration undertaken will also encompass a review and discussion of systems thinking as applied in the IS and operational management fields. The whole aim of this section is to establish explicit requirements to be fulfilled in the formulation of a new analytical

framework, for use in illuminating the emergent nature of IT based work practices from a sociotechnical systems standpoint.

2.3.1 Limitations of Sociotechnical Systems Approach

The fundamental postulate of the IS sociotechnical systems approach is that the effectiveness of a company's use of IT, within a particular operational environment, is contingent on the degree of success its members have at collectively negotiating and managing key inconsistencies, tensions or dilemmas that are inherent to the organisation of human and technological resources within its unique operational domain (Mumford, 1996). It is thus essential that an analytical framework formulated for this approach should preserve its central trait: an ability to foreground and elaborate the contradictions and tensions implicated in the use of IT by organisations.

The sociotechnical systems approach also advocates, as described in the earlier review: (i) taking an integrative, systems thinking perspective in the analysis of IT use in organisations; and (ii) treating the interaction of social and technological components in conjunction (Bikson, 1996). These fundamental features constitute the sociotechnical systems approach. Besides retaining these features, a new framework for extending this approach should also aim to rectify certain key limitations ascribed to this school of thought. Despite impressive methodological contributions in IS development practices, the sociotechnical systems approach has failed to articulate an adequate theoretical basis (Fincham and Rhodes, 1992). Its shortcomings are elaborated next.

The sociotechnical systems approach has not been equipped conceptually to deal with longitudinal changes in technology usage (Lin and Cornford, 2000; Roberts and Grabowski, 1999). Its existing analytical instruments, such as the ETHICS methodology (Adman and Warren, 2000; Mumford, 1996), are pivoted on the use of such concepts as a 'fit' between the social and technical aspects of a 'primary task', and the reduction of 'variance' from a prescribed target. This conceptual basis has meant that the approach has only been capable analytically of addressing *pre-defined* functions in organisations. This is an inherent limitation of a cybernetic systems framework (Ciborra, 1987), which influenced the original theoretical foundations of the approach. This conceptual basis has precluded a treatment of the way in which the use of IT, over an extended period of

time, occasions the bricolating of new functions, meanings, or strategy in organisational activity. The IS sociotechnical systems approach is thus currently in need of conceptual modification or innovation to tailor its relevance and applicability to the complex and dynamic nature of contemporary firms (Mumford, 1997).

This is also a need for extending the sociotechnical systems approach beyond the largely prescriptive and normative orientation it has hitherto displayed (Garrety and Badham, 2000). This past orientation is tied to a focus on the *design* of organisational-technology interaction, rather than *comprehension* of this interaction through theoretical analysis. This orientation has meant that the approach is significantly restricted in its ability to offer critical understanding of the interaction between institutional properties and IT use. There is a keen need for theoretically advancing the sociotechnical systems approach as a tool of understanding, besides one of design (Griffith and Dougherty, 2001). A significant direction in which this IS approach may therefore be extended is what Walsham (1993) has termed a 'constitutive process' theory. An analytical basis is required that can engender rich understanding about the form and constitutive elements that characterize the process of organisational IT deployment and usage.

Sociotechnical systems theory has been criticised for offering too 'naive' a view of social organisation (Spender, 1996; Scarbrough, 1995). It has failed to take sufficient account of the influence of institutional properties in organisations on the development and use of IT. Silverman (1970) imputed the weakness of this school of thought, in addressing the complexities of organisations, to its underlying basis in 'functionalism'. This particular systems based sociological framework, rooted in an analogy of viewing organisations as biological organisms, is deemed by Silverman to have over-simplified the complex nature and outcomes of organisational functioning in response to change (e.g. the introduction of an IT system). It is seen to reduce such complexity to merely a matter of finding the right 'balance' of fulfilment, in the organisation, of the 'objective needs' of its members. Accordingly, studies in the sociotechnical systems stream have been relatively unsophisticated and under-elaborated in their analysis of organisational functioning, neglecting to treat key aspects of social organisation such as political activity and power structures (Garrety and Badham, 2000).

Along with criticism of its unsophisticated treatment of social organisation has come criticism of its treatment of the nature and capacity of technology. The approach's traditional stance of a strict division between the social and technical, and its ascription of IT as a component of the technical system, has resulted in a failure of due recognition of the social nature of technology. IS studies have demonstrated, in contrary to the classical sociotechnical categorisation, that IT is as much a social as a technical form or practice, since it stipulates functional arrangements which reproduce social orderings or values, and since its use is subject to human evaluation and interpretation (Kling, 1996; Orlikowski, 1991). The sociotechnical systems approach has been limited thus by a propensity to treat the capacity of technology as inherently unproblematic, as claimed by Grint and Woolgar (1997, p. 15), who stated the approach has "[carried] the implicit assumption that the nature and capacity of technology remained beyond the remit of sociological analysis; in effect, the nature and capacity of technology has been treated as given, objective and unproblematic." Hence, there is a need to equip this systems based approach with a more comprehensive treatment of the social dimensions that are implicated in the way the capacity of IT systems are put to particular uses in various organisations.

These existing limitations in the approach suggest two additional requirements in a new framework to extend the sociotechnical systems approach. It should enable a more comprehensive account of the social dynamics and institutional forces that exist within firms, and which come into play in determining the nature and capacity of IT use in organisations. Furthermore, the old form of systems thinking that has characterised the approach would have to be significantly revised, or substituted by an alternative. It is thus essential to review current understanding of systems thinking, in order to identify a more appropriate basis of underpinning for sociotechnical systems analysis.

2.3.2 Contemporary systems thinking

Systems thinking refers to the use of ideas and concepts from systems theory as a means of analysis and theoretical engagement. There exist several varieties of systems theory at present, bred within different theoretical fields: all versions, however, draw selectively from a common pool of concepts or principles that originated in the ideas of general systems theory, the work of a biologist, von Bertalanffy, in the 1940s (Skyttner,

1996). Those common concepts include wholes, components, relations and boundary: common principles include the notion of an adaptive, organized assembly of parts that serves to fulfil purposes or goals; layered structure; emergent properties; a mechanism for preserving integrity/identity; the inter-relationship of parts and whole; and control and communication between components (Checkland, 1999; Angel, 1990). New types of systems theory, such as autopoiesis (see Mingers, 1989) and complexity theory (see Lycett and Paul, 1999), are expanding this classical stock of concepts and ideas which is informing contemporary systems thinking.

In general, systems thinking is characterized by the pursuit of an ideal of being comprehensive and integrative in analysis, a focus on relationships between elements under scrutiny, and a strong concern over the defining of boundaries (Midgley, 2000). Midgley (2000, p. 36) asserts that the gist of systems thinking is to portray a rich and complex picture of organisational domains by including as much informative detail as possible, but without undermining the coherence of the analysis through over-inclusion. Lazlo (1972, p. 19) described systems thinking as: "... thinking in terms of facts and events in the context of wholes, forming integrated sets with their own properties and relationships." Checkland (1981) described the goal of contemporary systems thinking as organized complexity. Systems ideas and concepts are used as mental aids to achieve a coherent, integrative ordering of understanding regarding real-world phenomena, that are typically characterised by intricacy, messiness and ambiguity.

Systems notions and principles constitute the foundation for two IS frameworks: the sociotechnical systems approach described hitherto, and soft systems methodology, or SSM (Checkland, 1981; Checkland and Scholes, 1990). SSM however, possesses a well elaborated, newer philosophy of systems thinking which is substantially different from the older form of systems theorising that characterises the existing sociotechnical systems approach. With the exception of SSM, most of the ideas of newer, modern forms of systems thinking have not been adapted for use in the study of organisational IT practices, as noted by several IS and management researchers who recommend such an application (Checkland, 1999; Galliers, Mingers and Jackson, 1997; Klein, 1996). There was thus an apparent opportunity for formulating a new sociotechnical systems analytical framework with a revised, new form of systems thinking. The key differences between the older and newer generations of systems thinking are described next. These

distinctions, and the evolution from older to newer forms, have been asserted by several researchers along similar lines (e.g. Midgley, 2000; Checkland, 1999; Jackson, 1992).

The first generation of theorising with the use of systems concepts, termed by Checkland (1999) as hard systems thinking, was pre-dominant in the 1950s and 1960s. This older form of systems thinking was characterised by a realist ontology. It assumed that organisations *are* systems, and that they can be engineered, much in the way of logical machines, to achieve stated goals and efficiencies. Hard systems thinking was rooted in 'functionalism' (Silverman, 1970), which, as mentioned earlier, was an older sociological framework which held that the operations of the social system could be likened to the behaviour of a biological organism operating within its environment. This approach accordingly posited that a social system had 'needs' which were objectively defined, and that the most important focus of analysis was the way in which a change process could satisfy those needs and maintain the 'equilibrium' of the system. Another informing stream of work for hard systems thinking was cybernetics (Wiener, 1961), which introduced concepts like self-regulation, control, communication and variances. The sociotechnical systems approach, despite transcending certain perceived limitations of functionalism (e.g. by incorporation of subjectivity), belonged to this first generation of systems thinking (Midgley, 2000; Silverman, 1970). This is reflected in the way its traditional methods of analysis possess a functionalism-oriented outlook, and a realist ontology. For example, the ETHICS methodology (Mumford, 1993) holds that the needs of separate social and technical sub-systems can be defined and fixed, and that a suitable fit that balances those two sets of needs may be engineered, to meet established organisational objectives.

A new generation of systems thinking, designated by Checkland (1999) as soft systems thinking, came about in the 1970s and 1980s. Checkland (1999, 1981) himself was largely responsible for this innovation in form. This second generation of systems thinking holds that systems are not objectively given, and that social organisations are much more complex and ill-structured than had been assumed by earlier approaches. The distinguishing feature of this new systems approach is the insight that the process of inquiry itself can be organized as a system (Checkland, 1981). Systems thinking is thus seen to constitute a processual, learning process undertaken by a person or groups of persons. Systems ideas and concepts are viewed as mental constructs or cognitive

mappings that aid such observers to *frame* an understanding of a particular human situation or organisational domain (Checkland, 1999; Flood and Jackson, 1991b). SSM formalised this learning process into systematic steps, in which provisional formulations of real-world circumstances could be reflected upon, discussed among stakeholders, and collectively refined, so as to provide a guide for intervention by researchers or analysts in organisations (Checkland and Scholes, 1990).

Another variant of the contemporary form of the systems approach came into prominence during the late 1980s, called critical systems thinking (Ulrich, 1988; Flood and Jackson, 1991 a,c). Some researchers call this the third generation (Midgley, 2000; Jackson, 1992). Critical systems thinking is set off from other forms of systems thinking by an explicit commitment to a core set of values, including human emancipation, and critical and social awareness (Jackson, 1992). This approach advocates the need for systems practitioners to reflect closely on the social consequences of their actions in organisational interventions, and for them to reveal and clarify their implicit normative assumptions and commitments, so that the legitimacy of an intervention project can be subjected to unconstrained and open debate by all organisational members concerned.

The formulation of soft systems thinking has engendered the transformation of the systems approach in contemporary IS and organisational studies. The adoption of a systems philosophy or the use of systems concepts may now be undertaken in research studies with explicit recognition that they are *only* language aids to support description and understanding (e.g. Lycett and Paul, 1999). Checkland (1981) describes three basic motivations for the adoption of a systems thinking framework: firstly, in a sociological role, where the aim is to use systems ideas and concepts to ascertain if an intelligible, insightful description of organisational phenomena is viable; secondly, in a managerial role, where the aim of description using systems concepts and ideas is to carry out some form of problem solving; and thirdly, in a designer role, where the aim of description is to facilitate changes in reality.

However, given the considerations posed by the need for advancing the IS sociotechnical systems approach in its treatment of the emergent nature of IT use, the above review of the current status of systems thinking in the IS and management fields raised a particular problem. A significant need had been painted for extending this IS

approach towards being a constitutive process theory. The necessity had been stated for sociotechnical systems analysis to be made an instrument of theoretical understanding rather than design. However, a strong *interventionist* orientation in the application of systems thinking in the IS and operational research fields appears to have restricted the development of its resources for use in theoretical description. SSM, for instance, the most prominent analytical instrument of IS systems thinking, “is not itself a social theory but an action-oriented methodology. Its primary purpose is to facilitate taking action in the world in order to bring about change, rather than explaining how the world is,” (Mingers, 1984, p. 98). The resources of systems thinking in the IS field, namely soft systems thinking and critical systems thinking, have been almost fully focussed on issues of design and intervention (i.e. in the managerial and designer roles identified by Checkland, in the previous paragraph). IS systems thinking appeared to be inadequately articulated at present for the role of germinating social theory, or supporting insightful theoretical explanation of the nature of social organisation.

This particular lack of development in the IS systems thinking tradition posed a difficulty for the requirement to develop a new framework of sociotechnical systems analysis for illuminating the emergent nature of IT based operations in organisations. However, a deeper scrutiny of the IS literature, and an expanded search of theoretical literature outside the fields of IS and organisational studies, eventually revealed an avenue for overcoming that shortfall. This potential obtained from two observations.

Firstly, a marked similarity was perceived between the contemporary form of systems thinking and the theoretical approach of hermeneutics, which is concerned with the study of the interpretation of meaning, or signification, of texts or human action (Boland, 1991). This suggested that hermeneutic theory could supply the required conceptual resources for elaborating systems thinking in the (new) role of theoretical description and analysis of the use of IT in organisations. This correspondence between systems thinking and hermeneutics had been previously noted in the IS literature, but not developed in any manner, by Tranfield (1983). In a review of core philosophies that inform research efforts in the IS field, he had remarked (1983, p. 88): “Like the systems approach, hermeneutics is essentially integrative. It is a philosophy concerned with the study of whole situations. It outlines the inextricable interconnectedness of social variables.” Tranfield (1983) also asserted that Checkland’s notion of systems thinking,

outlined earlier in the account of soft systems thinking, is fundamentally consonant with hermeneutic philosophy. Hence, there appeared to be a significant amount of scope for marrying systems thinking in the IS field with ideas from hermeneutic theory, to form a platform for theoretical analysis of IT innovation and use. Such *interpretive* application of systems thinking would complement its interventionist orientation in the past.

Secondly, the field of semiotics, concerned with the study of signification (Eco, 1976) was perceived to offer potential resources for meeting the requirements described earlier. Following the work of its founder, Saussure (1974 [1916]), and contributions by linguistic theorists like Hjelmslev (1961) and Halliday (1978), this field has developed a framework of systems thinking that is oriented towards description, not design (since it is concerned with the explanation of signification and practices of language use). This orientation is reflected in a statement by Hjelmslev (1961, p.8): “ ... for every process, there is a corresponding system, by which the process can be analysed and described by means of a limited number of premises.” This suggestion that a system is a means of understanding mirrors Checkland’s ideas earlier. Moreover, through the direction set by its founder, the semiotics field has focussed on developing analytical tools to support its primary aim: to foreground and illuminate the oppositions and polarizations of meaning and significance in discourses and social practices (Coward and Ellis, 1977). Hence, resources from the semiotics field were seen as potentially conducive for forming a new sociotechnical systems framework to address the incompatibilities and inconsistencies in IT use. They would be complementary with theoretical resources from hermeneutics, since both those fields address the study of interpretation and signification.

The preceding review of the evolution in systems thinking thus suggested that a new analytical framework, for the study of the emergent nature of IT use, would benefit from adopting a more current form of systems thinking than the old, functionalism-oriented framework which has traditionally underpinned the IS sociotechnical systems approach. That older form of systems thinking was perceived (in sub-section 2.3.1) to be responsible for certain critical shortcomings in this approach at present, such as an inability to address the emergent nature of IT use in firms, as well as an unsophisticated treatment of the social complexity of organisations and IT capacity. The contemporary form of systems thinking, which encompasses the use of systems concepts as a learning

process for arriving at *useful* descriptions, provides a more appropriate underpinning for a new sociotechnical systems framework for elaborating the emergent nature of IT use.

2.3.3 Requirements for a new framework

The preceding survey of the IS sociotechnical systems approach (2.3.1) and the evolution of systems thinking (2.3.2) has thus generated key requirements to be met by a new analytical framework for supporting systems based sociotechnical inquiry into the emergent nature of IT use in firms. These specifications consist of the ability to: (i) offer tools of analysis of organisational functioning that especially foreground the contradictions or tensions implicated in IT based operations; (ii) furnish a contemporary framework of systems thinking useful for comprehending the emergent nature of organisational functioning; (iii) enable a more inclusive account of the social dynamics and institutional forces at work in shaping the capacity afforded by the use of IT. Given this need of formulating a new sociotechnical systems framework for investigating the emergent nature IT based work operations, a review is required next of the current state of IS knowledge on the empirical context of call centres, in which, as explained in the first chapter, the theoretical development and application of this framework is proposed.

2.4 CALL CENTRE OPERATIONS

IT-enabled call centres represent new technology-based forms, the product of an innovative union of digital information and communication technologies that became commercially available in the late 1980s and early 90s. This section first elaborates the particular reasons for the choice of these work sites as this study's empirical setting. It subsequently reviews previous studies of call centre work environments in IS literature.

The work environment of call centre operations was selected as the empirical setting for carrying out the study and illumination of the emergent nature of IT based work practices. There were two key reasons for this, besides the more general ones educated in the first chapter. The first reason had to do with the opportunity these centres presented for illuminating, through the use of an approach based on systems thinking, the manner in which factors and circumstances within the broad scope of a domain of operations shapes the emergent nature of IT based work practices in companies. A call

centre's operations constitute the immediate boundary between an organisation and its customers (Frenkel et al., 1999). Work activity at a centre usually involves interactions with its host or parent organisation, termed for convenience in the rest of this thesis as the 'corporate interface', as well as interactions with the customers, designated as the 'customer interface'. To respond effectively to inquiries, CSRs need to be supported by relevant information resources, workflows and channels of inquiry linking the centre to the operations of its parent organisation. Moreover, to respond effectively during direct dealings with customers, work processes at a centre and the parent organisation must constantly adapt to their shifting needs. Thus, call centre operations are significantly influenced by the internal context of the parent company, and the external environment of customer interactions. They offered an appropriate site for studying the influence of broad contextual factors and forces IT based work domains. The focus on an integrative and inter-relational analysis central to the systems thinking perspective appeared highly conducive for illuminating the inter-linkages in call centre operations.

The second reason for the choice of call centres as the empirical setting had to do with the opportunity they offered for studying contradictions and tensions implicated in IT based work practices. Call centres represent the frontline of an organisation's operations (Frenkel et al., 1999). The boundary-spanning nature of employee roles and work processes at such centres constitutes a ripe environment for inconsistencies and tensions to take root. For example, customer service staff often find themselves poised between two conflicting sets of injunctions in fulfilling their duties. They are caught between, on the one hand, satisfying the performance expectations of the supervisory or higher-level management staff they work under, and on the other, satisfying the needs of the customers they serve (Bateson, 1985). Such potential incongruencies within the work environments of call centres were seen to offer a particularly conducive empirical setting for developing and applying a key feature of this study's sociotechnical systems framework: the foregrounding and elaboration of contradictions and tensions inherent to the use of IT systems in organisations.

As highlighted in the opening chapter (section 1.3.3), the IS field has witnessed only a few studies on call centre work environments. Four of those studies have been quantitative assessments of different aspects regarding the impact of IT use on the work environment of employees. Turner (1984), in a study of 620 claims representatives in a

US Social Security service centre, investigated the impact of the introduction of IT on perceived task environment characteristics. He found that users experienced increased performance, greater task demands, higher mental strain and absenteeism, and lower job satisfaction. Similarly, Kraut, Dumais and Koch (1989) studied the impact of the implementation of an IT system on 485 customer service representatives (CSRs) at a large public utility service centre. They found that CSR productivity at routine work tasks was increased by the computerisation; however, productivity levels in non-routine tasks decreased. Irving, Higgins and Safayeni (1986) investigated the level of impact of computerized monitoring. They compared the job perceptions of 50 workers at a centre that had computerised performance monitoring facility, with the perceptions of 94 workers at three other identical sites that did not have this feature. Their results linked computerized job performance monitoring with perceived productivity increases, higher organisational control, and increased accuracy and comprehensiveness of performance evaluation procedures. Negative outcomes included increased work stress, decreased job satisfaction, and diminished quality of employee relationships with their managers and team-mates. Subramanyam and Krishnan (2001) examined the business value of call centres. They investigated the state of the call centre operations of the IT division in a large American university, before and after the introduction of an enterprise customer relationship management (CRM) system. They analysed quantitative data from 25,000 customer service calls over pre and post implementation stages. The results indicated that the centre's performance at providing customer support improved after the implementation of the CRM system (i.e. the rate at which customer calls were solved increased by 2.66%). They also suggested that the benefit of CRM enabled workflows was higher when customer-reported calls were complex and difficult to solve.

Two other existing IS studies of call centres have been qualitative in nature, with a process-oriented focus. Orlikowski (1996 a,b) studied the use of a Lotus Notes system at a call centre staffed by IT specialists providing support for software users. Findings indicated that specialists' work practices within the centre, over the two years following the implementation of the system, altered significantly in several aspects. This included the quality of knowledge being utilised, the patterns of collaboration, the distribution of work, as well as the accountability, coordination and control mechanisms in force. In a study of the process of implementation of a new call centre, Boddy (2000) assessed the applicability of Orlikowski's structurational model in comparison with the technology

imperative model and the strategic choice model. He found the notion of interpretive flexibility in the structurational model gave it the edge of the other models in explaining insightfully the events and circumstances surrounding the management decisions of the centre and the actions of its service staff, during the period from the pilot to the full implementation of the new centre. The characteristics of the implementation process of the call centre were seen to emerge from the interactions between users, technology and the institutional properties of the organisation. The centre's operations at the time of full implementation were observed to be very different from those anticipated at the pilot.

As the above review indicates, and as Boddy (2000) affirms, there is a dearth of IS studies of call centres that trace the contextually shaped nature of IT based operations in this new, ubiquitous organisational form. The need to improve empirical treatment of call centres appeared significant. Moreover, in regard to the research potential identified and discussed earlier, there appeared to be much scope for studying the way call centre operations are shaped by factors and interactions in the context of the host organisation and customer environment that they are established in. An investigation of the emergent nature of IT enabled call centre operations thus appeared highly forthcoming.

2.5 FORMULATION OF RESEARCH INQUIRY

A recapitulation of the preceding developments will serve for formulating this study's research question. The review of the research literature on the emergent nature of IT use had indicated that there were two key areas in which existing IS understanding may be advanced. There has been a significant lack of attention on (i) the influence of structures and conditions within a broad scope of an organisation's operational domain in shaping the emergent nature of its IT based work practices; and (ii) the illumination of contradictions and tensions in the contextual shaping of such operations. The use of a framework specifically based on systems thinking was seen to offer strong potential for addressing such limitations. The development and application of a new contemporary framework of sociotechnical systems analysis was seen as an appropriate way to fulfil these requirements, and it was perceived that the fields of semiotics and hermeneutics appeared to afford compatible theoretical resources for developing or formulating such a framework. A review of past IS research on call centre operations evinced a lack of

understanding of the emergent nature of work operations in this IT based organisational form, as broadly conditioned by the organisational context and external environment.

2.5.1 Statement of Research Question

Given the preceding observations, it was concluded that a significant need exists for further theoretical illumination of the emergent nature of IT based work operations in organisations, using an approach based on systems thinking, and that an investigation of call centre work environments as an empirical setting appeared conducive to this end. Accordingly, the following research question was formulated to direct this study:

- **How can concepts and methods from semiotics and hermeneutic theory be used to help make sense of the emergent nature of IT enabled call centre operations from a systems thinking standpoint?**

The goal of this study was to develop a way of accounting, from a contemporary systems thinking standpoint, for the emergent nature of IT based operations in firms. In other words, this research sought to demonstrate the utility of the systems perspective in research on this important topic area. Though conducted within the setting of call centre work environments, the empirical focus of this research was more *methodological* than substantive. The study's focus was on developing a new framework of systems based sociotechnical analysis that could illuminate the emergent nature of IT based practices in call centre operations, in terms of broad contextual structures and conditions, and in terms of the incompatibilities and conflicts that could arise in such operations. The open tone of the research question reflects this study's exploratory approach. This inquiry did not seek to test existing propositions, but to develop new conceptual understanding and explication. Its direction was set by four major themes of inquiry.

2.5.2 Themes of inquiry

The goal of this research was the formulation of a contemporary methodological framework of sociotechnical *systems* analysis for illuminating the emergent nature of IT based work operations in organisations. The development and application of this new framework, within the setting of call centre operations, enabled a particular focus on

four principal themes of inquiry, identified from the foregoing review of IS literature as inviting further theoretical development. The order in which these themes are described next is not meant to imply any order of precedence: they were of equal interest.

One major theme of this research was to assess the comparative utility of the systemic emphasis, in relation to the situated enactment and political actor emphases, in accounting for the emergent nature of IT based organisational work operations. The systemic emphasis has been theoretically under-specified in previous IS theorising. Its development and elaboration in this study was thus undertaken through the application of a new framework of systems thinking. The second theme which took up this study's attention concerned the relationship between information technology and organisational functioning, which has been a primary area of debate in contemporary IS research on IT based work operations. The implications of salient features or properties of IT tools for employee agency and organisational transformation as seen in the preceding review has strongly engaged IS researchers in theorising such interactions. This research presented the opportunity to study the way in which the use of features and capacities of IT in call centre work activities sheds light on the nature of technology-organisation interactions. It also offered the opportunity to study the processual integration of this new technology based organisational form to the parent company at a macro level.

The third major theme of inquiry for this study was the theoretical extension of the IS sociotechnical systems approach, through the formulation of a new systems based analytical framework. The ability of this framework to augment the traditional focus of this approach, as well as to compensate for its significant weaknesses hitherto, will be discussed. The way the utility of the sociotechnical systems approach is promoted by this inquiry will also be considered. The fourth principal theme of this study concerned the feasibility and benefits of mounting the formulation of a new framework of systems thinking, for use in the contextual investigation of IT based organisational functioning. The undertaking of this study offered the opportunity to introduce key innovations into the systems thinking method, to enhance its application in IS research. The theoretical and methodological advances that the adoption of a systems thinking based method of inquiry thus brings to IS research will be considered. In conclusion, the main aim of this research inquiry have been identified. The next chapter elaborates the new framework of sociotechnical systems analysis adapted and developed for this study's purpose.

CHAPTER THREE: THEORETICAL FRAMEWORK

3. INTRODUCTION

The aim of this research, as established in the previous chapter, was to develop a way of illuminating the emergent nature of IT based organisational work practices from a systems thinking perspective. A review of the research literature had engendered the proposal that the sociotechnical systems theoretical approach was well suited as a basis on which to undertake this inquiry. This approach encompasses the following features: (i) taking a systems thinking perspective in the analysis of IT based work practices in firms; (ii) identifying key tensions and contradictions implicated in such practices; (iii) considering the interaction of social and technological elements in conjunction. The aim of this chapter is to elaborate the new framework of sociotechnical systems theoretical analysis formulated to support the undertaking of this research inquiry. This theoretical framework is designated as the 'systemic appreciation framework'.

The systemic appreciation framework merges the use of socio-semiotic concepts and schema with hermeneutic principles and ideas, thereby offering a novel method of sociotechnical systems analysis for elucidating the emergent nature of IT based work practices in organisations. The theoretical resources that constitute this framework were obtained from the work of Paul Ricoeur (1991, 1984), a major hermeneutic theorist, and Algirdas Greimas (1990, 1987), a leading semiotician with a focus on social structure. Ricoeur's work in hermeneutic theory was introduced to the IS field by Boland (1991). His ideas have informed the research methodology of recent IS studies (e.g. Sarker and Lee, 1999). However, his ideas introduced here have not been used in other IS studies. Greimas' work encompassed a fundamental concern with the meaning and structure of human action (Gottdiener, 1995). His ideas have been directly unknown, hitherto, in the IS field: however, a small portion of his work has been indirectly appreciated, as his concept of actants was adapted by Latour (1987), in a restricted and modified form, in the conception of actor-network theory. Greimas' ideas on the structural organisation of human activity were seen as relevant to IS research concerns since, as Orlikowski and Robey (1991) stipulated, studies of IT use in organisations ought to be informed by an underlying theory of social organisation.

The concepts and ideas that comprise the systemic appreciation framework have been selectively adapted and modified, to a certain extent, from their original form by Ricoeur (1984) and Greimas (1987). Greimas' ideas have been adapted from his works that dealt with the study of social practices (Greimas and Rastier, 1968; Greimas 1987), organisations (Greimas, 1990) and from presentations by other researchers on the use of his techniques in the study of texts and text-analogues (Titscher et. al, 2000; Fiol, 1990). Section 3.1 next sets out a preliminary background of ideas to facilitate the introduction of the framework proper, which occurs in 3.2 and 3.3. Section 3.4 will elaborate how these ideas further develop and augment systems based sociotechnical inquiry.

3.1 BACKGROUND IDEAS AND ASSUMPTIONS

The systemic appreciation framework is comprised of theoretical concepts and analytical methods adapted from the work of Ricoeurian hermeneutics and Greimassian socio-semiotics. Its purpose is to support systems based sociotechnical analysis of the emergent nature of IT based practices in organisations. Since its concepts and method have not been previously introduced in IS studies, their novelty obligates some preparatory groundwork. This section elaborates fundamental ideas and assumptions necessary for the explication of the framework in the later sections. These preliminaries comprise descriptions of: (i) the general approach of the framework; (ii) the conjunction between hermeneutics and systems thinking; (iii) the use of narrativity as a mode of analysing organisational functioning; and (iv) the role or function of this new analytical framework.

3.1.1 General approach

This framework is grounded in a contemporary systems thinking approach that is hermeneutic in orientation. Its general approach may be explained with reference to certain ideas from Vickers (1983, 1970). One of these is the application of his notion of 'appreciation' (Vickers, 1970) to the task of theoretical analysis. This notion may be described as a hermeneutic conception of understanding. Vickers (1970) had noted that analysts are pre-conditioned by the backgrounds of knowledge or values they have gained from previous experiences in their appreciation (i.e. reading) of situations. He

also observed that these appreciative settings do not only condition new interpretations, but are also modified by them in turn, in a series of circular or recursive qualifications over time that engender improved understanding. These conclusions are key tenets of phenomenological hermeneutic theory (Gadamer, 1989; Ricoeur, 1981). Butler (1998) noted that while increased interest in the use of such insights from hermeneutic theory has been created in the IS field by prominent researchers (e.g. Boland, 1991; Lee 1999, 1994; Myers, 1995), there is a paucity of exposition on the application of hermeneutics as a method for supporting empirical analysis. It was perceived in this study however, that Ricoeur (1984) had provided a well-articulated exegesis of the hermeneutic reading of action and events. His ideas were thus adapted and incorporated in this framework, to inform it with an explicit treatment of the process of appreciation in theoretical analysis. This framework is thus grounded on phenomenological hermeneutics. The relevance of this methodological grounding will be elaborated shortly, in sub-section 3.1.2.

Another idea asserted by Vickers (1983) was that human activity differed from machines in that the establishing and maintenance of relations over time, rather than the achievement of goals, constituted the paramount concern. He thus defined a system as a 'net of relations'. Accordingly, he rejected the goal-seeking models of earlier cybernetic based systems theory, asserting instead that organisational activity typically gives rise to "multiple and mutually inconsistent courses" of action (cited in Checkland, 1981, p. 262). Analysis of such activity should thus give strong prominence to the understanding of ongoing relationships between the resources or factors relevant to the undertaking of different purposes. His ideas are consonant with the theoretical emphasis of this study's framework, and reflect another primary aspect of its underlying perspective. The central focus of analysis of this framework is on identifying nets of relations that integrate heterogeneous elements, events and factors into a comprehensive, composite picture of organisational functioning. Systems thinking is used as a tool of inquiry to illuminate key relations between different organisational components and features: relations that may be associative or contradictory, supportive or nullifying. In order to determine these relations underlying emergent IT based work practices, the framework undertakes an analysis based on examining organisational activity through the theoretical lens of narrativity. This will be explained shortly, in sub-section 3.1.3. First the relevance of the hermeneutic method for systems thinking is clarified.

3.1.2 The hermeneutic method and systems thinking

This section seeks to clarify the particular relevance of Ricoeurian hermeneutics for underpinning the theoretical framework to be introduced shortly. This relevance stems in general from the treatment of the relationship between the parts and the whole central to hermeneutic thought, and in particular from the union Ricoeur proposed between the hermeneutic method and structural analytic techniques. Phenomenological hermeneutics theory (Gadamer, 1989; Ricoeur, 1981) asserts that understanding is constituted by a dialectical process of articulation between the parts and whole of a phenomenon under study. Gadamer (1989) formalised this tenet in the concept of the hermeneutical circle: the signification attached to the whole of a particular phenomenon is envisaged by referencing the significance/meaning of its constituent parts or details, and conversely, the signification attached to the constituent parts is anticipated by reference to the whole. This circle of congruence between the parts and the whole is never closed. Its coherence is constantly dissolved by inconsistencies or shifts in focus of attention, giving rise to fresh interpretation. This circular referentiality reflects a principle of organic harmony, in which coherency of translation between the whole and its parts is the underlying logic by which significance is constructed.

Ricoeur (1991) may be said to have significantly augmented the methodological productiveness of phenomenological hermeneutics for informing sociotechnical *systems* analysis. Firstly, as noted by Boland (1991), a principal contribution made by Ricoeur has been to theoretically propose and develop the argument that human action may be ‘read’ or analysed as a ‘text’ (Ricoeur, 1971). By demonstrating that the challenge of interpreting the meaning of human action and phenomena is similar to that of written text, Ricoeur established the applicability of hermeneutics for the study of IT based work practices in organisations (i.e. by treating such phenomena as text-analogues). Secondly, Ricoeur (1971) extended the notion of the dialectical basis of interpretation by adding hierarchical classification to the idea of the hermeneutic circle. He noted the understanding process involves promoting to a primary, or relegating to a subordinate status, the significance of various components of the phenomenon under analysis.

Thirdly, and most importantly, Ricoeur (1991) added another dimension to the circle of understanding through the notion of the hermeneutic arc, in which the process

of theoretical comprehension is conceptualised as a metaphorical arc made up of two poles, understanding and explanation. He theorised that the act of interpretation arises from a dialectic between two movements on this arc: a movement from understanding to explanation, and a movement from explanation to understanding. Elaborating this, he proposed that the act of interpretation arises from a fusion between synthetical thinking, that seeks to infer or grasp a coherent whole out of the various parts of a phenomenon, and analytical thinking, which encompasses the use of instruments of structural analysis (though not of an Humean cause-and-effect type) to integrate the parts of a phenomenon into a coherent whole (Ricoeur, 1991). By thus elaborating the theoretical basis for (and endorsing) the use of structural analysis to join understanding and explanation, Ricoeur achieved a key methodological advancement, as noted by Butler (1998). Ricoeur paved the way in this thesis for productively merging the hermeneutic method with the use of analytical concepts and tools that support systems thinking. Some researchers may be led to view systems thinking and hermeneutics as being ontologically incompatible, but this important advancement by Ricoeur has articulated the dialectical basis by which an integration of these two theoretical approaches can prove fruitful.

The congruence between hermeneutics and systems thinking was also noted in the discussion in the previous chapter. Its combination had been sought in this study's framework. The emphasis in hermeneutic thought on the relationship between the whole and the parts of a phenomenon, especially as developed by Ricoeur, was seen to be compatible with the parts-whole treatment of systems thinking and its aim of 'organised complexity' (Checkland, 1981). The use of Ricoeurian hermeneutic theory for instilling heightened methodological awareness of the parts-whole dynamic appeared especially warranted in this study, given that it aimed to develop the systems thinking method for illuminating the emergent nature of IT based activity. Ricoeur's ideas thus underpinned this framework, augmenting its interpretive application of systems thinking.

3.1.3 A narrative mode of analysis

This section introduces ideas related to the use of 'narrativity', as proposed by Greimas (1987), as an analytical means to organise an understanding of the significance and of the relations between the miscellany of actions, events, factors and circumstances that constitute the domain of an organisation's functioning around the use of IT tools.

Greimas' concept of narrativity may be defined as the capacity to apprehend or perceive social phenomena in the form of narrative structure. This concept is related to the notion of narratives, which refers to storied accounts of experiences and events that are framed by an intelligible signification, or 'plot' (Boje, 2000).

Greimas' (1987) interest in narrativity, as a mode of apprehension for use in the analysis of social action, extended to a much deeper level than the surface manifestation of narrative tales or stories in organisational activity*. He was interested in narrativity as the primary structural mechanism for the ordering of the *intelligibility* of collective or individual action. Greimas conceived of narrativity as the "common structural level where vast fields of signification are organised," (1987, p. 64). This meant that relations between heterogeneous entities like humans, events, circumstances or artefacts are only established, maintained or evaluated when they are perceived within particular narrative accounts. Ongoing transformations in work activity and performance in organisations are held to be understandable only within particular narrative 'frames' of signification. Greimas (1987) asserted that individual or collective human action is fundamentally teleological: activity derived its significance from its projected end. This is consonant with a narrative mode of apprehension and analysis (Carr, 1997; Crites, 1997).

Greimas' assertion that narrative structures underlie the intelligibility of human action and events receives support from recent studies. Bruner (1990) asserted that the process of human understanding is underpinned by two basic and universal structures of cognition. One of these is the logico-scientific mode, which seeks for universal truth conditions. The other mode, which corresponds to Greimas' thesis, is that of narrative reasoning. This mode of apprehension looks for connections in actions, circumstances and events, that allow for the accommodation and integration of those experiences into meaningful episodes. A recent study of decision making behaviour of jurors in criminal

* Greimas concern with narrativity is to be distinguished from research interest in the organisational studies field on stories and narratives as important features of workplace domains. Studies in that field have highlighted the role of stories and narratives in sustaining a community memory of valuable knowledge (Orr, 1990) and a sense of collective achievement (Corvellec, 1997), as well as in facilitating collective sense-making (Boje, 1991). The most significant development of that stream of inquiry, and the one that comes closest in approximation to the method advocated by Greimas, has been a recent study by Deuten and Rip (2000). In an investigation of the product creation processes at a bio-technology firm, they found that employees engaged in narrativizing in order to cope with the complexity and ambiguity they encountered in the course of their work. However, their analysis incorporated a significant advancement over previous studies. While earlier studies had not gone much beyond elaborating and analysing the stories garnered in various workplaces, Deuten and Rip (2000) attempted to forge a 'meta-story' from the various accounts they had collected. They termed this the *narrative infrastructure* of the product innovation process at the firm. The primary elements of the rudimentary narrative infrastructure they presented were typical narrative 'characters' that recurred over different stories, such as 'hero' and 'ally'. Deuten and Rip acknowledged that their analysis was very loosely inspired by the work of Greimas.

courts (Bennett, 1997) supports this assertion. The study's results suggested that certain archetypal narrative forms are innate to human thought. People were seen to rely upon these when called upon to occupy the jury seat and assess cases. Those archetypal narrative forms helped them perform their jury role in three key areas: identifying significant occurrences to be explained; construing interpretations that could account for and interrelate all recalled facts and impressions; evaluating different explanations of the case evidence for consistency, coherence and completeness (Bennet, 1997).

The work of Boland (1999; 1993; Boland and Schultze, 1996) in the IS field has also illuminated the role of narrativity in organisational functioning. In a study on the decision-making processes of accounting managers (Boland, 1993), he found that it was incorporated into their decision-making in a very essential manner. The managers were observed in the way they made decisions on promoting other accounting staff members, on the basis of the budget reports submitted by those staff. The managers were observed to have construed their assessments through an elaborate narrativizing. From the sparse budget figures, they elicited storied interpretations of the capabilities, performance and backgrounds of candidates. The influence of narrativity went beyond the framing role associated with cognitive schemas. Boland concluded that narrativity was at once the route and the driving momentum of managers' interpretations. He issued a call in the IS field for new "tools of representation and vocabularies of analysis" that can disentangle and elucidate the narrative structures of organisational activity (1999, p. 45).

Due to his theoretical focus on narrativity, Greimas developed analytical tools that were based on the notion of perceiving the significance of social activities in the structure of a narrative. These analytical tools were seen by this study to be useful for supporting the hermeneutic process of appreciation in an investigation of organisational functioning, and for organising the understanding that is gained in terms of a system of signification. These tools will be introduced soon in sections 3.2 and 3.2.

3.1.4 The role and function of the framework

This section clarifies the use of the systemic appreciation framework that will be introduced next. This analytical framework is meant primarily for use by IS researchers or organisational analysts, in order to help them arrive at an understanding of emergent

outcomes related to the IT based operations of an organisation. Organisational analysts refer to those in managerial, executive or consultancy positions who are given a remit to analyse the organisation's activities and then carry out interventions aimed at achieving improvements to those operations. The understanding and insights that this framework assists in forming may serve different purposes. For a researcher, it is likely to provide a basis for further theoretical elaboration (or formulation) of the relations and interactions between organisations (or people) and information technologies. For an organisational analyst, the understanding or insights can be used to guide and inform the interventions they undertake to improve the effectiveness of work operations of their organisations or clients. This framework is not meant, in general, for the use of individual organisational actors who do not have the capability to authorise changes or to make interventions to work practices (e.g. those in non-managerial positions, such as lower-level staff), since the utility of this framework in providing insights and rich understanding of emergent outcomes will be negated if those who use it are not able accordingly to introduce any necessary changes (or to make a difference) in work practices or the use of IT tools.

It is also to be noted, as stated at the beginning of this thesis, that the use of this framework (to be introduced next) does not produce an account of the emergent process of organisational functioning and IT use from a first-person, enacted perspective i.e. it does not elaborate an account of emergence from the insider's viewpoint of the social actors involved. Instead, it provides the concepts and means by which an IS researcher or organisational analyst, such as myself in the case of the research reported here in this thesis, may arrive at useful understanding or insights regarding the emergent properties of an organisation's operations. In other words, this framework is to be used by an IS researcher or analyst to secure a third-person analytical viewpoint of the functioning of an organisation around the use of IT i.e. an 'outside looking in' perspective.

3.2 THE PROCESS OF INQUIRY

Information technologies are seen as designs for organisational action (Couch, 1996). It is thus important to gain a comprehensive understanding of the specific form and outcomes of social action around the use of IT in particular organisations. Ricoeur's (1984) exegesis on the hermeneutic reading of human action was found to be amenable to adaptation for the purpose of methodologically illuminating the process of carrying

out a sociotechnical systems analysis of IT based work practices, proposed in this study. His elaboration focussed on the manner in which events and human experiences are made sense of in terms of narrativity. This exegesis centred on the Aristotelian concept of *muthos*, which he translated as emplotment. This section will elaborate the part of this study's theoretical framework, formulated from the adaptation of Ricoeur's ideas, that encompasses the aim and activities of an analysis of IT use.

3.2.1 Concept of emplotment

The focus of analysis in this sociotechnical systems framework is represented by the pivotal notion of *emplotment*. Emplotment is defined as a descriptive schematisation (or set of schematisations) by which a researcher or analyst, who is attempting to make sense of a particular domain of IT based work operations as a 'whole', can unite into a coherent order of signification the miscellany of actors, events, actions, techniques and circumstances which constitute that domain. An equivalent way of stating this is: the emplotment by which an IS researcher or organisational analyst evaluates the use of IT in a particular firm is constituted by one or more thematic descriptions that synthesise or integrate, into an illuminative pattern of signification, the "circumstances, ends and means, initiatives and interactions, the reversals of fortune, as well as all the unintended consequences issuing from human action" (Ricoeur, 1984, p. x). Correspondingly, the notion of emplotment has been referred to by Ricoeur as a configuration, or a signifying matrix.

The notion of emplotment is derived from the root term, plot, which is variously described by Ricoeur (1984, p. ix, 64) as "a work of synthesis", "a congruence in the organisation of events", "the means ... [by which] goals, causes, and chance are brought together within the temporal unity of a whole and complete action", "a synthesis of the heterogeneous". A plot is thus seen to designate a particular plan or schematisation by which someone 'reading' a set of actions, events and circumstances can invest them with significance/meaning and coherence. The notion of a plot was first elaborated by the Aristotle as a schematisation of significance regarding the occurrence of multiple events and actions in a narrative with a definite beginning, middle, and ending (Boje, 2000). In speaking of the plot of a story, it is to be noted that the plot does not imply all events or actions covered in the story: only certain consequential events and actions by

which the story's outcomes gain in significance. Ricoeur, following Aristotle, points out that a plot typically involves some form of predicament or dilemma in a state of affairs being narrated in a story, a problem that needs to be resolved. Ricoeur (1984) went beyond Aristotle however, in extending the application of the notion of a plot beyond the literary domain of fiction and art works, to encompass also the interpretive study of historical events and social activity. Uncovering the plots characterising human events and affairs is seen to be a hermeneutic problem: a function of interpretive engagement.

Following Ricoeur (1984), the concept of *emplotment* is preferred to that of plot in formulating this framework because it is particularly suited for studying the *emergent* nature of organisational functioning and transformation. This is because the notion of a plot implies a 'closed' set of completed events, actions and circumstances that are under consideration. In contrast the notion of *emplotment* is simultaneously open and closed. It is open, in that it implies a consideration of an active, ongoing set of events, actions and circumstances that have a past, present and future, or trajectory (Ricoeur, 1984). It thus reflects the processual, evolving nature of IT based work practices in organisations, an ongoing operation with no end. At the same time, the notion of *emplotment* implies a temporal closure, in that it represents a summary assessment or evaluation by an analyst or researcher of the state of an organisation's operations at a particular point or stage in time. Thus it may be said that in contrast to a plot, the notion of *emplotment* refers to an assimilation of heterogeneous factors and elements (e.g. events, actions, means) within a signifying schematisation not characterised by permanence or closure. The concept of *emplotment* used in this study's framework represents only a provisional formulation by a researcher (or analyst) of a coherent, revelatory pattern of understanding that he/she has arrived at regarding an organisation's IT based operations. The validity or utility of such a schematisation does not have indefinite currency. New circumstances can unfold that may disrupt its coherence as a form of understanding of an organisational domain.

The implicit notion of a plot (i.e. in *emplotment*), suggested as characterising a researcher's or analysts' understanding of an organisation's use of IT, is to be strictly differentiated from that of a literary work of fiction. As Ricoeur (1984, p. 164) points out, the plot that is perceived (through hermeneutics-based research) to characterise a set of human practices, over a period of time, is not to be confused with the invention of an author in a work of art. Instead, it represents an interpretation objectively validated

through methodological procedures. Moreover, an elaboration by a researcher or analyst of his/her emplotment of understanding regarding an organisation's use of IT is meant to inform and enrich an appreciation of the inter-relations of heterogeneous phenomena highlighted by such a scheme of signification. In this sociotechnical systems framework the central elements of interest, in an elaboration of a researcher/analyst's emplotment of a domain of IT based operations, are the oppositional (i.e. contrary) or contradictory relations that are implicated in such work operations.

Most importantly, the elucidation of the emplotment of IT use in organisations is highly compatible with the use of system thinking. Ricoeur asserted that the notion of emplotment formulated by Aristotle is most accurately construed as "the active sense of organising the events into a *system*," (1984, p. 33) [italics added for emphasis]. Thus, emplotment refers to a 'system' of signification by which a particular IS researcher (or analyst) organises into an analytical 'whole' the various significances or meanings of a set of heterogeneous elements that compose a domain of IT based work operations. The compatibility of an analysis of emplotment with the use of systems thinking is evident on two key dimensions. Firstly, it is congruent with the use of systems concepts as the means to carry out that organising. Secondly, the notion of emplotment strongly implies an integration, and a focus on the inter-relations, between the parts and the whole of a process. Thus, the signifying schematization that characterises IT emplotment may be viewed as a *systems description*, that is formulated by a researcher or analyst through a means of analysis based on the use of systems concepts.

This notion of emplotment is central to the systemic appreciation framework proposed here. The gist of this theoretical framework is that IT based work organisation and performance in an organisation is characterised by conflicts or inconsistencies, and that a researcher/analyst's description of his/her emplotment of understanding regarding such a domain of operations should foreground those conflicts or contradictions. The elaboration of this approach will be made in section 3.3. A set of analytical tools will be introduced, to support the application of systems thinking in elucidating the emplotment of a domain of IT based operations from the standpoint of conflicts and incoherencies. Before this elaboration however, a treatment of the hermeneutic basis of understanding regarding an organisation's use of IT is made next, to establish the methodological basis of this framework.

3.2.2 The cycle of interpretative engagement

The process of elucidating the emplotment of IT based work practices in a firm may be analytically distinguished, following Ricoeur (1984), into three overlapping and unfolding phases of representation, or 'mimesis': *mimesis*₁, *mimesis*₂, and *mimesis*₃. These three phases constitute the circle (or spiral, as Ricoeur termed it) of hermeneutic engagement between an analyst (or analysts) and the actions, events and circumstances that are pertinent to the use of IT systems in an organisation under study. These phases are described next, in order to anticipate the function of the analytical tools introduced subsequently. The first phase, *mimesis*₁, involves prefiguration; the second, *mimesis*₂, involves configuration, and the third, *mimesis*₃, involves refiguration.

*Mimesis*₁, or prefiguration, is concerned with understanding the networks of IT-related employee actions occurring over time within the organisation, made up of such elements as the agents, motives, technological means and uses, goals, circumstances, intended and unintended consequences etc. This phase of an analysis is concerned with identifying the material and symbolic resources that organisational actors draw on or implicate in the course of their work performance. Those symbolic resources include the institutional structures of legitimisation, power, and motivation active within that domain. The orderly discrimination of such networks of action permits the identification of structural linkages and features relevant to aspects of performance in organisation, such as success, failure, cooperation or conflict. In the next section, certain concepts, namely narrative programs and boundary qualifications, will be used to elaborate how this understanding may be obtained.

*Mimesis*₂, or configuration, represents a key phase in an analysis, characterized by the *process* of emplotment. Ricoeur (1984) describes this phase as a configuring act, an operation that seeks to mediate between the understanding of heterogeneous actions, events, experiences, technological uses and circumstances, obtained during *mimesis*₁, and the understanding and theoretical awareness that the analyst obtains through further learning and contemplation in *mimesis*₃. This mediation is aimed at producing a form of synthesis (i.e. emplotment) between an understanding gained of the various factors and contingencies in *mimesis*₁, and the theoretical awareness gained during *mimesis*₃, into a

comprehension of the whole situation. Through this “configurational arrangement”, the plot of a set of events and circumstances can be understood in terms of salient themes or points (Ricoeur, 1984, p.64). In this *mimesis*₂ phase, the analyst attempts to come to terms with several things. He/she has to put together and analytically accommodate, a multitude of heterogeneous elements recognised in the *mimesis*₁ phase. He/she will also need to identify inter-relationships between problems faced by the organisation, and the key contradictions or incompatibilities these difficulties reflect. He/she will then have to mediate the inter-relations between those various factors, and the plot that is forming of the organisation’s functioning and transformation as a whole. Together, the resolution of these challenges will lead to an understanding of the emplotment of IT use in an organisation. In the next section, a figurative device to be used to depict and elaborate the conceptualisation of emplotment arrived at by the analyst, called the semiotic square, will be described.

*Mimesis*₃, or refiguration, pertains to the phase in which the analyst is immersed in further information gathering and learning regarding the IT based operations of the company being studied, besides further reflection, reading of theoretical literature, and discussion with other analysts/researchers – all activities that may reframe and cast new light on the heterogeneous events and circumstances under analysis. This learning phase inevitably results in a new understanding of emplotment. The *mimesis*₃ movement does not mark an end to the analysis process, but is only an intervening stage in an ongoing spiral of engagement. This descriptive model of interpretive analysis thus represents the process by which a researcher arrives at an appreciation of the emergent nature of IT based organisational functioning. Further elaboration of the methodological basis of this framework will take place in the next chapter. Given the preceding description of the hermeneutic method, what is required consequently is a set of analytical concepts and instruments congruent with this process, and with the use of traditional systems notions like components, boundaries, relations etc. The ideas and concepts of Greimas (1987) were found to satisfy these conditions. They are elaborated next.

3.3 CONCEPTS AND TOOLS OF ANALYSIS

For Greimas (1987), as explained earlier, all socially situated human behaviour was analogous to a narrative. His work was concerned with developing techniques of

socio-semiotic analysis for use in elucidating the underlying ‘plot’ structures of texts and social practices (Gottdiener, 1995). The notion of a plot used here is similar to that held by Ricoeur (i.e. a descriptive schematisation that frames and integrates the various actions, means and events in an organisation’s functioning into a form of significance and coherence). Greimas however, sought to elaborate these plot structures in terms of opposing relations of contrasts and contradiction between elements of social practices. Greimas was influenced by, and worked within, an active tradition of systems thinking in the linguistics field (e.g. Hjelmslev, 1961). His ideas and techniques are here adapted and modified, to support a sociotechnical systems analysis of the emergent nature of IT based work practices.

The chief focus of his method of analysis was on identifying key ‘oppositions’, or *states* of disagreement and change, seen to characterise texts and social practices, and shape their unfolding ‘plot’ (Gottdiener, 1995). The general form of analysis he created involves extracting a series of abstract structural units, called narrative programs (NPs), from accounts of social practices, and using them to elucidate the ‘oppositions’ that are implicated in those practices. The underlying aim is to reduce the complexity of social practices to a few umbrella themes that can account for the primary forces shaping their structuring. The term ‘oppositions’ used by Greimas and semiotic theorists in general encompasses a much broader range of meaning than its popular usage, referring to both differences of association as well as disassociation (Barthes, 1968). In adapting its use in this study, this term is replaced by the concept of ‘boundary qualifications’. Narrative programs and boundary qualifications represent key heuristic concepts in this study’s framework. They are elaborated next, along with two analytical tools by Greimas: the actantial schema and the semiotic square.

3.3.1 Narrative programs

Greimas (1987) introduced the heuristic notion of a narrative program as a way for a researcher or analyst to organise an understanding of social practices (i.e. the use of IT tools by organisations) as processes of value creation. A narrative program (NP) is a conceptualisation of a sociotechnical scheme or course of action. It represents an abstract schematisation of the inter-relationship of a set of activities, interactions, means (i.e. technological or otherwise) and events, that are perceived by a researcher or analyst

to be relevant to a process of action and change in a particular domain. Essentially, a NP is a framing concept for linking together an understanding of heterogeneous social and technological factors/elements involved in an undertaking aimed at achieving a specific transformation in a company's operations.

A NP, it must be stressed, is only a heuristic notion to be used by a researcher or analyst for organising their understanding of the multiple, and sometimes inconsistent, courses of action that constitute an organisation's functioning (i.e. noted by Burns and Vickers, in earlier mentions). The identity or composition of a NP is not given, and is to be established by empirical investigation rather than a priori assumption. There is no specific 'cookbook recipe' to identify particular NPs that characterise an organisation's operations. They are to be extrapolated from data and descriptive accounts gathered by an analyst (i.e. through interviews with employees) on the work practices and the socio-historical context of an organisation, as a means to best construct an understanding of its operational domain.

An analysis of IT based work operations in an organisation will typically evince one overall or over-arching NP, termed as the macro narrative program. The macro NP is made up of several sub-units, known as micro narrative programs. These micro NPs represent smaller courses of action that occur concurrently or in sequence, with some overlap. The transformation in the macro NP is dependent on the transformations being effected within its constituent micro NPs. The number of micro NPs perceived within the macro NP is dependent on the level of resolution an analyst brings to the analysis, as well as the degree to which he/she can account for the various courses of action that will reflect the complexity and evolution of organisational functioning in the use of IT tools. The various NPs that are perceived in an analysis will serve for identifying 'boundary qualifications': this will be clarified in the next sub-section (3.3.2).

The composition of a NP is represented by the actantial schema. This schema was developed by Greimas (1987) to take into account the various possible structural relationships linking all heterogeneous elements (i.e. individuals, groups, ideas, norms, events, contextual forces, IT tools or features etc.) that are of particular relevance within a course of action. This schema is depicted in Figure 1. It consists of six actants, which refer to abstract structural roles, on which a narrative apprehension of a set of social

actions and circumstances is organised. These actants represent “a fixed distribution of roles” that may be seen to underlie the varying actors, actions, circumstances and events that comprise social activities (Greimas, 1983, p. 173). These abstract roles or positions are occupied by various elements and factors pertinent to the undertaking of a NP. The different actant positions are described next, in pairs.

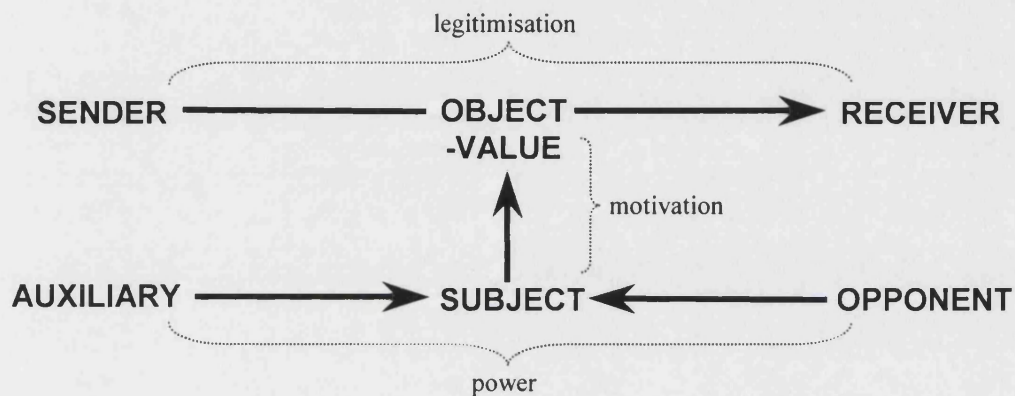


Figure 1: Actantial schema of a narrative program

- (1) Subject – Object-Value: The subject might be individual or collective. A collective subject could for example be an organisation, a specific department or a workgroup. The subject is the principal figure (or group of figures) in a NP. The subject is motivated by, and acts in order to achieve, a certain purpose or goal. That purpose is represented by the object-value. With regard to the case of IT use in organisations, the object-value might be an ideal or state being aspired to, or the achievement of a change in the work environment. The success of the NP is constituted by the subject achieving the desired object-value, and failure by the subject not doing so (i.e. as determined in the evaluation stage of an NP). The relation between the elements in the subject and object-value actantial positions represents the plane of motivation in social practices.
- (2) Sender – Receiver: The sender refers to individuals, groups, abstract ideas, or social norms that generate or provoke the action, as well as regulate it. The sender does this by transmitting or communicating to a receiver, the desire or obligation to act. The sender is the influencing or controlling force in the scheme of action, instituting the set of values with which the subject must act. The receiver refers to the person or group that the sender provokes to act. When the receiver obtains an obligation or

desire to act from a sender, the receiver is transformed into the subject of the NP. The relation between the elements in the sender and receiver actantial positions represents the plane of legitimization in social practices. Individuals or groups that occupy the auxiliary actant position may agree, and those in the opponent actant slot may disagree, with the influence exerted on the subject by the sender.

- (3) Auxiliary – Opponent: The auxiliary refers to any individuals, groups, ideas, social norms, artefacts, techniques or material features that help the subject achieve the desired object-value. The opponent is any of the above that impede the subject's attempts to fulfil the narrative program (i.e. obtain the object-value). The relation between the elements in the auxiliary and opponent actantial positions represent the plane of power in social practices. The asymmetrical distribution of power in an NP determines its progress and outcome i.e. success or failure. The notion of power is thus characterised in an inter-relational way (congruent with systems thinking).

Each actantial role might be occupied concurrently by more than one element. Hence, each NP may have several different entities or factors in the sender, receiver, auxiliary, opponent, or subject positions etc. A NP may moreover occupy the auxiliary or opponent actantial position of another NP, insofar as the undertaking of the former promotes or thwarts the course of the later. In this way, a micro NP may be embedded within another micro NP. The heuristic concept of a NP (and actantial schema) brings several key advantages to analysis of the emergent nature of IT based operations.

The concept of narrative programs augments the task of sociotechnical systems analysis. It was highlighted during the review of literature in the previous chapter that organisations are increasingly recognized as makeshift assemblies of various courses of action, which are exclusively pursued along quite different principles and motivations. Significantly, Burns (1981, p. 3) had noted that analytical instruments are needed that can illuminate this pluralistic constitution of organisations: "... there is a pervasive pluralism affecting the organisations we work in and study, a pluralism which affects their make-up and which our perceptions and analytical apparatus have tended to pass over." The notion of NPs fulfils this need directly. It permits a researcher (or analyst) to analytically disengage the different schemes of action that comprise an evolving domain

of IT based work operations. The individual courses of action can then be considered in terms of their interactions with each other, and as a whole (i.e. the macro NP).

The notion of an NP is well suited for the application of systems thinking to the task of sociotechnical analysis of organisational functioning. Systems thinking, as stated in chapter 2, has been defined as: "... thinking in terms of facts and events in the context of wholes, forming integrated sets with their own properties and relationships," (Lazlo, 1972, p. 19). The heterogeneous actions, events and factors that constitute a domain of organisational functioning can thus be analytically distinguished as separate NPs, that represent particular 'wholes' of such elements, with their own characteristics. Thus, the notion of a NP supplies this study's framework with a construct for discriminating the integral 'components' of an organisational 'system'. Micro NPs can be seen to represent the courses of action in an organisational system which may give rise to tensions in interaction with each other, within the larger enterprise represented by the macro NP. The heuristic notion of a NP is important as a framing or linking analytical device, as it expresses a recognition that structures of power, legitimacy or motivation draw their significance from coinciding roles within specific courses of action. The features or tools of an IT system may be seen as being valorised (i.e. assigned value) through their incorporation within certain NPs (i.e. schemes of action).

The notion of a NP aids an analyst in determining the extent and implications of a course of action, in relation to questions of who is requiring or motivating it, and what entities or elements are involved and what factors relevant, as well as how is the scheme helped or hindered etc. It offers a way to order an understanding of the actions, means, contextual circumstances and influences that comprise or affect a broad domain of work practices related to the use of IT systems. It is suited for addressing the emergent nature of organisational functioning because it enables the consideration of events, actions and circumstances within a coherent frame of inter-relations across a period of time. The actantial schema is used in the mimesis₁ phase of analysis, when a researcher, intent on an ordered discrimination of networks of actions and events that structurally elaborate the uses of IT in a company, is challenged by the complex heterogeneity of elements and circumstances that constitute typical work environments. The *actantial framing* (or role patterning) of social action supplies a means for comprehensively discriminating the evolving domain of organisational activity into macro and micro schemes of action.

3.3.2 Boundary qualifications

One of the steps in the analysis method formulated by Greimas, for elaborating the shaping of social activities or texts, essentially involved identifying contrastive pairs of descriptive values, that designated opposing 'states' (or conditions) of the activities which were undergoing a process of change or negotiation (Greimas, 1987; Gottdiener, 1995). These contrasting descriptive values serve to frame an understanding of social activities (or other text-analogues) in counterfactual terms. This approach was adopted in this study's framework of interpretive inquiry. The use of IT in companies typically involves investments of resources and effort, and ongoing negotiation by stakeholders. Barley (1986) concluded that the use of IT tools 'opens up' change or negotiation in social practices. The social negotiations and investment of resources may be generally characterised as being aimed at securing specific changes of state in different features of work organisation and performance, such as employee roles procedures, and rules of behaviour (Bloomfield and Vurdubakis, 1994; Zuboff, 1988). Central to these processes of transformation or negotiation are the evaluations of various stakeholders regarding the extent of the desirability, acceptability or format of the changes occurring in work practices. By considering the assessments or opinions of such stakeholders, an analyst would be able to formulate descriptions of the desired changes of state in terms of pairs of contrasting values. This approach appeared congruent with contemporary systems thinking in one key respect.

Churchman (1971, 1979), who was instrumental in bringing about the change to contemporary systems thinking described in the previous chapter, established the prime importance of the concept of boundaries in analysis. He revised a central assumption of older systems thinking, that held that such boundaries are 'given' in reality (i.e. seen in traditional sociotechnical systems analysis, which assumes clear boundaries between the social and technical constituencies of a system). He argued that boundaries, on the contrary, are only social or individual constructions of what the definition of a situation should encompass. Checkland (1981) likewise maintained that boundaries are intersubjective judgments among organisational actors regarding what is pertinent to a focus of analysis for clarifying the understanding of a problematic situation. Midgley (2000)

asserted that boundary judgments (i.e. what elements are to be included or excluded in assessments of a situation) lie at the heart of systems thinking.

The contrastive descriptive values identified in an examination of the evolving transformation of an organisation's operations may be seen to represent qualifications of the 'boundaries' of transformation: the change in state of a set of work practices, from one condition to another (e.g. from the state of inefficiency to state of efficiency). In line with Greimas' thinking, the traditional meaning of the concept of a boundary in systems thinking is thus reformulated to fit the purpose of this study's framework. The notion of boundary will designate a differentiation of value (i.e. the difference between two states, for example, efficiency and inefficiency in a work operations) rather than a material distinction (e.g. difference between automated and manual work processes). In other words, the notion of boundary will refer not to the peripheral limit demarcating what is to be included and excluded within a scope of analysis, but to the margin of signification separating opposing descriptive valuations of the condition (or state) of IT related work practices. This reformulation paves the way for introducing the heuristic concept of boundary qualifications.

Boundary qualifications are defined as a pair of contrastive descriptive values, designating opposing states of a social practice that is being re-defined through ongoing investment of resources or negotiation by stakeholders. These descriptive qualifications reflect an analyst's perception of the boundary judgments of key stakeholders regarding the extent of desired or negotiated change in IT based work practices. The identification of significant boundary qualifications in a study is achieved through a consideration of the narrative programs (NPs) that have been extrapolated from the data gathered on an organisation's operational environment. By examining the transformation in each NP (i.e. course of action), an IS researcher or analyst may determine one or more sets of descriptive terms that qualify the boundaries of change or negotiation in work practices represented by that NP. Thus, in this study's framework of systems inquiry, the focus of analysis is not on discriminating a single peripheral, material boundary (i.e. perimeter), but on the discernment instead of several descriptive, abstract boundaries that reflect the essential 'axis' of change in the evolution of an organisation's IT based operations. The boundary qualifications derived in a certain study by a researcher or analyst will be used to structure and inform the emplotment of understanding he/she arrives at regarding an

organisation’s use of IT. The derived boundary qualifications can aid in discerning an overall pattern of change, as will be illustrated in the upcoming case study analyses.

3.3.3 Relations of signification

Greimas was interested in identifying and systematically elaborating various relations of signification (i.e. association, contrariety or contradiction) that characterize the interaction of constitutive elements of social practices and texts. He used the notion of a system as a framing device for elaborating contrary or contradictory relations in the structuring of significance in human activities. Such contrary or contradictory relations were, for Greimas, fundamental features of a ‘system of signification’ that organised the value of elements in socio-cultural activities (1987, p. 52): “By definition, a system’s rules of injunctions describe compatibilities and incompatibilities (a system without incompatibilities would not be an ordered system).” Using ideas from the field of logic, he created an analytical device, termed the semiotic square, to express the formulation of relations within a system of significance. The canonical formulation of the semiotic square is shown in Figure 2.

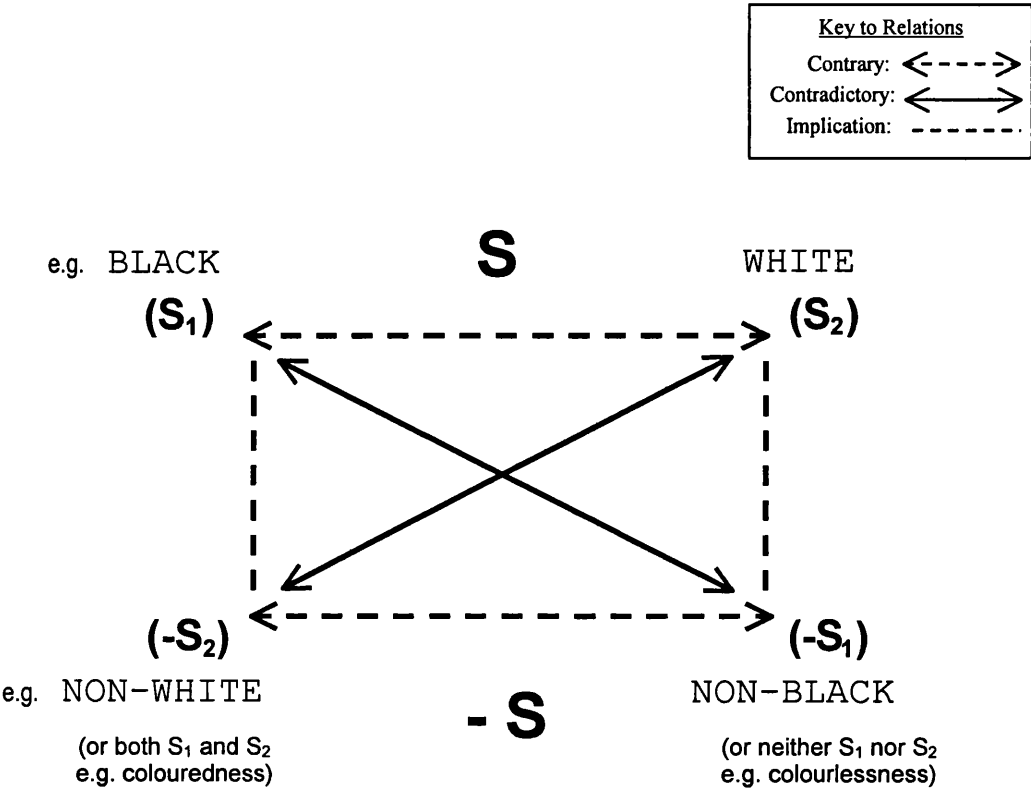


Figure 2: The semiotic square (adapted from Greimas, 1987)

The semiotic square is used in an analysis of social activities to indicate salient contrasts in a framework of selection or embedding. This figurative device offers a means to elaborate a thematic description of the key relations between heterogeneous elements and factors that comprise the domain of IT based work practices in specific organisations (e.g. norms, values, events, means, circumstances, orientations etc.).

This mechanism enables a more comprehensive analysis of binary conceptual or thematic oppositions by permitting an explicit enlargement of their implications beyond an either/or dimension (Jameson, 1987; Chandler, 2001). The upper corners of the square, S_1 and S_2 , may represent the opposing terms of a particular concept or theme, S . In the example shown in Figure 2, the position S could represent the concept 'absence of colour'. Two terms that might constitute opposing descriptions of this concept are 'Black' (S_1) and 'White' (S_2). The lower corners of the square, $-S_2$ and $-S_1$ respectively, are negations, in a transverse direction, of the two terms on the upper axis (S_1 and S_2). In the example shown in the figure, $-S_2$ represents 'Non-White', while its opposing position, $-S_1$, represents 'Non-Black'. Both these bottom corners represent opposing poles of the position $-S$, which might suitably be taken to refer to the concept 'presence of colour'. It can be seen at once that the terms on the lower axis of the square, $-S_2$ and $-S_1$, depict implicative positions not accounted for by the oppositions on the upper axis. In the depicted example, for instance, 'Non-White' encompasses much more than 'Black' (i.e. a range of colours). Alternatively, the two corners of the lower axes of the square may represent another set of binary oppositions, namely: (i) both S_1 and S_2 (e.g. colouredness); and (ii) neither S_1 nor S_2 (e.g. colourlessness). The vertical axes of the square (i.e. S_1 to $-S_2$ and S_2 to $-S_1$) might also be labelled with other designations of thematic or conceptual categories. Thus, this visual device may be invested with a range of inter-related thematic labels applicable to the analysis and explication of a particular topic or case study under investigation.

Different types of relations are represented by the various axes of the square. The two horizontal axes (e.g. S_1 to S_2) represent 'contrary' relations. Contrary relations refer to strong oppositions between the thematic elements in the opposite corners of those axes. The two diagonal axes (e.g. S_1 to $-S_1$) represent 'contradictory' relations. Contradictory relations refer to an essential inconsistency or incompatibility between

the elements in the opposite corners of those axes (i.e. the transverse corners). The two vertical axes (e.g. S_1 to $-S_2$) represent 'implicative' (or associative) relations, which designate an essential presupposition between thematic elements in the opposite corners of those axes (i.e. 'non-white' implies or pre-supposes 'black'). Thus, both contrary relations and contradictory relations represent relations of opposition between elements, although contrary relations designate more forceful oppositions than contradictory ones.

The application of the semiotic square as a tool to support analytical descriptions in organisational and social studies has been well elaborated by Jameson (1987; 1981). Describing it as a visual device that could be used to articulate a series of relationships, Jameson asserted that it has heuristic value as a tool to support interpretive research. Its main use is to provide a means to map out inter-related nodal themes or diagnostic interpretations encountered in the course of a study. Jameson (1987) asserts that logical accuracy in contrasting or opposing theme-headings is *not* so important when adapting the use of this device. Its canonical formulation (as described above) may be subverted to particular theoretical ends. The primary value of this visual device is that it can help to clarify interpretive analysis, or even to 'generate' understanding (i.e. Schon, 1967), regarding significant relationships between heterogeneous factors or elements under consideration. Jameson suggested, however, that an involved period of study or research must precede its use, in order for its heuristic value to be catalysed. The semiotic square has been used to support theoretical analysis in a few non-IS studies of social practices (e.g. Fleming, 1996; Floch, 2000). The potential perceived for adapting this conceptual mechanism for the elaboration of IT usage in organisations was part of the motivation for its inclusion within this study's theoretical framework.

Following Greimas (1983), the semiotic square device may be used in either of two ways. Firstly, as a 'configurational model', it can be used to theoretically illuminate the systemic nature of emergent social practices. The various positions on the square may be used to depict key themes or factors at stake within an organisation's broad domain of operations over a given period of time (Fiol, 1990). This device is ideally suited thus for supporting analysis within the sociotechnical systems approach, since, as discussed in the preceding chapter, this IS school of thought views incompatibilities and conflicts as being fundamental to the unfolding social configuration of IT based work operations in organisations.

The semiotic square may be used to descriptively elaborate the functioning of an IT based organisation in terms of a kind of *tensed* unity, or gestalt, constituted by various sociotechnical elements or factors in relations of contrariety, contradiction or implication. Secondly, the square may be used as a ‘transformational model’. In this mode of usage, the various positions on a square represent states that are used to designate a temporal sequence in a process of change. Thus, an initial state of an organisational unit might be represented by a particular position (e.g. S_1), while the intermediate and final states of the transition this unit undergoes may be represented by other positions on the square (e.g. S_2 , $-S_2$). Thus, the semiotic square may also be used to illustrate an analytical description of an emergent pattern of change characterising a set of IT based work practices.

The semiotic square is thus adapted here for use, in the systemic appreciation framework, as the primary means of facilitating an elaboration of the *emplotment* of IT based work practices from a systems thinking standpoint. Its usage is congruent with the mimesis₂ phase of the process of analysis described earlier. This device permits an understanding of the macro and micro NPs gained during the mimesis₁ phase to be organised and presented inter-relationally. The boundary qualifications identified from the various NPs will be summarised to form descriptive values on the semiotic square depictions, that are used to support the theoretical elaboration. A broad and integrative understanding may thus be derived of contextual factors shaping the emergent nature of IT based operations. Organisational functioning may thus be discerned, from a systems thinking standpoint, as a “net of relations”, advocated by Vickers (1983).

3.4 EXTENDING SOCIOTECHNICAL SYSTEMS INQUIRY

The preceding sections have described several concepts and analytical tools for carrying out an interpretive study of IT based work practices within the sociotechnical systems approach. The main concept of *emplotment* in this framework enables emergent organisational functioning around the use of IT to be described and explained from the perspective of systems thinking. The notion of narrative programs allows for IT based operations in organisations to be analytically disengaged and examined, by a researcher, as multiple courses of action that come about in response to various circumstances or

events in the organisation's operational domain. The elements and factors implicated in these courses of action can be examined as 'wholes' (i.e. integrated sets with their own properties and relationships). The notion of boundary qualifications may thus be used in an interpretive systems analysis to frame an appreciation of organisational operations in counterfactual terms. The schematic device of the semiotic square supports an analytical illumination of the emplotment of IT based work operations in organisations, in terms of inter-relations (i.e. contrary, contradictory and associative) between various factors and courses of action that make up the domain of those practices. Hermeneutics has been elaborated as a methodological underpinning for using these various concepts and tools.

The hermeneutic process of sociotechnical systems analysis encapsulated in this framework is depicted in Figure 3. The prefiguration phase of analysis (*mimesis*₁), in which the analyst seeks to break down the complexity of the domain of a company's IT based operations into smaller blocks of coherence, is undertaken with the use of the actantial schema, and results in the identification of narrative programs and boundary qualifications. A preliminary understanding of the emergent nature of an organisation's operations is thus formulated. The configuration phase of analysis (*mimesis*₂), involves the use of the semiotic square to synthesise and organise the preliminary understanding gained in *mimesis*₁ into a thematic explanation of the nature of emplotment of the IT based operations in the organisation. The understanding of the researcher or analyst is thus transformed from an *episodic* coherence in *mimesis*₁ to a *synthetic* coherence in *mimesis*₂. The knowledge and intuition needed to formulate an interpretation of that understanding of emplotment would be lacking without the adoption of such measures as: a comprehensive effort of learning about the history and the nature of IT based operations in the organisation being studied; sustained reflection; as well as a recourse to theoretical literature and collegial discussions with other IS researchers or analysts. These activities constitute the refiguration phase of analysis (*mimesis*₃). This phase will result in a new appropriation and reorganisation of the understanding gained from the previous phases (i.e. *mimesis*₁ and *mimesis*₂) that will either augment or challenge that earlier form of interpretation. This process continues in a circular, iterative manner, until the researcher or analyst attains a coherent, insightful and stable interpretation (i.e. emplotment) of the state of IT based work practices at the organisation.

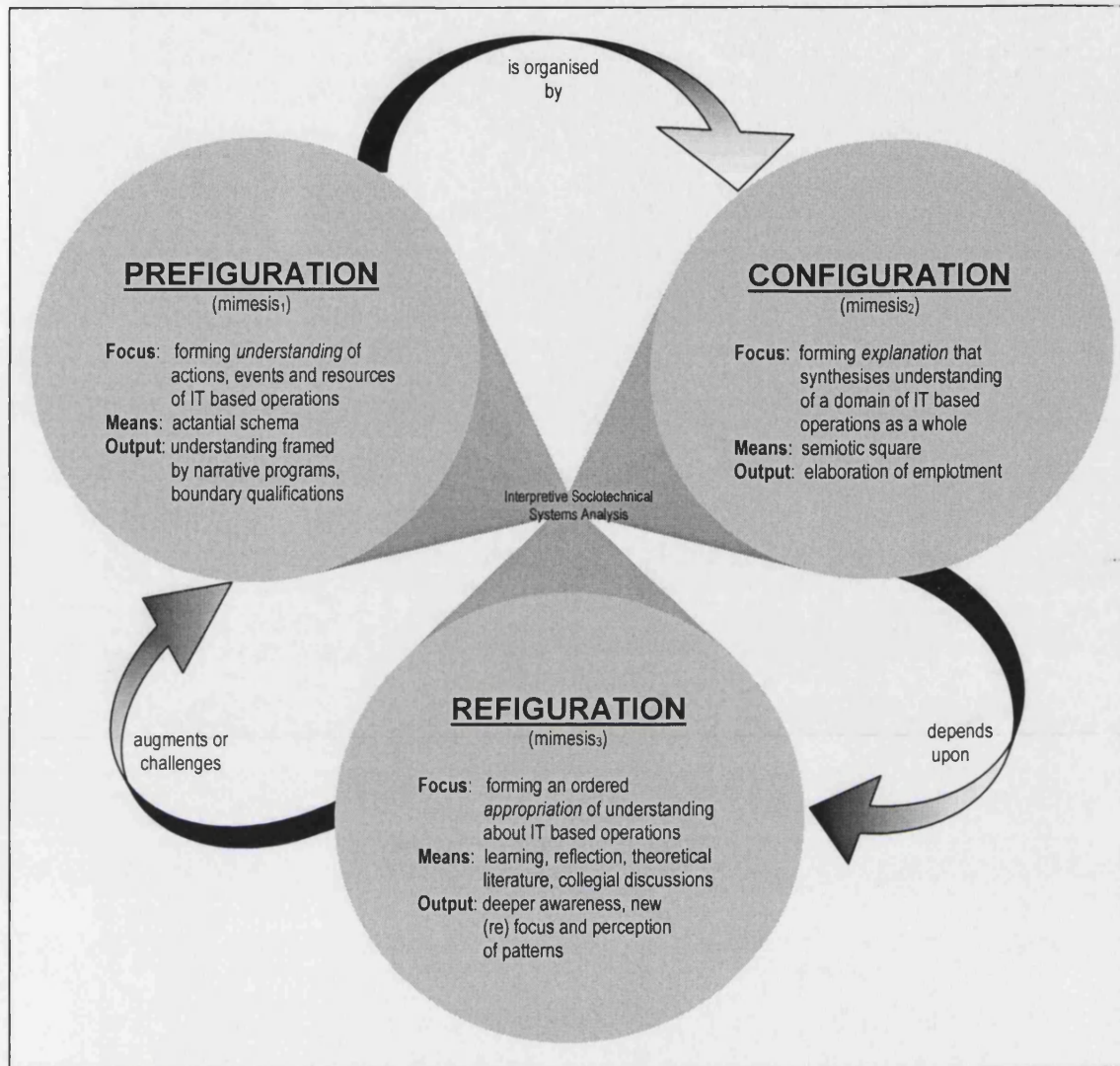


Figure 3: A framework for interpretive sociotechnical systems analysis

The systemic appreciation framework is aimed at fulfilling those requirements, stipulated in the literature review of the preceding chapter, for an analytical framework to extend the theoretical capacity of the IS sociotechnical systems approach to deal with emergent phenomena. Those specific requirements had comprised the need to: (i) offer tools of analysis of organisational functioning that foreground the contradictions and tensions implicated in IT based work operations; (ii) furnish a contemporary framework of systems thinking more suitable for illuminating the emergent nature of organisational functioning; and (iii) enable a more comprehensive account of the social dynamics and institutional forces that come into play in shaping the capacity afforded by the use of IT.

The concepts and analytical tools introduced earlier may be said to extend the IS sociotechnical systems approach in the direction of being a 'constitutive process' theory (Walsham, 1993). They may be used to engender insights on the emergent nature of IT based organisational work activity. This carries the sociotechnical systems approach beyond its previously normative or prescriptive orientation, as well as its past focus on IS development practices. The use of ideas from hermeneutic theory also extends the methodological basis of the sociotechnical systems approach, which in the past has been mainly dependent on the use of action research methods, involving direct intervention by researchers in workplace environments (Fincham and Rhodes, 1992). The notion of NPs and the use of the semiotic square are highly fitting for the task of identifying and elaborating the inconsistencies and tensions implicated in IT based work performance. They augment the sociotechnical systems analytical method with a form of "theoretical logics that can account for contradiction in [organisational] phenomena" that has been called for by Robey and Boudreau (1999, p. 172).

This study's framework thus extends and fortifies the IS sociotechnical systems approach, while maintaining its traditional analytical concerns and orientation. The concepts of this new framework also equip that approach with the ability to deal with changes in IT based operations. These transformations may be analytically traced with the notion of narrative programs. The approach's hitherto static notion of achieving a 'fit' (or match) between social and technical factors, in relation to pre-defined functions or goals, is substituted by the more appropriately dynamic concept of emplotment, which is elaborated in regard to evolving goals and activity. The notion of emplotment, and the analytical tools thus introduced for illuminating its expression, equips this IS sociotechnical systems approach to deal theoretically with the emergent uses of IT in organisations, and to portray the complexity of their operational environments.

The framework of concepts and tools thus presented endow the sociotechnical systems approach with a contemporary basis of systems thinking. The systems concepts in this framework have been explicitly grounded in hermeneutic methodology, so that they may serve to frame a richer appreciation of IT based organisational activity. The use of the socio-semiotic concepts of narrative programs and boundary qualifications advances the use of systems thinking in the study of signification in social organisation. The old form of systems thinking, traditionally implicit to the sociotechnical systems

approach but now replaced in this framework, was more appropriate for the study of biological entities and machines, than social organisation, because of its severe inability to deal adequately with the problems of meaning, power and legitimacy that are bound up in human agency (Morgan, 1986; Silverman, 1970). The use of ideas and analytical tools from hermeneutics and socio-semiotics to form the basis of systems thinking in this framework however, furnishes the IS sociotechnical systems approach with greater theoretical capability to engage with the complexities of human signification in work organisation and performance.

Most importantly, the use of the actantial schema equips the IS sociotechnical systems approach with an analytical tool for addressing the institutional context and political sphere of organisational functioning and the use of IT. The neglect of those particular aspects of organisational functioning has been a serious shortcoming of the traditional sociotechnical systems approach, as pointed out during the literature review in chapter three. The utilisation of the actantial schema focuses analytical attention on the context of legitimacy, motivation and power that is bound up in the various schemes of action undertaken to utilise the capacities afforded by the use of IT in organisations.

The plane of legitimacy underlying social action, represented by the interaction between entities or factors in the sender-actant and receiver-actant roles, has been found in previous IS research to be a significant feature of organisational functioning in the use of IT tools (Kling and Iacano, 1984). Key elements that may be seen to occupy the sender-actant role, in typical organisational schemes of action, are social 'institutions'. Institutions refer to ingrained systems of premises, patterns of action and expectations, or regulative structures, that provide the basis of validity for, as well as that shape, the manner in which organisational members perceive and act (Avgerou, 2000; Scott, 1995; King et al., 1994). Economic, social and cultural institutions active in organisational domains have been found to exert a potent influence on the way in which IT systems are used in work environments (Robey and Boudreau, 1999). They induce normative or cognitive *pressures* on individuals and groups in organisations to perform their work activities in particularly acceptable ways (Scott, 1995; Zucker, 1987). Courses of action in organisations (i.e. NPs) are thus not only initiated by the need to uphold or promote particular institutions. The progress and evaluation of such schemes of action is also regulated by those institutions (i.e. reflecting the sender-actant role of institutions). The

deeper awareness of institutional properties that the systemic appreciation framework brings to the fore thus extends the traditional sociotechnical systems method of analysis.

The plane of motivation underlying organisational activity has traditionally been a strong focus in the sociotechnical systems approach. Since work has been conceived of as a chief source of enrichment for human growth and expressive needs (Cummings and Srivasta, 1977), the mobilization of employee motivation, particularly through the promotion of their participation in IS development projects, has been a fundamental concern for theorists of this school (i.e. Mumford, 1996, 1993; Land and Hirschheim, 1983). The use of the actantial schema proposed in this framework however, shifts analytical attention away from motivational concerns in individual job design, or the execution of technology based work tasks, to issues of aspiration implicit within larger schemes of action in organisational functioning. The actantial schema draws attention to the manner in which individuals or groups (i.e. belonging to the subject-actant role) undertaking a course of action are 'installed' in relation to the goals or ideals they aspire to (i.e. the object-value actantial position) by the context of legitimacy (i.e. the entities or factors occupying the sender-actant position) that has invoked and is regulating the activities involved. The use of the schema also draws attention to the context of power by which such motivation, and the effort that materialises, is encouraged or diminished. The systemic appreciation framework thus reflects, but also concurrently expands, the traditional concern of the IS sociotechnical systems approach with issues of motivation in organisational work environments.

The plane of power implicated in work practices that are based on the use of IT has been seen to wield a considerable influence on the manner and outcomes of such practices (i.e. Kling, 1980). The use of the actantial schema proposed in this framework correspondingly brings analytical focus in the sociotechnical systems approach to the identification of conflicting institutional forces or contextual elements that promote or obstruct the process of change (i.e. that occupy the auxiliary or opponent-actant roles in NPs). The existence of such conflict, explicit or covert, often leads to unexpected (i.e. emergent) outcomes. As highlighted in the literature review of the previous chapter, the sociotechnical systems approach has traditionally been restricted by the inadequate theoretical attention it has given to the influence of power distributions in organisational activities. The use of the actantial schema thus increases the theoretical awareness of the

approach in dealing with the influence of power distributions on work organisation and performance in companies.

The theoretical framework developed in this study has thus been described and presented as a theoretical augmentation and extension of the IS sociotechnical systems approach. The applicability of the framework's concepts and analytical tools will be demonstrated in their use for illuminating the data on IT enabled call centre operations gathered in two case studies in this research inquiry. The next chapter elaborates the methodological basis on which this research was conducted.

CHAPTER FOUR: RESEARCH DESIGN

4. INTRODUCTION

This research set out to develop a methodological framework of analysis for illuminating the emergent nature of IT based work operations in firms from a systems thinking standpoint. This effort engendered the formulation of the systemic appreciation framework described in the preceding chapter. The development and application of this contemporary interpretive systems framework was undertaken within the context of two case studies that focussed on the shaping of call centre operations at two UK based organisations. The conduct of these case analyses acted as a catalyst for the conceptual adaptation, specification and evaluation of this new analytical framework.

This chapter elaborates the major choices underlying the methodological design of this study. Section 4.1 clarifies the research approach that informed this inquiry. The notion of research approach (or research strategy, as it is otherwise termed) is generally distinguished from that of a research method in IS studies (Cavaye, 1996, p. 227). A research approach refers “a way of going about one’s research”: it embodies particular philosophical assumptions about the nature and study of phenomena. A research method in comparison usually designates “a way to systemise observation, describing ways of collecting evidence and indicating the type of tools and techniques to be used during data collection.” The clarification of this study’s research approach is followed by the description, in section 4.2, of several research methods used in the IS field, and the key reasons for the selection of the particular research method that was used in this study. This research method, the interpretive case study, is subsequently elaborated in section 4.3, in terms of the data-gathering techniques and process of data analysis employed in this research. A discussion of major methodological issues regarding the conduct and reporting of this study will then occur in the concluding section, 4.4.

4.1 RESEARCH APPROACH

The research approach refers to the set of implicit philosophical assumptions and beliefs that is held by and shapes the actions of a researcher in the investigation of

organisational phenomena (Orlikowski and Baroudi, 1991). It is vital and necessary for IS researchers to reflect upon, and make explicit report of, the particular philosophical stance they hold in the conduct of a study (Walsham, 1995a). This section therefore contrasts the main research approaches that are active within the IS field, and identifies the one that informed my conduct of this study.

4.1.1 Principal IS research approaches

Three broad research approaches, namely the positivist, interpretive and critical traditions, are generally distinguished in the IS field (Orlikowski and Baroudi, 1991), although these classifications are acknowledged to be contested, since the distinctions drawn between them do not always make for a neat categorisation of IS research studies (Klein and Myers, 1999; Walsham, 1995b). These three principal research approaches are oriented differently on ontological and epistemological dimensions.

The positivist approach embodies the traditional model of western science that has dominated in the natural sciences. It is characterised ontologically by an assumption that a physical or social world exists independently of the researcher, and that the nature of this world or reality is amenable during the process of inquiry to being apprehended, measured and described in a factual and objective manner. Meaning structures in social activity are held to be unproblematic and given (Spender, 1989). The epistemological stance of this approach is represented by the following key precepts (Walsham, 1995a; Orlikowski and Baroudi, 1991): inquiry is value-neutral; scientific knowledge consists of facts, rules and law-like generalisations, that are independent of a social context or historical setting; the interactions between the various elements that constitute the world (or reality of phenomena) can be identified analytically through hypothetic deductive logic, and expressed in the form of uni-directional cause-effect relationships. In the light of these characteristics, the general aim of a positivist research approach is to generate formal laws and truths, that can be used to support predictive knowledge of IT related organisational phenomena. The positivist approach has been the dominant perspective in the IS field (Orlikowski and Baroudi, 1991).

The interpretive approach has grown in reaction to these entrenched assumptions of the positivist approach. Ontologically, the interpretive research approach holds that

physical and social reality is neither given nor unproblematic. Rather, it is a complex construction of the social actors and the researcher who are constantly trying to make sense of it. This construction of reality can take the form of either one of two polar positions (Walsham, 1995a). On the one hand, in what is termed as internal realism, the nature of reality is considered to be a shared, inter-subjective construction of the various actors and the researcher involved. At the opposite pole of an interpretivist ontology, in what is termed as subjective idealism, reality is considered to be entirely a subjective construction of the individual person. Researchers working in the interpretive approach thus seek to gain understanding of organisational phenomena by eliciting the meaning structures and significance that organisation members attach to those objects of inquiry. The epistemological stance of the interpretive approach is thus characterised by a denial of the possibility of full, objective or factual knowledge of phenomena and reality. The social world or reality is held to be a social construction, constituted by the meanings that various social actors within it give to it. All knowledge of social phenomena is thus relativistic, and is only accessible to an IS researcher by 'getting inside' the subjective viewpoint of organisational members (i.e. regarding the phenomena under study), and understanding the various social artefacts they use in natural settings such as language, documents, tools (Klein and Meyers, 1999; Burrell and Morgan, 1979). The subjective viewpoint or bias of the particular researcher is openly recognised as being implicated in the social construction of knowledge regarding IS phenomena (Walsham, 1993).

Given these ontological and epistemological assumptions, researchers within the interpretive approach rejects the positivist emphasis on mechanistic causal explanations or predictive generalisation in the social sciences. Instead, interpretive researchers seek to capture the accounting process of social actors (i.e. they employ methods to elicit the accounts by which people make sense of their world), and to generate understanding of social phenomena based on those accounts. Studies within the interpretive approach are thus geared towards understanding the complexity of human sense-making regarding phenomena of interest within a particular socio-cultural context. The aim of interpretive studies is to illuminate the theoretical 'deep' structures of those phenomena they are investigating (Klein and Meyers, 1999; Orlikowski and Baroudi, 1991). The context-specific understanding that is gained is not used to generate cause-effect rules and law-like generalisations such as in the positivist approach, but to contribute towards building

a deeper and richer understanding of IS phenomena that can be used to inform related studies in other settings (Walsham, 1993).

The third principal research approach, known as the critical approach, may be viewed as a sub-stream of the interpretive approach. It is characterised by a generally similar ontological and epistemological stance, with one distinguishing epistemological feature. This primary, distinctive characteristic is an overt emphasis on social critique and an emancipatory focus (Orlikowski and Baroudi, 1991). The general aim of critical studies is to expose orthodox or conventional assumptions regarding organisations and information systems, so as to challenge unfair or oppressive ideological positions and distributions of power, and thereby improve the capacity for a greater attainment of human potential. The three approaches just described thus constitute the main research philosophies in the IS field.

Besides the ontological and epistemological dimensions identified and discussed above, the research approaches in the IS field (and the social sciences in general) are also viewed by Burrell and Morgan (1979) to be differentiated on two other dimensions: 'human nature' and 'methodology'. The human nature dimension concerns the way the researcher views the relationship between humans and their environment. This has two polarities. On the one hand, the deterministic (or structuralist) view holds that humans are strongly controlled by social structures, or stimuli received from their environments, so that they behave in an almost mechanical manner. On the other hand, the voluntarist (or individualist) view holds that humans have wide latitude to behave freely, exercising their own will and creativity, and correspondingly 'enacting' or creating an environment by their perceptions and actions (i.e. rather than mechanically responding to an imposed one). With regard to the methodology dimension, two different forms of meta-theory are seen to characterise social science research. Nomothetic theory advocates the search for universal laws that govern phenomena. Ideographic theory promotes the gathering and analysis of the subjective accounts of human actors as they seek to interpret and understand their worlds. On the basis of the four dimensions of ontology, epistemology, human nature and methodology, Burrell and Morgan (1979) identify four 'paradigms' of approaches taken in the study of IS, organisational or social phenomena: functionalist sociology, interpretive sociology, radical humanism and radical structuralism.

4.1.2 Approach taken in this study

This study was informed by the philosophical assumptions of the interpretive approach. This was the perspective that I as researcher had come to prefer and espouse, during the course of training as an apprenticeship researcher in a doctoral program. The type of interpretive approach that I hold to as researcher was that of the internal realism kind described earlier, in which the nature of reality and social phenomena is considered to be a shared, *inter-subjective* construction of the various participants in the inquiry, including myself. This approach underlay the general strategy selected for conducting this inquiry. This involved seeking a mediated understanding of the phenomena under study (i.e. the emergent nature of IT based work operations), through the elicitation of subjective accounts from relevant organisational members and the examination of social artefacts, that enabled me to understand this subject through the eyes of the participants in a natural setting with a unique historical and social context. The knowledge gained in this research, namely an illumination of the emergent nature of IT use from a systems thinking perspective, was thus an inter-subjective construction: it obtained from the interaction between the theoretical concepts and method that I as a researcher brought to this inquiry, and the experiences and opinions of the social actors whose viewpoints I had sought.

A central focus within the interpretive approach is on achieving fresh, insightful *perspectives* into phenomena under study (Spender, 1989). This necessitates a constant self-questioning and challenging of assumptions on the part of a researcher, in carrying out research, and engaging with his/her empirical investigations. This approach requires a researcher to incalculable a considerable degree of openness to being 'led' by his/her field data, and to iteratively modifying his/her initial assumptions, use of concepts and methods, as well as theoretical orientation, until such time as an insightful theoretical exposition of the data is arrived at and crystallised (Walsham, 1995a, Spender, 1989). This fundamental character of the interpretive approach shaped the aim and conduct of this research. This study's objective of demonstrating the applicability and utility of a contemporary systems thinking approach for illuminating the emergent nature of IT based work operations required the undertaking of such an insight-seeking, perspective-forming track of inquiry.

Another key feature of the interpretive approach that I adopted as a researcher was evident in the aim and conduct of this inquiry. Since the reality of a phenomenon is held to be socially constructed within the interpretive approach, it follows that such a reality is contextual in nature (i.e. rooted to a socio-cultural and historical setting), and that a focus on context is fundamental to this approach. Walsham (1993, p. 4-5) had noted that the interpretive research effort is “aimed at producing an understanding of the context of the information system, and the process whereby the information system influences and is influenced by its context”. This focus was reflected in the main themes of this study: to elaborate the systemic viewpoint, in regard to the contextually shaped nature of IT based work operations; and to foreground, in accordance with the focus of the sociotechnical systems approach, the contradictions and tensions implicated within a domain of IT based work operations. Thus the interpretive research approach informed this study’s aims and undertaking.

This approach thus corresponds to the ideographic approach specified by Burrell and Morgan (1979), as described earlier. In regard to the human dimension (Burrell and Morgan, 1979), my assumptions fall in the middle of the spectrum between an extreme determinist (structuralist) viewpoint and extreme voluntarist (individualist) viewpoint. While I do not ascribe to a view that human agency is strongly or strictly controlled by social structures, I also do not also ascribe to the view that humans can behave so freely in thought and actions as not to be shaped/influenced by regulative social structures or the conditions of their environment. In advocating a systems thinking based approach, I hold to a strongly *inter-relational* view of agency, structure and conditions. Given the preceding philosophical assumptions or principles that guided my inquiry, my approach may be said to lie in the interpretive sociology paradigm* (Burrell and Morgan, 1979).

4.2 RESEARCH METHOD

This section defends the choice of the interpretive case study method used in this study, through a consideration of alternative research methods that are used in the IS field, and an elaboration of the reasons for selecting the case study method in this

* This may bear some clarification. By taking a systems thinking approach in this study, some might interpret my approach to reflect a structuralist/determinist stance, since Burrell and Morgan (1979) had classified systems theory under a deterministic label, and as a part of functionalist sociology. However, they were referring to traditional or first-generation systems theory (see section 2.3), while this study, in strict contrast, was informed by the interpretivist stance of second generation systems thinking (see 2.3.2).

inquiry. The general features of the case method are described to provide a background for the elaboration of the specific details in the next section (4.3), regarding the conduct of the case studies undertaken in this research.

4.2.1 Alternative methods

The aim of this study was chiefly methodological: to enable an illumination of the emergent nature of IT based work operations from a systems thinking perspective, through the development of a framework of interpretive sociotechnical systems analysis that would support this illumination. Several IS research methods were considered in terms of their suitability for achieving this particular objective. Three methods, namely theorem proof, laboratory experiment and forecasting were excluded from consideration at the very beginning. Adopting Gallier's (1991) taxonomy as a general criterion, they were seen to be strongly unsuited for this study's purpose of developing methodology (i.e. a systems thinking framework). Following Gallier's (1991) recommendations, the range of choices for an appropriate IS research method in this study was narrowed down to the following principal options: field experiment, survey, simulation, action research, and case study. The selection of a suitable method among these options was accordingly determined by the degree of compatibility between the method and: (i) the requirements set by the objectives of this study; (ii) the philosophical assumptions of the interpretive research approach which I held. These various considerations underpinning this study's choice of a research method are reviewed next.

The field experiment method involves manipulation and measurement of clearly defined variables by IS researchers in natural settings (Galegher and Kraut, 1990). The survey method also involves the manipulation and measurement of variables, but such as are identified from the responses of a target human population, obtained through questionnaires distributed and collected by hand, the post, the internet or the telephone. Simulation differs from the field experiment and survey methods in being based on observations drawn from an artificial environment rather than a natural, human setting. It involves the use of automated tools (such as software based queuing models, cellular automata and multi-agent models) to generate projected random interactions between pre-defined variables, so that these interactions might be observed, measured and

generalised into predictive rules. These three methods (i.e. field experiments, simulation and survey) were found to be unsuited for this study however, for three main reasons.

Firstly, these three IS research methods, originating from empirical approaches used in the natural sciences, are all limited in their ability to address the richness and complexity of the human or socio-historical *context* in which the use of computerised technologies in organisations occurs (Walsham, 1993). The procedure encompassed by these methods invariably involves reducing the complexity of the domain of IT use to a limited set of representative variables: the conclusions drawn from measurements of the interactions of those variables are consequently strongly limited in their correspondence or applicability to real-world environments (Galliers and Land, 1987). This inadequacy was held to strongly disqualify those methods from use in this study, since a key focus of this research was to ascertain the way in which IT use in firms is shaped by the larger organisational and environmental context in which it is embedded. Such a contextual focus is a prime characteristic of systems thinking (Checkland, 1981; Emery and Trist, 1960). The methodological development of an analytical systems thinking framework undertaken by this study thus required a method with a congruent contextual emphasis.

The field experiment, survey and simulation methods were also found unsuitable for a second reason. Due to their basis in the empirical-analytic approach of the natural sciences, these methods employ statistical measurements and observation as the mode of analysing empirical data (Galliers and Land, 1987). This mode of analysis might perhaps have qualified those methods for use in research where the objective is to assess an existing methodology or to compare alternatives ones: the interactions arising from the use of one or more methodologies might then be measured, and their validity or effectiveness evaluated correspondingly, through the use of these methods. However, in the case of this research, the objective was to develop a new methodological framework of analysis rather than compare or evaluate existing ones. Hence, this study required a research method geared towards *conceptualisation* rather than measurement. This was a feature lacking in those three methods. Moreover, the development and application of the new systems thinking framework sought in this study was seen to entail a research method that approached the task of understanding the use of IT tools in organisations as an 'inward-forming process' (Boland, 1991), involving considerable interpretation and

learning. This introspective focus eluded the scope of those three methods, which all emphasise direct observation as the basis of comprehension.

Last but not least, the methods of field experiment, simulation and survey were seen to be inappropriate for use by this study for a third reason. The three methods were deemed much more consonant with a positivist research approach than an interpretive one, since they all bear an implicit assumption that the meaning-structures of variables can be fixed independently of their particular organisational context, and that the effect or 'impact' of selected variables on other variables can be objectively measured and generalised (i.e. independent of a specific context) to other settings (Spender, 1989). In the interpretive approach, the meaning-structures (i.e. patterns or forms of signification) that are active within a particular organisational domain are seen as problematic, and represent the focus of inquiry. Thus, in the light of the key reasons just adduced, the use of the field experiment, simulation and survey methods were rejected in this study.

A fourth research method, namely action research, was also judged unsuitable for adoption in this study, despite possessing all the characteristics identified as lacking in the field experiment, simulation and survey methods. Action research involves the conduct of research in the course of undertaking a particular organisational intervention: the researcher is thus not merely a neutral observer/investigator, but one who is actively involved in organisational improvement efforts: he/she collaborates with organisational employees to achieve an understanding of a research topic through active participation and mutual learning. The reason that the action research method was rejected had to do with a problem identified during the literature review in chapter two (section 2.3.2). Much of the past theoretical development regarding the application of systems thinking in the IS field has focussed on organisational intervention efforts and IS design. This has been coupled with the use of action research as research method by systems practitioners (e.g. Checkland and Scholes, 1990; Mumford, 1996, 1993). However, this strong interventionist orientation has resulted in a lack of development regarding the use of systems thinking as a means of theoretical description (or explanation) of the nature of social organisation. The action research method was consequently rejected from use in this study, as its interventionist orientation would have detracted from a fundamental focus on formulating and applying a framework of systems thinking in the role of insightful theoretical description and illumination.

The fifth option, namely the case study method, was subsequently assessed to be the most suitable research method in the light of this study's objectives, and was thus selected for use in this inquiry. The general features of the case study method, and the discriminations made between various types of case studies in the research literature, are reviewed next, followed by identification of the particular type used in this inquiry, and the reasons for its adoption.

4.2.2 The case study method

In the case study method a researcher goes about gathering, in a systematic way, in-depth information about certain aspects of or occurrences within a particular social situation (e.g. an organisation's work operations, or the progress of a project). The case study method is used to "investigate a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used," (Yin, 1994, p. 23). The aim of this is to provide a comprehensive elaboration of the variety of components that comprise the *case* (i.e. the social phenomenon) being studied, as well as to generate inductive explanations for the features or dynamics that uniquely characterise it, on the basis of a detailed and holistic understanding derived of its nature and context (Walsham, 1995a). The subject of the case study may alternatively be comprised of an individual/group, a chronicle of occurrences, a critical incident, a set of decisions, an organisation, a social institution, a process, or a project (Walsham, 1993; Yin, 1994). The multiple sources of information used to build up a description of the case includes interviews, documents, archival records, artefacts, participant and non-participant observations. Adopting a case study method may involve undertaking single or multiple case studies, at numerous levels of analysis (Walsham, 1993). Single case studies are used to obtain a detailed contextual understanding of, and in-depth insights into, a phenomenon. Multiple case studies (i.e. involving two or more cases) can help researchers to gain expanded insights into phenomenon under investigation through the understanding of variations across different settings or contexts (Yin, 1994).

The case study method is used for researching phenomena that are inextricably linked to social-historical contexts or natural settings (Walsham, 1993). This method is

seen to be especially useful for investigating ‘how’ and ‘why’ type research questions (Walsham, 1995a; Yin, 1994; Benbasat et. al, 1987), in which little is understood about the phenomenon in question. A basic distinction has been drawn in IS literature between the positivist case study method (Yin, 1994; Benbasat et. al, 1987) and interpretive case study method (Walsham, 1993). These two case study categories are distinguished by the epistemological and ontological assumptions, described earlier in section 4.1.1, that are held in their conduct, and by methodological criteria (e.g. validity, generalisability) on which they are evaluated (to be discussed shortly in section 4.4).

Another primary distinction has been made in IS literature between intrinsic and instrumental case studies (Walsham, 1993; Stake, 1994). In an intrinsic case study, the social phenomenon under investigation is of primary concern, and is studied for its own sake. This type of inquiry may occur, for instance, in the event of the remarkable success or failure of a particular organisational project, or in the event of a critical incident, when producing an understanding of the dynamics of such phenomena would be of particular interest to management staff or policy makers. In an instrumental case study, a social situation or set of events is documented and analysed, in order to elicit specific insights into one or more issues, or in order to develop and refine a particular theoretical framework of concepts and ideas (Butler, 1998; Walsham, 1993). The case itself is seen to be of secondary interest, playing a supportive role in the attainment of the theoretical aims of this inquiry.

The process of inquiry in a case study is focussed by a research question, and is shaped by its relation to theoretical knowledge in the field (Eisenhardt, 1989). Walsham (1995a) describes three ways in which the case study method is related to IS theory. An IS researcher may focus on assessing (i.e. confirming or disconfirming) existing theory through case based inquiry. In this mode, he/she will rely heavily on established theory for guidance in establishing constructs and data collection procedures, and for the use of conceptual frameworks in evaluating the case data. Alternatively, the researcher may focus on developing new theory as a final product of the case investigation, as may be seen in studies adopting a grounded theory approach (e.g. Orlikowski, 1992). A third variant is where the researcher develops new theory as part of an iterative process of data collection and analysis. In this mode, the formulation of theoretical frameworks is undertaken through the dual use of case data for concept generation/adaptation as well

as empirical substantiation: the data is used to adapt existing or invent new concepts, and to refine them by testing their applicability. For instance, Kallinikos (1999, p. 268) explained the use of this strategy in a study: “the case study was thought to contribute to assessing the relevance, and to developing and further specifying the theoretical ideas, by allowing empirical observations to enter into a kind of structured dialogue with them”.

The case study method selected for this study was that of the interpretive type, and specifically, of the instrumental kind. The primary reasons for the selection of this research method are as follows. Firstly, the use of the interpretive case study method was congruent with the exploratory form of research required by this study, aimed at developing a hermeneutic systems perspective for illuminating the emergent nature of IT use. This method was compatible with the ‘how’ type orientation of the research question set in this inquiry. Secondly, the use of the interpretive case study method was congruent with the contextual focus that was a critical goal of this research: the need to ascertain the way in which IT use is shaped by the organisational and environmental context in which it takes place. Thirdly, the use of the interpretive case study method accorded with my philosophical assumptions as a researcher, as were described earlier in section 4.1.2.

Fourthly, the choice of an *instrumental*-type interpretive case study method was consonant with this study’s focus on the adaptation of a new theoretical framework for addressing the emergent nature of IT use in organisations. The case study investigations of call centre operations at two firms undertaken in this research were of secondary interest. Their fundamental role was to provide a context for empirical engagement with the domain of discourse (i.e. sociotechnical systems thinking), in which the adaptation, application and refinement of the ideas and concepts of Greimas and Ricoeur could take place. These investigations enabled the systemic appreciation framework, as described in the previous chapter, to emerge from a recursive process of data collection and analysis. This fieldwork process provided a means to challenge the limitations of the researcher’s thinking and existing knowledge, as well as a means to catalyse the inventive adaptation of an appropriate set of theoretical ideas that could be used to illuminate the case data from an insightful alternative rationality. The case study method used in this inquiry thus aided in the formulation of systems based theoretical

concepts and analysis, and the demonstration of their applicability. The relation of this study's case method to theory was that of the third variant noted by Walsham (1995a) above: the emphasis was on evolving new theory through an iterative process of data collection and analysis.

A multiple-case study strategy, involving case studies of call centre operations at two different organisations, was adopted. This decision to undertake two case studies was made in order to increase the 'fertility' of the empirical grounding being sought for the ideas developed in this inquiry. Pursuing two cases invoked a contrastive research environment in which differences in the features of the call centre operations across the two sites was perceived to help stimulate the search for relevant theoretical resources in this study, that could be adapted/refined to account for (or be compatible with) such differences. Eisenhardt (1989, p. 546) had likewise asserted that: "Attempts to reconcile evidence across cases, types of data, or different investigators ... increase *the likelihood of creative reframing* into new theoretical vision," (italics added for emphasis). Through this approach, the scope of applicability of the systems thinking framework developed for illuminating the emergent nature of IT use was also thought to be further ensured.

4.3 DETAILED RESEARCH DESIGN

This section describes the procedures that were used, and explains key choices that were made, in the collection and analysis of case study data in this research. This data obtained from separate case studies carried out on the call centre operations at two UK organisations. In general, the collection of case data occurred from the use of semi-structured and unstructured interviews, non-participant observation, and an examination of company-related documents. The hermeneutic method (Butler, 1998; Ricoeur, 1981) constituted the overarching methodological vehicle for engaging analytically with the collected case study data, and using it to serve this inquiry's purposes.

4.3.1 Site selection

The *primary* focus of this research in undertaking two case studies of call centre operations was, as mentioned earlier, methodological (i.e. formulation/application of a framework of systems thinking for illuminating the emergent nature of organisational

IT use) rather than substantive (i.e. the nature of call centre work environments). Hence, no special considerations governed the choice of sites for performing the case studies other than the ability to obtain the necessary access. Towards the end of the year 2000, approaches were made to the managers of the call centre / customer service department at several UK companies, through the use of letters, phone calls and informal contacts. Permission was solicited from these managers to study the way in which information technologies were used at their call centres to support their customer service operations.

The call centre management at two organisations responded positively to these approaches: Boots the Chemist, and Capita Business Services, the leading call centre outsourcing vendor in the UK at that time. The running of the call centre operations of the British Broadcasting Corporation (BBC) had been outsourced in the previous year (1999) to Capita: thus, the BBC's permission was subsequently obtained to study those operations. Initial visits to the Boots and the BBC's call centre's evinced that they were suitable environments for conducting the case studies. Both Boots and the BBC are well-established organisations that had introduced new call centre operations recently as a means of restructuring their customer service functions. The potential was perceived for using an investigation of their call centre operations to elaborate the sociotechnical systems approach. The call centre operations at Boots and the BBC belonged moreover to an identical general category. Both organisations operated *inbound, inquiry/feedback handling* centres, whose role is that of providing or processing information in response to incoming telephone calls, letters or emails from customers i.e. this role contrasts with that of other call centre category types, such as outbound call centres, whose staff make unsolicited calls to members of the public to promote products/services (Datamonitor, 1998). Thus the understanding gained of call centre operations, though of primary value to this study as empirical grounding for developing a new framework of sociotechnical systems inquiry, was also perceived to be broadly applicable (as IS knowledge) to other organisational sites that operated this general category of call centres.

4.3.2 Overview of case inquiry

The fieldwork involved multiple site visits at the case organisations, carried out over a period of three and a half months from February to May 2001. The fieldwork at Boots (i.e. the Boots call centre) and the BBC (i.e. the BBC Information call centre)

began around the same period (i.e. within two weeks of each other in February), and the case investigations at both sites were conducted in parallel. The process of inquiry in those investigations may generally be divided into two broad phases, that corresponded with an evolutionary shift in the focus of the study over the fieldwork period. This shift has to be understood in the context of research issues that occupied me over the course of this research.

The research focus that I held at the inception of this inquiry had been shaped by a period of extensive reading of theoretical literature within the sociotechnical systems (STS) school of thought, and motivated by recent calls of the school's leaders (e.g. Mumford, 1997) for its further development. These readings had led me at an early stage to focus on role theory, as emphasised by STS theorists, as a way of developing a behavioural framework of IT use in service work environments. This initial direction of this research is reflected in a separate earlier research study involving an analysis of secondary data on call centre work environments, as reported in Corea (2000)*. Hence the case study investigations of call centre operations at Boots and the BBC were undertaken initially with a focus on understanding the interaction between the roles played by staff members and by information technologies in the carrying out of service work activities, with a view to identifying the socio-technical factors that influenced the effectiveness of the call centre's information systems. In the first 'phase' of fieldwork thus characterised by this early focus, the case investigations focussed on understanding the nature of the individual staff work roles and IT use at the centres.

As greater understanding accrued of the work environment of both call centres, a shift in focus of this inquiry came about, bringing the study into a second 'phase' that resulted in the present form reported in this thesis. This shift in focus, which occurred over a period in late March and early April, was engendered by two factors. Firstly, I had become increasingly aware as the investigations progressed that the nature of work activity, staff roles and IT use in both centres was significantly contextualised in an evolutionary (i.e. emergent) manner by historical and current circumstances within each call centre's parent organisation and its external customer environment. Secondly a combination of my reading and reflection over theoretical literature, and discussion with

* the focus of research at this initial stage of the inquiry was different from the final research focus as reflected in the research question and themes developed and identified in chapter two, and this thesis in general

my colleagues, with regard to his increased understanding of call centre environments, suggested that a promising avenue for developing the sociotechnical systems approach consisted in reformulating the systems thinking perspective underpinning this school of thought to address the emergent nature of IT based operations. These developments shifted my focus of inquiry in the two case investigations to such issues as: the way the centre's operations interfaced with the rest of its parent company (i.e. information, benefits inter-changed), the way each centre had evolved since the start of operations, and the manner in the operational challenges it faced pertained to particular features of its parent company and customer environment. In summary, as depicted in Table 3, the earlier phase of the case study investigations in this research served to establish understanding of the nature of work activity and IT use at the centres, while the latter phase, building on this foundational knowledge, sought to ascertain the factors within the socio-historical context of each centre that shaped its evolution and the form and effectiveness of its activities.

Phase	Period	Focus of case inquiry	Focus shaped by:
I	February – March, 2001	Obtaining an understanding of the nature of each call centre's work environment (i.e. individual staff roles, use of IT, customer service activities, operational goals, performance targets)	Antecedent research goal of studying the effectiveness of IT use in call centre work environments
II	April – May, 2001	Ascertaining the ways in which each centre's activities were linked to its parent firm and customer environment, and the ways in which factors and influences within the parent company and customer environment had shaped the evolution of the centre's operations	(i) Recognition from ongoing analysis of data that the nature of work activity, staff roles and IT use in both centres was significantly shaped in an evolutionary, contextual and unanticipated manner by historical and current circumstances in the parent firm and customer environment; (ii) Perception of potential for developing systems thinking perspective in IS sociotechnical systems approach

Table 3: Phases of case study investigations

4.3.3 Data collection

The primary source of data for this research was 22 semi-structured interviews with members of staff from the call centres and customer service departments of Boots and the BBC (note: the study of the BBC call centre operations also entailed interviews with staff members from Capita, the outsourcing company). This was supplemented by data from non-participant observation, informal conversations and reviews of company-

related documentation. A list of staff members interviewed at both call centres is shown in Appendix A.1. Each interview lasted up to an hour. These semi-structured interviews were used to obtain a sufficiently well-informed comprehension of the nature of each centre's work activity and operational environment, so as to engender and support the formulation of a systems thinking framework and perspective sought in this study. The management at Boots and Capita early on indicated an unwillingness for interviews to be recorded on tape. Hence, short hand written notes were taken for all the interviews conducted, and written up into fuller text within twenty-four hours.

Interview Items	Relevant Staff	Phase
Demographic Information: job designation, number of years at company, major responsibilities	M, CS, S	I
Description of job role and work duties, including goals and priorities	M, CS, S	I
The challenges faced in performing job role, and meeting performance goals (and that of the work team, if applicable)	M, CS, S	I
Structure of staff organisation and service workflows	M	I
Customer service culture/ethos of call centre and company as a whole	M	I
Factors contributing to successful call centre operations	M	I
Challenges currently being faced in achieving goals of the call centre, and fulfilling customer expectations	M, S	I
Preferences and dislikes in job role	CS	I
Challenges in fulfilling customer expectations, and those of management	CS	I
Types of IT systems used at the centre, and description of their uses	M, S	I
Perceptions of the effectiveness of IT systems, in supporting individual work duties and the provision of customer service	M, CS, S	I
Problems faced in the use of IT systems	M, CS, S	I
Description of employee training, and work performance/quality monitoring process	M	I
Nature of information supplied to the call centre by units from the parent company, and the manner in which it is used in the centre's activities	M, S	II
Nature of information obtained about/from customers by the call centre	M, S	II
Nature of information supplied to units in the parent company by the call centre, as well as the benefits it provides	M, S	II
Means by which information to and from the parent company is transferred	M, S	II
Key factors/circumstances that have shaped the nature of the call centre's role and activities since its start	M	II
Key changes in the call centre's operations since its inception, and the effects of those changes	M	II
Key challenges that were faced in the call centre operations since its beginning, and measures that have been taken to address them	M	II
Major changes in the composition of the call centre's IT systems since the start of operations, and effects of those changes on service performance	M	II

Table 4: Interview guidelines

* The interview items were tailored to the job roles of interviewees, listed in Appendix A.1 under 3 group categories: management staff, CSR staff and support staff. The abbreviations are: 'M' for management staff, 'CS' for CSR staff, 'S' for support staff.

An interview guideline, laying out a general format of the items (i.e. the topics and issues) to be covered, was prepared in advance of each meeting. The question items in the guidelines were used to loosely structure the interviews. The items were phrased typically in the form of 'what are' or 'what for' type, open-ended questions. The format of interview items was customised to the roles of three categories of staff: management staff, CSR staff (i.e. agents/supervisors who interact directly with customers) and support staff (e.g. staff who acted as a liaison between the centre and the parent firm, IT staff etc.). The aggregated interview items and particular staff categories they pertained to is shown in Table 4.

Though an interview guideline acted as an initial structure for conducting each interview, the process of questioning typically progressed along different paths for each interviewee, since the technique of *probing* (Rubin and Rubin, 1995; Ziesel, 1984) was used to expand interviewee responses to the questions set by the guideline, into the extent and depth of detail sought for. Probes are verbal or non-verbal cues directed at an interviewee to encourage him/her to continue elaborating a response: they also serve to clarify an interviewee's response, or to indicate that the interviewer is paying attention (Rubin and Rubin, 1995). Ziesel (1984) distinguished between seven forms of probes, summarily described in Table 5. These different probe structures, especially those of the general and transition kind, were used frequently during in the course of interviews.

Type	Description
General probes	To encourage further elaboration or clarification e.g. Interviewee: "The system has not been very reliable"; Interviewer: "In what way?"
Addition probes	To promote elaboration and flow of expression by interviewees e.g. verbal encouragement and body language - "I see" or a nod of the head
Reflecting probes	To induce elaboration in a non-directive manner e.g. echoing the interviewee's response, or responding to his/her question by repeating it back
Transition probes	To extend the range of the topic e.g. by moving on to a related issue, or expanding an issue that had been mentioned earlier but too briefly - "that reminds of something you stated earlier" or "that brings up the issue of..."
Situation probes	To introduce specificity e.g. referring to a particular event, or an artefact (e.g. a company document) to establish precisely what the interviewee is talking about.
Emotion probes	To increase the depth of response e.g. "what do feel about this?"
Personal probes	To contextualise a response in terms of personal experiences e.g. "did that relate to some previous experience you've had?"

Table 5: Types of interview probes

The focus of data collection shifted with the evolutionary change between the two broad phases of the case inquiry described in the preceding section. In the earlier phase of the case inquiry, the focus of data collection activity was on understanding the nature of staff work roles, use of IT systems, customer service activities and operational goals, at both the call centres. This was obtained by holding semi-structured interviews and informal conversations with staff, and by spending several half-days at each centre shadowing a number of CSRs (3 at Boots, 2 at the BBC, nominated by each centre's manager) as they performed their work duties (i.e. this involved listening in to their call-handling activity over headphones). As greater understanding was obtained of the work environment and IT use, a diagram summarising the factors that appeared to affect the effectiveness of call centre information systems, seen in Appendix A.2, was used in the interviews as an aid for eliciting and provoking further comment and understanding. The company-related documents that were reviewed to obtain additional understanding of the nature of work operations at both centres consisted of company documents, press articles, annual reports, and standard operating procedure manuals used by staff. In the latter phase of the case study investigations, data collection activity consisted of semi-structured interviews with management and CSR supervisory staff. These interviews probed the manner in which the nature of work activities and IT use at each centre had evolved since the beginning of operations, and the ways the problems and challenges encountered in the centre's work activities and the use of IT were related to historical and existing circumstances within the parent organisation and customer environment.

4.3.4 Data analysis

This section elaborates how the data collected during the case investigations was analysed and used in support of this study's aim. The mode of analysis adopted was that of the hermeneutic method. Hermeneutics, or the study of interpretation, originated as a field concerned with the interpretation of written religious and literary texts (Palmer, 1969). The use of hermeneutics as a methodological strategy for engaging analytically with empirical data has been promoted by prominent IS researchers (e.g. Boland, 1985, 1991; Lee, 1994; Myers, 1995). The application of key ideas from hermeneutics to analysis of data on IS phenomena (e.g. individual/group behaviours, IT use, actions, events, institutions) is based on the idea of 'reading' such phenomena as text-analogues, as first proposed by Ricoeur (1971), and introduced to the IS field by Boland (1991).

The general aim of hermeneutic analysis is to make sense of organisational text-analogues (i.e. accumulated in such forms as interview data, artefacts, or experiences of a researcher) as a coherent *whole* (Lee, 1999; Myers, 1997a): an ordered appropriation is sought that comprehensively integrates the parts (e.g. people activities, technologies) of social phenomena being studied, through the identification of interlinking relations. This effort at appropriation is characterised by a primary struggle against ‘distanciation’ (Ricoeur, 1991): the estrangement of meaning which a specific text-analogue presents to a researcher. The adoption of a hermeneutic mode of analysis requires the researcher to engage in a substantial process of ‘interrogation’ with his/her empirical data, aimed at developing an explanatory framework that illuminates the particular ‘structure’ of the phenomena evident in the text-analogue. He/she will need repeatedly to closely examine the acquired empirical data, teasing out potential layers of signification, and integrative relations or themes, which then, along with their implicit assumptions, become the object of subsequent critical questioning and revision, within an evolutionary, iterative process of engagement. This process extends to numerous cycles, until such time as a relatively ‘stable’ construction of understanding (not final or closed) is forged regarding the phenomena (i.e. the text-analogue) as a whole and its various parts (Butler, 1998; Sarker and Lee, 1999).

This process of interpretive engagement, identified as the ‘hermeneutical circle’ (Gadamer, 1989) in the previous chapter (section 3.1.1), provided the dynamic basis for the specific theoretical innovation sought in this study: the development and application of a systems thinking framework for illuminating the emergent nature of organisational functioning. The ‘distanciation’ posed by the case study data on call centre operations at Boots and the BBC spurred a search for appropriate theoretical resources that could be used to illuminate the systemic relations between human and technological elements, and so achieve an insightful appropriation of the nature of call centre operations at the two companies. Correspondingly, the process of sense-making and analysis was carried out simultaneously in conjunction with the collection of case data: this ensured that the ongoing collection of data was responsive to the developing themes that were surfacing from the concurrent analysis. Interview notes and case evidence were studied repeatedly in order to consider how possible meanings could fit in with potential emerging themes. The adaptation of concepts and ideas by Greimas (1987) and Ricoeur (1984), modified

and joined to form the systemic appreciation framework described earlier, came about only after the first phase of the case investigations i.e. after sufficient understanding had been gained of various elements comprising the unique nature of call centre operations at the two companies, and especially after a recognition had crystallised regarding the need for a systems viewpoint, through repeated close readings of the collected data. A search had been undertaken at that point for appropriate theoretical resources that were: (i) consonant with illuminating the case study data from a contemporary sociotechnical systems thinking viewpoint; and (ii) particularly conducive for evoking key themes and patterns of signification that were beginning to form in my perceptions regarding each organisation's operations. This search resulted in the selection of the ideas and concepts of Greimas and Ricoeur which were seen, as the latter phase of the case investigations developed, to offer a particularly promising avenue for meeting those criteria. These ideas and concepts were subsequently adapted and modified, to enrich their ability to support an interpretive sociotechnical systems analysis of the emergent nature of IT-enabled operations in a company. This adaptation, which resulted in the formulation of the systemic appreciation framework (described in the preceding chapter, section 3.4), occurred by applying those concepts and ideas to the case data on call centre operations, and refining them appropriately to enhance their ability to foreground and clarify the unique features of each organisation's case data.

The development of the method of hermeneutic analysis proposed in this study's systemic appreciation framework, and its application to the case study data, occurred towards the end of the two case study investigations, once it was deemed that sufficient data had been collected to support an elucidation of the emergent nature of call centre operations from a systems viewpoint. Before undertaking this framework's process of analysis, a comprehensive description was first written of the call centre operations at each company. Consonant with other IS studies that have used the hermeneutic method of analysis (e.g. Butler, 1998; Sarker and Lee, 1999), these case descriptions comprised the 'text-analogues' on which the method of analysis was applied. This analysis process involved an iterative engagement with the text-analogues, aimed at producing a stable, integrative understanding of the contextual shaping of each company's IT based call centre operations. As described in the foregoing chapter, this analysis process took the form of a repeating cycle of three phases, with the following means and output:

- (i) *prefiguration* phase (mimesis₁): the case text-analogues were broken down into structural blocks of narrative coherence (i.e. narrative programs - NPs), by the use of the actantial schema. Boundary qualifications were then extrapolated from each NP. When seen in aggregation, these qualifications helped to identify certain organic patterns of contradiction or conflict that characterised each case text-analogue (i.e. each firm's operations). The key transformations represented by the NPs, and conflicts/oppositions represented by boundary qualifications, provided the basis for understanding the themes implicit in each text-analogue;
- (ii) *configuration* phase (mimesis₂): the boundary qualifications were summarised, providing counterfactual terms which used to form semiotic square depictions: these were used for elaborating the primary themes and relations of signification (i.e. contradiction, contrariety, association) that integrated the various parts (i.e. NPs) and elements of each company's operations into a whole, under the central concept of emplotment;
- (iii) *re-figuration* phase (mimesis₃): the resulting awareness of potential thematic patterns and systemic relations from the configuration phase, in addition to additional understanding gained from consultation of theoretical literature and discussions with colleagues, triggered a new pre-figuration phase, in which my previous understanding of the NPs and boundary qualifications characterising the text-analogues were reframed and revised. This consequently induced further cycles of interpretive analysis (i.e. prefiguration – configuration – refiguration), until the time that my conception of the emplotment of call centre operations at the two organisations attained a relatively stable and satisfactorily incisive state of understanding.

This cyclical process of analysis, applied to the acquired case data, resulted in an elaboration of call centre operations at Boots and the BBC from the vantage-point of a contemporary systems thinking perspective, which this study had set out to formulate. The concepts and form of analysis that constitute the systemic appreciation framework were adapted and refined through their application in illuminating the emergent nature of call centre operations in the two case studies.

4.4 METHODOLOGICAL ISSUES

A key issue in an interpretive study (such as this) pertains to the lack of widely recognised conventions or norms for conducting and evaluating IS interpretive research (Klein and Meyers, 1999). The long period positivism has enjoyed as a methodological paradigm in the natural and social sciences has enabled positivist researchers to develop a set of established rules and widely shared norms by which to structure the conduct, and assess the quality, of studies in their research tradition. In contrast, the interpretive approach, which has only gained critical mass and recognition as a vital component of the IS research field over the past two decades, has lacked such shared methodological conventions. Recent studies by Walsham (1995b, 1993) and Klein and Meyers (1999), offering a valuable set of principles and criteria for evaluating interpretive field studies, represent important efforts aimed at addressing this situation. Such issues of evaluation, in relation to this study, are discussed next.

Walsham (1995a) recommends that interpretive researchers have a clear view of their role in the undertaking of an interpretive study. Hence, clarification is forthcoming on my perception of my role as researcher. As stated earlier in this chapter, the focus of an IS investigator in the interpretive approach is the accounting process: he/she seeks to register the accounts by which social actors render their world sensible. The purpose in this is not to give those accounts primacy, but to go beyond and analytically illuminate the underlying 'structures' that explain them (Klein and Meyers, 1999; Orlikowski and Baroudi, 1991). The application of existing, or the creation of new theory, is critical for achieving that task of transcendence or disclosure. If the first-hand descriptive accounts of social actors are considered to represent 'primary' accounts, then the role of the IS interpretive researcher, as assumed in this study, is to articulate a secondary, meta-account: one that succeeds in reconciling and descriptively illuminating those primary accounts, but from the higher-level perspective of an integrative, selective framework (i.e. a meta-account).

This meta-level account/framework is inevitably selective and removed, because it is informed both by the privileging role of theory, and the biases of the researcher. Every theory (chosen by a researcher) incorporates a particular vocabulary and means of analysis that *privileges* (Ricoeur, 1991): it highlights certain dimensions or aspects in

the generation of actors' primary accounts, to the exclusion or de-emphasising of others. Moreover, the subjectivity of the researcher plays a key part in integrating the accounts of actors under a theoretical meta-account, because he/she is the research *instrument* by which empirical data is assimilated, interpreted and represented. The unconscious or conscious subjectivity, and the intuition of the researcher, is instrumental in the act of grasping the significance of the collected accounts of actors (Walsham, 1993; Ricoeur, 1991). Correspondingly Spender (1989) had described the act of analytically ruminating on empirical data and appraising their significance as a kind of creative day-dreaming, in which the unconscious and intuitive aspects of a researcher's mind assist in deriving new structures of meaning from primary accounts, and in translating their episodic coherence (i.e. the separate, disjointed nature of those accounts) into a structural (i.e. theoretical) coherence. It is thus acknowledged in this study that although I played the role of an outside observer in collecting data on call centre operations, my subjective biases, brought about by such innate factors as my life-experience, epistemological and ontological beliefs, and theoretical interests*, played a part in *filtering* the nature of my interpretative engagement with, and the presentation of, the case data and its analysis.

The acknowledgment of such biases in the explanation of social phenomena is fundamental to the interpretive approach (Walsham, 1995a). Positivist studies seek to completely disassociate explanation from interpretation (Ricoeur, 1981), by claiming methodological procedures that guarantee 'objectivity' (i.e. value-free analysis), and the minimising of researcher's bias, in explanatory procedures. In contrast, the hermeneutic method which informed this study and the interpretive approach in general (Klein and Meyers, 1999; Boland, 1991), regards the generation of knowledge of social phenomena as the dynamic product of a fruitful dialectic between the subjectivity of a researcher's perceptions, and the 'objectivity' of a text (or text-analogue) as it has been promoted by certain methodological and analytical procedures – where objectivity in this sense refers specifically to the structural consistency and appropriateness that analytical concepts and explanatory elements bring to the process of explanation (Ricoeur, 1991; Walsham, 1993), and not to the claim of value-free analysis as held by positivism. Since the key

* i.e. strong interests in systems thinking, sociotechnical systems theory, hermeneutics and semiotics. Alvesson (1996) makes an argument for such inclinations, asserting that it is important for researchers to employ primarily theories "with which they are intellectually familiar and for which they feel an emotional preference," since the discursive nature of interpretive studies (in contrast to positivist research) calls for a much deeper feel or understanding of adopted theoretical frameworks, that can only come through personal identification and in-depth study.

methodological criteria that have generally governed the evaluation of IS research, such as validity and generalisability, have long rested on the notion of value-free objectivity central to its dominant positivist research tradition, the rise of the interpretive research approach in the IS field has brought about a need for different concepts of validity and truth-claims (Klein and Meyers, 1999). A discussion of the primary criteria that may apply in the evaluation of IS interpretive research is undertaken next in terms of their applicability to two areas: (i) conduct of the research; and (ii) results of the research.

The evaluation of the conduct of interpretive research is marked by contention over what criteria to adopt (Klein and Myers, 1999). The viewpoint of Spenser (1989) is representative of one side of this debate. Spenser claimed that the fundamental value of the interpretive research approach is to be found in the very nature of its methodological ‘openness’, and its lack of rigid conventions. He clarified the value of this approach by setting it off in contrast to the ‘closed’ conventions of the positivist research approach, which he described thus:

“The positivist researcher shares extensive ground with his audience because both agree to a common rationality, that is a commitment to science generally, and to a shared definition of the research objective and methods in particular. The positivist researcher states a hypothesis, which logically entails an observable consequence. He chooses an established method to make the proposed observation. His argument is based on shared premises, shared method and deductive logic. He can say ‘if you accept this hypothesis and this method, then you must accept this conclusion’ ... [he] never goes beyond the discipline’s accepted research rationality, objectives and methods ... he engages in incremental rather than critical science” (p. 70).

Spender ascribed the corresponding lack of methodological convention (i.e. a ‘common rationality’) in the interpretive research approach to its principal value of developing and advancing an insightful, *alternative* rationality:

“... [The interpretive researcher’s] objective is to encourage the sceptical listener into a new way of looking, into an unfamiliar rationality which probably includes unfamiliar premises and objectives. He is trying to educate the unconvinced. Consequently, there is no common ground on which he can stand and say ‘because you accept this, you must accept this.’ He must limit his demands to logicity alone. ... we begin to understand only after we have grasped the [interpretive] researcher’s decision premises, objectives and patterns of causality. The nature of that understanding is different, involving a novel rationality ... [often] this type of understanding comes suddenly as a holistic experience, an ‘aha’, a ‘shock of recognition’. ... The interpretive scientist’s research result is an unfamiliar rationality,” (p. 71).

Spenser thus argued that the methodological openness of interpretive approach was the basis of its strength, permitting researchers to be unhampered in their efforts by the application of pre-determined criteria applied in a mechanistic way (as characteristic

of positivist research), and enabling them to achieve 'critical' knowledge. This accords with the position of some interpretive IS researchers, who feel that the institutionalising of criteria and principles for evaluating the conduct of research inquiry will curb the productivity of its 'emergent' basis (Klein and Myers, 1999). Such researchers may also view the institutionalisation of methodological procedures as contrary to a sense of maintaining 'authenticity' in the conduct of inquiry: where the notion of authenticity, as described by Probert (1997, p. 53), refers to "a protest against the blind, mechanical acceptance of an externally imposed code of values." On the other hand, there are other IS researchers who hold the position that interpretive research ought to be rooted in the 'common ground' (i.e. discounted by Spenser) of a widely shared and accepted formal methodology.

A third position, that of the middle way, is adopted by Klein and Meyers (1999). In a recent proposal of key principles and criteria for evaluating IS interpretive research, they concurred on the idea that the conduct of interpretive inquiry should not be bound by the mechanical observance of a set of pre-determined norms and rules; however, they also argued that this does not imply that such research should have no standards at all for the guidance of its conduct and evaluation. They proposed a set of key principles whose systematic consideration by interpretive researchers, they stated, was likely to improve the quality of research, especially that with a hermeneutic orientation, as in this inquiry (they also recommend that not all principles need apply in every study). Some of these key principles informed the conduct (i.e. data collection and analysis process) of this research. The first and most fundamental principle they identified was that of the hermeneutic circle (Klein and Meyers, 1999). This principle, as explained previously, constituted both the methodological strategy for engaging analytically with empirical data, as well as the methodological framework that informed this study's theoretical perspective (i.e. systems thinking). Other key principles stated by Klein and Meyers that were observed in this research were: (i) critical reflection over both the socio-historical background of fieldwork, and the interdependent construction of reality between the researcher and the employees studied; (ii) a heightened sensitivity to any emerging discrepancies between the research design and the evolving course of inquiry, and between multiple interpretations of similar events and circumstances.

In the preceding quoted passages, Spender had identified the principal aim of interpretive research to be the achievement of fresh, insightful *perspectives* into social phenomena (albeit of an initially unexpected novelty), and that the requirement for a researcher to adopt unusual, unconventional or unfamiliar premises and objectives in order to accomplish this necessitates that the primary criteria for assessing the *validity* of results of an interpretive study is the logicity of the arguments it presents: the degree to which the mustered arguments are sufficiently compelling to convince a sceptical audience. This claim is consonant with that of key IS interpretive researchers (Walsham, 1995; Galliers, 1991), who assert that the validity of an IS interpretive study is to be judged chiefly by its persuasiveness and insightfulness (i.e. not the criteria of objectivity in positivist studies, with their concomitant attention to statistical validity and rigour). Walsham (1993, p. 15) grounds the validity of the interpretive case study method, as used in this study, “on the plausibility and cogency of the logical reasoning used in describing the results from the cases, and in drawing conclusions from them.”

This research took primarily a perspective-forming track of inquiry: its aim was to formulate, and to demonstrate the theoretical need and importance of, a contemporary systems thinking perspective, in sociotechnical analysis of the emergent nature of IT based organisational functioning. Thus the validity of results of this interpretive study, concordant with the criteria above, hinges mainly on the strength of its arguments, and the insights it provides as an alternative, novel approach, in comparison to existing IS theoretical approaches aimed at elucidating the emergent nature of IT based operations. A secondary qualification that Walsham (1993) makes to the validity of an interpretive research study has to do with the reporting of the study. He states that the process by which a researcher arrives at the results of a study must be made transparent, in order that the credibility of the research is established in the eyes of its audience. This thesis has sought accordingly to elaborate the conduct of this research inquiry according to the recommended details of interpretive case studies outlined in Walsham (1995a).

Another common methodological criteria for evaluating the results of a research study, that is closely related to its validity, is the generalisability of the obtained results. The notion of generalisability in IS interpretive studies however, having been decoupled from the idea of statistical predictability that dominates positivist research, has been comprehensively defined in more germane terms by Walsham (1995a). He lists four

overlapping types of generalisation that can be associated with the results of interpretive case study-based research such as this study: development of concepts, generation of theory, contribution of rich insights, and drawing of specific implications. The first two types of generalisation are characteristic of this study. To support the application of a contemporary form of systems thinking in elucidating IT use in organisations, this study has sought to adapt and develop new concepts. The central key concept of 'emplotment' introduced in this study's framework may be cited as an example of a concept that may be generalised for use in this domain of inquiry. In addition, this study's results may also be seen as contributing to the generation of new theory. The use of a contemporary systems thinking approach in this study has been invoked by a recognition of existing gaps in IS theory regarding the emergent nature of IT based operations in organisations (identified in the literature review of chapter two).

Thus, in summary, the design and execution of this study was characterised by: (i) the ontological and epistemological assumptions of the interpretive approach, and (ii) the adoption of the interpretive case study method as the means of data collection and empirical engagement. The upcoming chapters elaborate the case studies conducted.

CHAPTER FIVE: CASE STUDY I

5. INTRODUCTION

Two case studies were conducted in the course of this research. They involved an investigation of the call centre operations at two major companies in the United Kingdom: Boots the Chemists, and the British Broadcasting Corporation (BBC). Call centres, as introduced in the first chapter, are work environments based fundamentally on the capacities of technology systems. The focus of inquiry in both case investigations were: (i) to illuminate the emergent nature of IT based work operations in a firm (i.e. their evolutionary, context-based and unanticipated character); as well as (ii) to extend the theoretical capability of the sociotechnical systems approach for foregrounding the tensions and contradictions involved in those work practices. These case investigations were instrumental in the development of the systemic appreciation framework that was described in chapter three. They provided a substantive context for formulating and specifying the features, and for assessing the applicability, of this framework's concepts and method. The case study of the call centre operations at Boots is elaborated in this chapter, followed by that of the BBC in the next.

Each case study report adheres to an identical format, consisting of an initial descriptive account and a subsequent analysis portion. The Boots case study report is outlined as follows. The aim of the initial case descriptions is to support the subsequent illumination of the evolutionary, contextual and unanticipated nature of IT based work operations. The descriptive accounts of each call centre depict the operational context of their work practices. The accounts were compiled from semi-structured interviews and informal conversations held with staff members at each centre. Certain words or phrases used by staff in their interview responses are stated within single quotation marks (in sections 5.1 and 5.2), to preserve the tone of expressed viewpoints. The descriptions are structured as follows. A historical background of the parent firm's corporate strategy and customer service orientation is first related (section 5.1). This is succeeded by a description of the factors that had influenced the company's decision to implement call centre operations (5.2.1). Subsequently, an elaboration of the form of work organisation at the call centre takes place, covering both the customer interface, which encompasses

work roles and workflow processes pertaining to customer contacts, as well as the corporate interface, which encompasses work roles/processes pertaining to interactions with other units and departments within the parent firm (section 5.2.3 to 5.2.4). The key challenges and difficulties in work performance that have been encountered by staff members, from the start of operations to the existing period, are then described (section 5.2.5). After this, an analysis of the call centre operations is undertaken (section 5.3).

The case analysis is reported in two parts. The output from the prefiguration phase of analysis (i.e. mimesis₁ phase in the systemic appreciation framework) is first presented. Various micro NPs identified from the accounts of each centre's operations are described (section 5.3.1). Salient features of their actantial patterning are then highlighted. The key sets of boundary qualifications that may be said to be implicated in each micro NP's transformation are also identified. The elaboration of the macro NP, as a whole, follows subsequently. This treatment marks the end of the first part of analysis. Following this, the results of the configuration phase of analysis (i.e. mimesis₂) are presented (section 5.3.2). This involves an elaboration of the 'emplotment' that I arrived at regarding my understanding of IT based work operations at the centre. As explained in chapter three, the notion of emplotment refers to thematic descriptions that integrate for a researcher or analyst, under a coherent and inter-connected order of signification, the miscellany of factors and elements which make up an organisation's operations. The various courses of action that represent the operations at the centre are organised into a 'system' of inter-relations elaborated with the aid of semiotic square depictions. This elaboration will emphasise the influence of factors within the organisational context and the operational environment on work practices at the centre, as well as the prominent tensions and contradictions implicated in its operations. Given this outline of the case reports to follow, the account of the Boots call centre operations may now be broached.

5.1 BOOTS THE CHEMISTS

Boots Plc is a leading British retail corporation, headquartered in Nottingham. Its founder Jesse Boots, opened his first store in 1871 in this city. The Boots corporation currently engages in a portfolio of businesses, but its flagship concern, through its long history, has been Boots the Chemists. Boots the Chemists deals with the manufacture and marketing of health and beauty products. Known simply everywhere as 'Boots', it is

a household name in Britain. This is largely due to the extensive chain of pharmacy stores that it operates – over 1,400 shops and outlets located on main streets throughout the United Kingdom and Ireland. The wide range of products and services marketed by Boots falls into seven categories: beauty (cosmetics, toiletries, dental, skincare, etc); over-the-counter medicines (vitamins, minerals, supplements etc); healthcare dispensing (prescriptions, medical information etc); baby (food, toiletries etc); gift (greeting cards, merchandise etc); photographic (photo processing etc); food (sandwiches, chilled food etc). Each category of products and services is produced, administered and managed by a separate ‘business product unit’ in the company.

The service strategy of Boots has long hinged on the differentiation of its store offerings. Focused on beauty and healthcare products, the company has consistently positioned itself as the store that helps customers ‘Look Good, Feel Good’. On average, fourteen million customers shop at its outlets weekly. The operational priorities of Boots, in the past decade, have thus centred primarily on the upgrading and expansion of its store portfolio. New store formats and layouts have regularly been experimented with, aimed at enhancing the shopping experience. The product and service offerings carried by the stores has been improved and extended. The Boots Advantage Card scheme, launched in September 1997, has contributed notably to this augmentation. This loyalty card, distributed freely to the firm’s customers, allows them to accumulate a corresponding number of points for every purchase they make at Boots stores. These points can subsequently be traded for products. Received enthusiastically by the public, the Advantage card currently has a user base of thirteen million holders. Its widespread adoption has provided Boots with ample data on the shopping habits of its customers. This have been used in store enhancement efforts, and tactical advertising promotions. The recent annual reports of the company have given prominence to another strategic priority besides that of store development. This new emphasis is on heightening the effectiveness of the company’s internal work processes, by redesigning them to be more strongly focussed on customer needs.

The corporate ethos of the company is known familiarly to all its employees as the ‘Boots tradition’. It is viewed as the legacy of the qualities promoted by the firm’s founder, Jesse Boots. During his lifetime, he had succeeded in opening numerous stores throughout the country. In every store’s operations, he tried to instil three core values:

serving the public through friendly, professional and personalised service; providing quality products at economical prices; and treating the company's employees well. These qualities continue to be espoused by the firm's management as ideal principles of work organisation at Boots.

5.2 BOOTS CUSTOMER SERVICES

There had been no significant *centralised* customer service operations at Boots before the setting up of its call centre operations in 1997. A small customer service department had existed prior to that, but its duties were mainly administrative, involving limited customer contacts. Customer handling responsibilities had traditionally been devolved to the level of the individual store. The stores were expected to undertake their own localised service efforts in dealing with customer inquiries and complaints. Serious complaints that required handling at a higher level were directed, by the customer service department, to the specific business product unit in the company responsible for the items at fault. Interactions with customers at the corporate level were thus decentralised, concerned predominantly with complaint handling. In the mid-1990's an initiative emerged in the customer service department, aimed at reorganising customer service activities at the corporate level. A business proposal was put forward to the company's senior management, justifying the need for redesign. It advocated the implementation of a call centre-based service function, and the expansion of centralised customer service operations, as a solution. The proposal was adopted, resulting in the current call centre-based customer service function at Boots. The rest of this section will address the origin and nature of its operations.

5.2.1 Implementation of call centre operations

The proposal for the implementation of a corporate call centre-based service function had cited several reasons in support. The lack of coordination across the various business product units was said to have led to inconsistencies in the type and quality of response provided to customers. Different business units had dissimilar sets of procedures for resolving complaints. In addition, communications with customers were predominantly letter-based. Consequently, slow response times resulted from the observance of bureaucratic procedures and the movement of paper.

It was pointed out, moreover, that staff members in the individual business units were focussed on their manufacturing and marketing responsibilities. They thus did not have the resources or the keen sense of accountability required for dealing effectively with after-sales activities. The staff were also said to be negatively predisposed against interacting with customers. They merely saw them as a source of niggling complaints. As a result, it was claimed, numerous opportunities to establish long-term relationships with customers, or to obtain feedback that could add value to Boots products, had been foregone. Finally, the results of customer satisfaction surveys in preceding years were produced as evidence of increasing customer expectations. These rising expectations were seen to make the case for redressing these shortcomings even stronger. The implementation of call centre operations had been proposed as a solution to those deficiencies. It offered a way to centralise customer service efforts, and improve their efficiency, quality of response, and reaction times. The incorporation of call centre-based services was also envisioned as bringing additional benefits. It was seen as a active realisation of a proposed concept of 'hardwiring' customer feedback. This was a notion of setting up 'robust' channels of contact with the firm's customer base, in order to profit from their constant feedback. The facilitated customer input was anticipated to provide Boots with an assessment of market trends and customer tastes, as well as a measure of the internal quality of its operations. It was also expected that the customer feedback would supply an indication of the effectiveness of marketing campaigns.

As a result of these assessments, the senior management decided, in 1996, to create a centralised customer service function based on a new call centre. The new centre, known as the Boots Customer Service Centre, was set up at the company's headquarter campus in Nottingham, occupying a sizable piece of office-space next to the marketing department. It came into operation in April 1997. At the centre's opening, the senior management of the firm set out an injunction for its new staff. They were told to replicate, in their handling of every telephone call or letter contact with a customer, the 'Look Good, Feel Good' experience conveyed in the stores. From the onset, the new management staff responded to this mandate of achieving high-quality, professional customer service. They formulated a motivational vision. To gear and focus the service efforts of the new CSR staff, the centre's management introduced, in their individual performance goals, the requirement for 'surprising the customer'. This meant that CSRs

were to aim at delighting the Boots customers, by providing service that met and even surpassed their expectations. The centre's management intended to establish a work culture that would actively encourage the CSRs to 'take ownership' of the calls that they fielded, and to find innovative ways of pleasing their customers. This motivational vision is reflected in the statement depicted in Figure 4. These words are found on the first page of the centre's customer service procedure manual, issued to all CSRs.

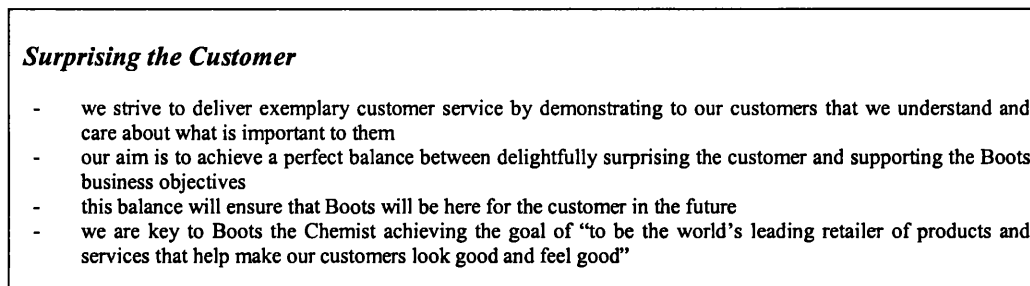


Figure 4: Customer service vision for Boots call centre

5.2.2 Scale of call centre activity

Forty-five frontline and support staff were in employment when the call centre became active in 1997. The workload they handled, during the first six months of the centre's operations, amounted to about 1,200 telephone calls per week. Since then, the number of staff has risen. It presently stands, over four years later, at sixty-five full-time employees. Forty-five of them are CSRs (their number is reinforced by an additional complement of part-time and temporary CSR staff during operational peak periods). On account of its staff size, the Boots call centre may be classified as a medium-sized installation (Datamonitor, 1998). The CSRs work from 8am to 6pm on weekdays, and 9am to 4pm on Saturdays. The scale of communicative interactions with customers handled by CSRs has grown considerably since the centre's inception. Staff at the Boots call centre currently deal with about 12,000 telephone calls, 800 emails and 1000 letter items per week. In annual terms, this adds up to around 600,000 inbound telephone calls and 100,000 mail messages. The distribution of contacts varies according to marketing campaigns and sale trends in stores. The content-matter of contacts fall approximately into the following breakdown: 70% enquiries, 25% complaints, and 5% comments or compliments.

5.2.3 Work organisation: customer interface

The frontline staff that interact directly with customers consist of a two CSR workgroups: the telephone workgroup, and correspondence workgroup. The telephone workgroup consists of three teams of between twelve to fifteen CSRs, each headed by a team supervisor. In addition, it also includes a separate group of two CSRs, designated as 'information seekers'. The CSRs in this workgroup provide service to customers over the phone. The correspondence workgroup comprises one team of fourteen CSRs, who deal with written customer communications received by email or the post. The CSR staff are assisted by a team of three trainers and an IT technician.

The role of CSRs in the telephone teams is to respond appropriately to inquiries, complaints or comments made by customers. The CSRs make use of various computer database and office software applications while dealing with each customer. They are required to accomplish the actions they take, in response to customer calls, according to prescribed time periods and other performance targets (briefly described later). The two information seekers play a supportive role to the efforts of the CSRs. The information seekers carry out follow-up actions on specific telephone inquiries which the CSRs had received earlier from customers but had been unable to 'close' (i.e. resolve) within the targeted time for the length of call. The inability of CSRs to resolve such inquiries is due usually to required information not being available, or appearing as discrepancies, on the database or software systems they refer to. The information seekers handle those problematic calls, which are too time-consuming for CSRs to acquire the correct details. They perform the necessary actions to obtain the required information and respond to those concerned. Prior to being recruited to work at the centre, both information seekers had had several years of work experience in various other jobs within the larger Boots company. The understanding of work practices and mores in other departments they had acquired in consequence plays a crucial part in their present problem-solving role.

The software program that the CSRs mainly work on is the 'CustomerQ' contact management database. During the course of each customer interaction, the CSRs enter details into CustomerQ on the nature and outcome of the call. Each call is categorised (by selectively clicking in the CustomerQ record) according to one of these options: comment, complaint, appreciation, fulfilment and enquiry. The CSRs are automatically

allotted a period of time after each call (i.e. before the ACD system feeds them the next), during which they complete their notes and have a brief respite. The CSRs make use of several other software programs to find the relevant details of information needed for replying to customer queries. These applications include: an Ingress mainframe client program, which gives access to warehouse product information and inventory details; a propriety database for updating Advantage card details; a web browser, for information on the internet and corporate intranet; a Lotus Approach database, which contains data on layouts and merchandise in company stores; and a Lotus Notes system, which holds information on company products and services, service policy guidelines and standard operating procedures.

The Notes system is also used to distribute information on daily or periodic events of relevance. This takes place through a practice known as 'news at ten'. Every morning, the information seekers compile a written briefing on relevant topics, issues and events likely to be encountered in customer questions and concerns during the day. They also report on answers to problematic calls they had resolved the day before. This daily collection of information is placed on the Notes database for all CSR staff to access. Besides these IT-based resources, the CSRs also rely on informal channels for circulating knowledge useful for responding to customer inquiries. In the course of a typical workday, there is a frequent sharing of experiences and advice among CSRs and supervisors, within and across workgroup teams. This occurs during regular team briefings, or in casual conversations held at work breaks or periods of low incoming call activity. Solutions to problems or unusual situations encountered by CSRs are discussed and disseminated.

The stipulation for CSRs to 'surprise the customer' has taken the form of certain concrete practices. The CSRs are given the 'discretion' to gladden customers when they phone up, or to recompense them for any inconveniences, related to Boots products or services, that they have called to complain about. This is done by a variety of ways, all involving the use of the centre's software systems. The most common practice, if the caller possesses a Boots Advantage card, is to award that customer extra points on their card (these points convert to direct exchange value in cash for items at Boots stores: 1 point = 1 pence). This is performed by pulling up the caller's account in the Advantage database software, and then adding the extra points to his/her total. CSRs are under

guidelines to grant any number of points up to 250, but they may also exceed this figure if they feel the circumstances are called for. If they do confer more than 250 points, they will have to inform their team supervisors and justify their action. Supervisors are perceived to be generally very supportive of CSR decisions in such cases. Practices of surprising the customer also take other forms, besides free Advantage points. CSRs may also send customers gifts, such as Boots products, gift vouchers, and flowers etc. – whatever form they think is appropriate in response to the situation at hand. These other actions are accomplished through the fulfilment function in the CustomerQ system. The CSRs use this program to request for a gift to be sent to a customer, or a payment made on their behalf. This request is fulfilled at a subsequent time by a CSR from the mail team. These practices of using the capacities of software to recompense and please customers were seen by the centre's management as critical measures for maintaining high satisfaction levels among Boots customers.

The CSRs undertake a range of fixed (i.e. permanent) call-handling duties. They also take on occasional ad-hoc functions, usually related to marketing campaigns. These duties involve answering customer phone calls that belong to either of three categories: Advantage calls, Customer Service calls, or Optician calls. Calls native to each of those categories issue from a separate telephone number that customers dial. The CSRs have to undergo specific training programs before becoming qualified to handle calls from a particular category. The first category of calls that all newly recruited and junior CSRs are trained to handle, after four weeks of foundation training (i.e. basic interaction skills and knowledge of software and company products), is Advantage calls. This category of calls involve service activities related to the Boots Advantage Card, a popular loyalty card scheme operated by the company. The work entails simple and highly routine tasks (e.g. updating particulars, issuing card replacements, amending transaction details).

In contrast, calls belonging to the Customer Service and Optician categories are highly varied in task requirements. Customer Service calls are related to the operations of Boots the Chemist stores; Optician calls pertain to the operations of Boots Optician stores, a subsidiary business concern. The nature of responses called for in both those categories extend to almost anything about Boots products and services that customers will call up to query, complain, or give feedback about. Junior CSRs require advanced training to be able to field such calls. Once they have gained adequate confidence and

experience from a period of handling Advantage calls, they go on to additional training for handling Customer Service and Optician calls. This training includes courses such as 'selling the Boots experience', 'negotiation skills', 'handling difficult customers', or instruction related to dealing with a particular advertising campaign. CSRs also receive detailed induction in knowledge of Boots products and services. Junior CSRs typically become qualified to handle Customer Service and Optician calls after six months.

Customer Service Commitment

- 1) We aim to answer 90% of telephone calls within 20 seconds.
- 2) We aim to limit the average duration of telephone calls to 2 minutes on the Advantage Card, and 2 mins 30 seconds on the Customer Service Line, whilst maintaining an excellent standard of customer service.
- 3) We aim to ensure that no more than 2% of customers abandon the call after 20 secs, before we can answer them.
- 4) We aim to respond to all letter contacts with at least an acknowledgement within 48 hours.
- 5) We commit to chase proprietary complaints within 14 days on behalf of our customers.
- 6) We commit to sorting incoming mail daily.
- 7) We aim to produce monthly reports to the business by the 10th working day of each month via the intranet.

Targets

Advantage Card Calls (Newly Trained)

- 1st week 100 calls per day
- 2nd week 120 calls per day
- 3rd week 140 calls per day
- 4th week on target 180 calls per day

Advantage Card Calls (Fully trained 3 weeks out of training)

- 180 calls per day
- ACW maximum of 5 seconds*
- Talk time 2 minutes
- Outgoing calls maximum of 10% of incoming calls

Multi-skilled Customer Service & Advantage Card calls (Newly trained)

- 1st week customer service calls only 40 calls per day
- 2nd week customer service calls only 40 calls per day
- 3rd week customer service and advantage card calls - 60 calls per day
- 4th week customer service and advantage card calls - 80 calls per day
- 5th week on target 100 calls per day

Multi-skilled Customer Service & Advantage Card calls (Fully trained 4 weeks out of training)

- 100 calls per day
- ACW maximum of 20 seconds*
- Talk time 2 mins 30 secs
- Outgoing calls maximum of 20% of incoming calls

Information Seekers

- Close 30 per day

Amendments

- Multi skilled and advantage card – minimum of 20 amendments per day

* ACW (after call work) refers to the period of time in-between the end of one call and the start of the next, during which CSRs complete the typing of notes and the closing of records from the preceding customer interaction.

Figure 5: Performance targets at Boots call centre

The CSRs observe performance targets, shown in Figure 5. Some of the targets pertain to the entire workforce, while others apply specifically to individual CSRs. Up-to-the-minute data on these targets is displayed to everyone, flashed prominently across a raised electronic billboard panel located at the front of the office. In addition, each

CSR has a small electronic display panel mounted at their workstation, which displays their current performance data. This allows CSRs and team supervisors to monitor call response targets. Suitable actions (i.e. shorter customer interactions, modification of ACD) are carried out when performance levels fall below these standards. This context of overt performance monitoring, and the intensified channelling of work activity, has invoked a need to support and motivate CSRs in the accomplishment of work roles. The management staff places much importance on encouraging an open, supportive culture of interaction between supervisors and employees. Positive encouragement, explicit recognition of good performance, honesty and constructive criticism are considered key qualities for inducing strong staff morale and effective working relationships. Concrete motivational efforts by the management are centred on a popular staff reward and recognition scheme, known as 'Magical Moments'. Instituted from an early stage of the centre's operations, this scheme involves the observance of certain practices. Admirable one-off acts of service by CSRs or other staff are rewarded by a 'lucky dip' – a pick of sealed prizes that may contain wine bottles, gift vouchers, cinema tickets etc. A regular monthly prize for exceptional customer service consists of the award of a 'service of the month' certificate and a meal voucher for two. The recipient of this distinction is chosen by a panel of judges from among several employees nominated by their supervisors and peers. Finally, every three months, the company finances a social event (e.g. a barbecue or bowling night) for all CSR staff, if they successfully meet a particular service level target for that quarter. Such practices are viewed as essential for inspiring staff efforts, creating an enjoyable work setting, and building team spirit.

The recruitment of new CSRs involves finding and training persons that are able not only to cope, but also to thrive, within the centre's demanding work environment. The assessment of potential candidates begins at the very first conversation. Applicants are specifically asked to give a contactable phone number during their submission of the application document. The centre's recruitment staff always get in touch with applicants by phone, to arrange interviews and probe them with basic questions. The recruiters place particular emphasis, in this first contact, on assessing how the candidates come across over the phone, and how they react in a slightly stressful situation (i.e. in having the recruiter's call sprung on them). The reason given by the recruitment staff for this attention is simply, that if hired, these candidates will have to be able to come across confidently in the face of similar situations, incessantly. Recruitment of CSRs is based

on matching a candidate's qualities with a set of desired attributes derived from past assessments of high-performing CSRs (e.g. outgoing and empathic personality, ability to project a caring response without being controlling etc).

The Boots call centre worksite is generally evocative of an unhurried pace of work, and pleasant climate of interaction. The impression of the physical environment within the centre is one of space and comfort, with heightened ceilings and natural light pouring in through large glass windows running the length of the office. The centre's interior furnishing conforms to the building's unique design philosophy. The interior architecture of the Boots headquarters building was organised from the start around the concept of 'neighbourhoods'. This was the notion that staff members, seated together in desk aggregations, would be free to access and converse with others in and outside their departments. There are no private offices in the building, even for senior management staff. At the call centre, CSR workgroups, managerial staff and business support teams are seated in clustered desk formations at different areas within a large open-plan office. No partitions exist within the office, permitting easy visual and verbal contact across its length. Staff members frequently interact with each other across their desks and seating zones. Comfortable rest and refreshment facilities, lodged in a corner, are amply used. The centre's work environment was playfully described by its manager as 'an open range rather than a battery type farm'. This work environment and culture promoted by the management may have contributed to the centre's low annual rates of employee attrition (2%), and absenteeism (2%). These rates fall well below industry averages of 15-20% for both items (Incomes Data Services, 2000).

5.2.4 Work organisation: corporate interface

A crucial part of the Boots call centre workforce is its 'business interface team'. This team undertakes the vital role of linking work operations at the centre with those of other business units within the parent company. The business interface team consists of sixteen 'senior advisors', headed by four managerial staff-members. The senior advisors are all former CSRs, with long-standing customer handling experience. The team has four functions. One of these is to provide a higher echelon of support and authority for CSRs. When CSRs receive calls involving situations too serious or sensitive for them to address, they transfer these calls to a senior advisor. Such calls are typically complaints,

or reports of injuries suffered by customers, pertaining to the use of products purchased at Boots. The experienced advisors are able to provide the tactful handling such calls require. Furthermore, tactical responses are often needed in reaction to those calls, such as the initiation of product recalls, or the undertaking of compensatory or legal action. Senior advisors are well informed about the company's service policies and guidelines. They also maintain ties with key personnel in various other departments. They are thus able to set in motion, as well as coordinate, appropriate responses. For instance, a risk assessment meeting may be conducted to evaluate the dangers posed by a Boots product that has caused an injury, and to decide suitable follow-up actions.

A second function of the interface team is to interact with other business units in the firm, in an information gathering and coordination role. The team obtains from these units a considerable amount of information, required for supporting CSR customer service efforts. The CSRs need to be equipped with a much larger range of information than that provided to Boots customers (i.e. product catalogues, public advertisements), in order to cope with all kinds of inquiries. Often, the interface team arranges for the product units to provide CSRs with samples of new Boots items, so that the CSRs can physically handle or experience them, and be better equipped to give informed advice to customers. The interface team also acts to determine the accountability of other units and departments within the company. The team coordinates with relevant business units to ensure that follow-up actions, in response to particular feedback (e.g. complaints) received by CSRs, are satisfactorily carried through to completion by those units. This is perceived to be a crucial point of motivation for CSRs. It is seen to provide them with reassurance that the customer inputs they record daily while dealing with calls is given serious consideration by business units, and acted upon where necessary. In certain cases, CSRs report the outcomes of follow-up actions to relevant customers.

A third function of the interface team is to pass on information, derived from the centre's customer service activities, to relevant parties in the company. This involves the generation of regular or ad-hoc reports, compiled with the aid of software querying tools that operate on the data accumulated in the CustomerQ database. The reports are usually distributed through an intranet. A fourth function discharged by the team is to act in a consultancy role to the various business product units. The team advises them on marketing issues (e.g. probable customer reactions; how to word communications

with the public; what kinds of features to include or alter in products). Its competency in offering such advice is drawn from the constant exposure of the centre's staff to a broad profile of customer perceptions, issues and tastes. In all, the interface team appears to play a significant role in establishing the value of the call centre's activities for the Boots corporation. Customer feedback, incorporated into reports and disseminated by the interface team, is seen as actively contributing to the shaping of positive business changes within the company. Tangible improvements have been wrought in company processes and product offerings, such as improved packaging, and the enhancement or withdrawal of products. Intangible benefits have also been asserted by the management staff at the centre, such as the gradual re-orientation of the company's strategic direction towards greater customer focus and service efficacy.

5.2.5 Work performance: operational challenges

The development in the scope of operational activities performed at the Boots call centre, from its inauguration over four years ago, was characterised by the centre's manager as being marked more by expediency than pre-ordained design. The range of duties and responsibilities undertaken by the centre's staff owe their establishment to the influence of emergent corporate projects and initiatives, as well as the increasing range and variability of demands posed by the company's customer environment. This section will elaborate on past and present challenges faced by staff in their work duties, as well as the factors that have shaped the organisation and expansion of the centre's operations.

The proposal and implementation of the call centre had mainly been undertaken by the customer service department, without the participation of other corporate units. As a result, the centre's opening in 1997 had been followed by the exercise of much personal initiative on the part of its staff. The members of the business interface team had initially experienced significant difficulties in their roles as intermediaries between the centre and the rest of the Boots corporation. They found themselves handicapped by the lack of formally instituted channels of communication between the centre and the company's various business units. Such communication channels were necessary for facilitating required flows of information from the units to the centre. CSRs were reliant on these information flows for dealing effectively with customer inquiries. The interface

team members subsequently overcame this impediment by seeking out personnel in those units and forging their own working relationships. This establishment of linkages required the making of 'sales pitches'. Key players in the various business units were identified and contacted. They were told of the type of customer contact information the call centre could provide them with, and how this information could be prioritised in terms of issues they needed to recognise or address. Other advantages of a cooperative working relationship with the centre were also adduced, such as the off-loading of complaint and inquiry-handling duties hitherto absorbed by those units. These efforts by the interface team succeeded eventually in securing an essential network of working partnerships. This network continues at present to sustain the centre's service efforts.

The expectations of Boots customers, regarding the nature and extent of services offered, has played an instrumental part in shaping the range of the centre's operational responsibilities. Initially, in the first few months of operations, Boots customers used to telephone the call centre mainly to voice complaints about products they had purchased, or the treatment received at stores. This had been anticipated. Subsequently however, as mass customer awareness of the availability of the call centre service swelled over time, inbound calls began to involve all kinds of inquiries for information or advice. Contact volumes grew substantially after the first six months of operations (this had moreover to do with the introduction of the Advantage card in September 1997, which featured the centre as the main point of contact, and correspondingly occasioned further awareness of its services). The centre's commitment to providing high quality of customer service led CSRs to respond positively to this expanded range of inquiries, and to seek for all the information or explanations requested. This brought about increased staff efforts at improving the availability and organisation of the centre's information resources, in order to cater for better responses.

The growth in customer inquiries over the first year of operations led to efforts at improving the centre's software-based resources. The Ingress database of product and logistical information, which runs on the company's legacy IBM mainframe systems, was found to be inadequate for the type of information CSRs had begun to be pressed for by customers. Consequently, staff members attempted to build and accumulate a 'knowledge base' of customer inquiry information. Efforts were focussed on populating the Lotus Notes system, installed in the second year of operations, with supplementary

information on company events, procedures, products and services. A CSR supervisor, who had gained considerable experience of relational database programming during a previous job, was called upon to resolve a critical need that emerged as the centre's role expanded. When fielding customer inquiries related to numerous Boots stores dispersed over the country, CSRs had found themselves disadvantaged by inadequate knowledge of the types of products and services offered at those stores. With the aid of information from the marketing department and other units, this CSR supervisor developed a Lotus Approach database application to address the shortfall. This database provides relevant information on each of the 1400 Boots stores in the UK, such as descriptions of layouts, products and service offerings. It has become a key asset in the resources now utilised by the CSRs.

The range of fixed (i.e. permanent) call-handling duties currently handled by the CSRs has evolved through the progressive combination of the centre's capabilities with new business initiatives introduced elsewhere within the firm. During the centre's early stage of operations, the CSRs only dealt with calls of the Customer Service category. This altered when the centre became the advertised site of contact for inquiries and complaints related to the Advantage card scheme, a major initiative launched by Boots in late 1997. The card's widespread adoption by customers led to an expansion of duties and a substantial increase in workload at the centre. The introduction of customer service duties for Boots the Opticians was another point of precipitation. This was a new business venture begun by the firm in the early 1990's, involving the establishment of a chain of optician shops and clinics for laser eye-treatments. The growing success of this venture had led to the establishment of a new body of mass clientele. The centre thus began fielding calls from a new group of customers, incorporating added scope and complexity into its role.

The introduction of each new category of permanent call-handling services just mentioned typically induced a period of destabilisation in performance levels at the centre. Information seekers and interface team members had to extend considerable effort, on top of normal duties, to acquiring new resources of information for CSRs to use while engaging with customers. Performance levels gradually improved as CSRs accumulated the necessary breadth of competence and support. However, although a certain measure of stability resumes in the long run, following each introduction of a

major set of service duties, the centre's operations on a day to day basis are constantly marked by volatility. It is difficult to fully anticipate what customers will ring up about. The organising of work and staff assignments is, to a significant extent, a counteraction to the prevailing issues raised by incoming calls. The centre's work environment has been described by several of its staff as 'reactive'.

A current priority of the Boots call centre management is to find new ways of exploiting the centre's capabilities, in order to increase recognition of its value to the Boots enterprise. Efforts are presently focussed on a pilot scheme aimed at customers of Boots Dentists clinics, a business concern recently established by the corporation. The scheme permits those customers to inquire about dental services, as well as to make appointments at the clinics, by calling up the call centre rather than a particular clinic. The motivation driving this new project lies with the envisioned benefits of centralised information management. By centralising inquiry services and appointment booking functions at the centre, CSRs will be able to provide customers information on a wider range of choices and options than they would normally get at a single clinic. For instance, the CSRs would be able to offer alternative appointments in other clinics within the same geographical area, if the appointment schedule at the customer's clinic of first choice is already fully booked, or if the preferred time slots have already been taken.

The pilot scheme had just begun to be implemented, but some problems have already appeared. One of these had to do with the adequacy of the preparation of CSRs for providing this new service. Certain 'test calls' made to the centre's CSRs by clients (i.e. personnel from Boots the Dentists involved in setting up this scheme) pretending to be customers, had found significant faults with the information and service responses provided by CSRs. Another problem that has occurred during this pilot is the opposition raised by certain clinic managers, who are sharply concerned that they will lose control over their local scheduling patterns and their relational ties with customers. The centre's manager claimed this particular problem reflected the company's traditional orientation towards decentralised, store-based operations. He viewed this as a factor hindering the fruitful exploitation of the centre's service capacities.

CSRs are periodically assigned temporary call-handling duties, in addition to their permanent functions. These short-term duties are derived from advertising and marketing campaigns devised by the marketing department. The schemes make use of the centre as the point of customer contact and inquiry. The application of the centre's resources in support of those campaigns is seen positively by the centre's management. They view the centre's participation as contributing to the enhancement of its profile and value in the overall Boots customer service effort. However, the added duties that come along with it are not always received favourably by CSR team supervisors, and other subordinate staff. The provision of operational support for these ad-hoc schemes is seen to pose two problems. The first of these problems is that the support given has, on several occasions, badly stretched the centre's human and technological resources. The problem is tied to the difficulty of forecasting customer responses to campaigns. An example cited as being typical was a recent scheme promoting discounted bookings of conference facilities. The centre's management staff had been told by the marketing department to expect 250 calls per week for the six weeks the promotion was due to run. The CSR supervisors had thus arranged for the appropriate staffing and training. The prediction turned out to be wrong, however. In the first week alone, the centre received well over 1000 calls that were related to that promotion. A serious degradation in performance levels resulted for a period. That, and other similar cases of marketing assignments which have triggered unanticipated call volumes, are an especial cause of concern for CSR team supervisors. They carry the onus of ensuring that individual and overall targets are consistently maintained.

The second problem has to do with the task instructions pertaining to those schemes. These instructions are given to CSRs, for them to accomplish during customer interactions. These instructions are issued by staff from the marketing department, which is responsible for the schemes. These instructions had, on several occasions, been seen as running counter to the desire of frontline supervisors and CSRs to rein in the direction and pace of customer interactions (i.e. in order to meet performance targets). Dissimilar outlooks lined the seam of discord. For example, from the viewpoint of a decision-maker in the marketing department, an instruction for CSRs to put forward to customers a 'simple' question at the end of their phone conversation, and to record the response in the system, seemed easy enough to be carried out. In practice however, this task unduly prolonged CSR interaction on the phone. Customers typically did not react

in the manner anticipated by the marketing staff. That 'simple' question incurred other questions, clarifications, and comments. This outcome, repeated in thousands of calls, constituted, from the standpoint of supervisory staff, a contravention of CSR efforts at maintaining targeted performance levels. They viewed the instruction as betraying a lack of understanding of the 'knock-on effect' of tasks, assigned to CSRs, on individual and overall performance. The marketing staff who formulate the campaigns are seen as failing to appreciate the level of difficulty faced by CSRs, in steering customer reactions and eliciting desired information. The course of conversations is highly unpredictable. Interactions rarely comply with any ideal format imaginable in advance.

While the call centre's management staff have been seeking ways to expand the portfolio of service functions handled by the centre, they have also been significantly concerned, simultaneously, with controlling or reversing a trend of significantly rising contacts from customers (i.e. calls, emails etc). Substantial increases in staff work effort and other resource outlays are required for coping with the service demands posed by this proliferation of communications. These increased commitments are at odds with the efforts of the centre's management to minimise the short and long-term operational costs of the centre. As stated by the centre's manager, this trend is a significant threat to the operational efficiency of work efforts at the centre. Ironically, the high quality of service responses provided by the centre has been perceived by the centre's manager to have contributed significantly to its mounting service commitments. It has been thought to have induced a somewhat inordinate preference among Boots customers. Customers have been seen to call the centre on issues or inquiries which they could or *should* (in the manager's viewpoint) have easily received a response for at their local Boots stores.

Correspondingly, a key question that has surfaced is the degree of distribution between service tasks handled by the centralised call centre operations, and those by other decentralised operational units, such as the stores. The centre's manager has been grappling with this issue of determining the specific providing customer service duties that ought to constitute the 'stock focus' of CSRs. He explained that this was important to determine, because once CSRs go beyond this focus and begin to 'stick their head above the parapet' – i.e. suggest 'too much' willingness to assist the customers with whatever inquiries or demands put forward – they inevitably draw greater expectations and requests from customers. He viewed this as leading to a displacement of functions

over time. Staff at the centre end up being expected to carry out service activities that should be handled by other units, such as the local stores. The expansion in the range of service commitments further adds to the increasing number of customer contacts.

Certain other factors may also be contributing to the increasing contact volumes. Boots is a household name, especially with respect to health, beauty and children's products. Members of the public aware of the centre's services have been perceived by CRS to sometimes call up with general queries on any items falling within those very broad categories, simply because Boots is the first familiar name that occurs to them as a potential source of answers. Phoning the centre to obtain detailed product advice and information, especially for older people, is much easier than physically visiting shops to make inquiries. Thus, the company's reputation is subjecting the centre to rising casual inquiries, as public awareness of its availability as an information source grows. Familiarity with the centre's services appears also to have encouraged an increasing number of customers to contact it, repeatedly, on the basis of opportunism. These callers are aware that they can expect to receive extra Advantage points, or other forms of compensation, if they make complaints or express dissatisfaction. Such perks cannot be obtained when dealing with staff at the stores.

The centre's management has thus devoted significant attention towards finding ways of moderating the rapid growth of contacts. Mass customer awareness of the centre's services derives mainly from such acts of publicity as the advertisement of the centre's telephone number, and its status as a point of inquiry, on the back of every receipt that a customer obtains for purchases at Boots stores. Recently, the management took the unusual step of significantly reducing the size and prominence of that contact information on the back of the receipts. This represented a discreet attempt to diminish public awareness, and thereby temper the rising number of calls made to the centre. The centre's management is also hoping that the increasing amount of detailed information resources being placed on web pages at the company's internet site will stabilise the growing volume of customer inquiries. The interface team has been adding a number of FAQ (frequently asked questions) sheets on the web-site, giving answers to commonly repeated inquiries received at the centre.

The efforts of CSR staff in providing effective service to customers have been hampered by certain deficiencies in the company's information systems. The warehouse inventory information that is stored on the mainframe-based Ingress database, and the customer contact information stored on the CustomerQ database, present problems with searching for information required in response to customer queries. The common fault is inadequate specificatory details, although this problem takes different forms in each database. The warehouse inventory system is a repository of product data on a large range of items, formerly and currently marketed by Boots. The data stored in that legacy system is well suited for purposes of inventory control and processing. However, this data does not include enough descriptive detail for use by CSRs in responding to customer queries. The product data typically does not include details on such simple features as the shape, colour or dimensionality (i.e. length, breadth and height) of the product items. The data also does not include information regarding the uses of the product, or other qualities of the product that customers may want to know in order to assess for suitability with their needs. The lack of such specificatory details limits the amount of information that CSRs can provide to customers regarding Boots products.

The problem of inadequate specification in the CustomerQ database has to do with the index categories by which the data in this system is organised. These indexes have for a long time been found to be too general in their categorisation. This has been a limitation. It has made it difficult to search for and retrieve specific information in the system in response to inquiries. A recent effort by the centre's sole IT technician had brought about some improvement. He had reprogrammed a wider range of categories by which the large amount of customer data is sorted and can be retrieved. These changes had enhanced the search capabilities of the CustomerQ system. However, the need exists for further improvement in the system. Insufficient resources have impeded this, however. The centre's IT technician lacks the training, and the necessary access to the system, to do more. Staff from the company's large MIS department have too many other projects lined up, and difficulties to deal with, that take higher priority over these problems with the warehouse inventory and CustomerQ systems.

These are not the only shortfalls, however. The feature deemed most lacking in the company's information systems, by CSR staff, is digitised pictorial images of the company's products. Customers often make inquiries about products that could be

answered much more easily if CSRs simply had pictures, by which to visualise the products being discussed. Another problem that has caused concern among the centre's management staff is the number of different software applications that the CSRs have to access as they go about their duties. The continuous switching from one application to another, and the different procedures of use unique to each software, that CSRs have to cope with in the course of their work, were cited as significant barriers to faster and more efficient performance. The call centre's manager said that such problems have prevented them from achieving a goal of having an effectively integrated information system capable of supporting any kind of customer inquiry through a common interface, and providing what he described as 'a single unified view of product and customer'.

A particular problem with the company's information management practices has hampered the efficiency of work efforts by CSRs. This is related to the product records in the warehouse inventory database, mentioned above. A Product-ID field indexes these records. When customers call up to inquire about specific products, the CSR attempt to find and retrieve the corresponding records. This retrieval process, however, is currently perceived to take too much time. Customers do not know the Product-IDs of the items they are looking for. Such information is not made available to them in Boots marketing catalogues or advertisements. All they usually know is the popular name of the product, which is different most of the time from its actual technical name in the system. Thus, it takes some effort to identify and pull up the correct records. The CSRs typically get the customers to provide the item's generic name, or have them describe the item by its main features. They then perform a search using this information, which typically brings up several potential candidates. The correct product record can then be identified and retrieved by the CSRs; if it is still not recognisable, the CSRs will probe for more details from the customer while checking against the results for a match. Some CSRs have adopted a workaround to this problem. They have meticulously written down the various Product-IDs, obtained from the warehouse system, beside their associated product particulars, in a copy of the company's marketing catalogue. This transcription had taken much effort, due to the copious number of items found in the catalogue. When the need arises for identifying product records during customer interactions, the CSRs first perform manual searches in their printed catalogues. They then use the Product-ID associated with the located product to retrieve its record details.

This advantage of this method lies in the use of the catalogue pictures, which can be matched with customer descriptions to locate the product faster.

In both methods used by CSRs (i.e. computerised or manual searches), the correct product record is always eventually identified. However, much of the time wasted on performing product searches in CustomerQ, or on printed catalogues, could be averted by a seemingly simple solution. If the Product-IDs were to be published in the company's catalogues or advertisements, as a reference for customers to quote when they phone up, the whole search process can be avoided for CSRs. This issue and its obvious solution had been raised by the centre's staff to the authorities in the marketing department. This unit is responsible for publishing the catalogues distributed to customers. However, no favourable outcome had ensued. The marketing department insisted that it would be inappropriate and extraneous to print the Product-IDs on the catalogues, on the grounds that such information would not make sense to customers. No changes had thus been made to rectify this issue. The CSRs continue at present to cope with the limitation. The centre's information system problems described in this and the previous paragraphs have constrained the effectiveness of service efforts by the CSRs. These restrictions, according to the centre's manager, have prevented the necessary 'visibility' of internal operations required for resolving customer contacts quickly and effectively. At present, around 45% of customer inquiry calls are resolved upfront, during the initial contact. The remainder require the making of follow-up calls by CSRs or information seekers in order to be resolved. The management is seeking to improve the centre's information systems, in order to improve this figure substantially.

On the whole, the operational challenges described in this section have been seen by the centre's manager to stem, directly or indirectly, from a common problem. They are seen to be connected to the centre's relatively recent beginnings – its being 'bolted on late' into the Boots company's repertoire of activities, as the manager of the centre expressed it. The centre's late inclusion within the Boots corporation had resulted in a mismatch, to a certain extent, between the centre's operational requirements and the 'legacy procedures' and infrastructure of the corporation. The traditional orientation of Boots towards product manufacture, logistics management and decentralised service outlets, as well as its dominant strategic focus on store development efforts, are seen to be responsible for work processes and resource allocation priorities that have impeded

the improvement of the efficacy of the centre's work performance. The centre's manager and the company's customer services director stated a hope that there would be a 'culture shift' in the company towards a customer-focussed orientation that would provide for adequate allocation of resources in support of effective work performance at the centre is hoped for by the centre's management staff and the company's customer services director, is acknowledged to involve a lengthy and gradual process of change. The management is seeking in the short-term to increase the centre's role in and its contribution to the company's 'customer value chain'. They have been encouraged in their efforts by an increasing groundswell of recognition, perceived in other corporate units, of the value of the centre's feedback-gathering and report-producing abilities for aiding performance improvement efforts within the company.

5.3 ANALYSIS OF BOOTS CALL CENTRE OPERATIONS

This section presents a sociotechnical systems analysis of the Boots call centre operations described in the previous sections, using the concepts and analytical tools of the systemic appreciation framework. The central focus is on elucidating the emplotment of IT based work operations at the Boots call centre. The analytical descriptions and discussion occurs in two parts. The various micro NPs and macro NP that resulted from the prefiguration phase of analysis (i.e. *mimesis*₁) are first described (section 5.3.1). Synthesising the understanding gained from these preliminary analytical treatments, the main analysis is then presented (i.e. corresponding to the *mimesis*₂ configuration phase). The emplotment of the Boots call centre operations is then elaborated (section 5.3.2) from a sociotechnical systems perspective.

5.3.1 Preliminary Understanding from NP analysis

From the analysis of the data gathered on work organisation and performance at the Boots call centre, six micro narrative programs were identified, in addition to the macro narrative program. The six micro NPs fall into two categories: those that pertain primarily to the centre's corporate interface, and those that relate mainly to its customer interface. The overall, macro narrative program (NP-0) relates to the establishment and operation of effective call-centre based customer service activities at Boots. It will be elaborated later, after the following descriptions of the various micro NPs.

Micro NPs at the corporate interface

The structuring of work organisation and performance at the corporate interface of the Boots call centre may be characterised by three micro NPs, numbered as NP-I, NP-II and NP-III. The numbering of these NPs (i.e. II, III, IV etc) is not meant to imply any particular order of significance or hierarchy. These micro NPs will be elaborated next. The key boundary qualifications implicated in the associated transformation of each NP will be highlighted, along with salient aspects of legitimisation, motivation or power. The summary details, actantial elements and key boundary qualifications of each NP will be shown in an accompanying table (e.g. Table 6.1), to aid the elaborations.

NP-I Integration into corporate operations		
Transformation:		From poorly connected and few working relationships to rich network of effective information exchange channels and strong working partnerships
Actantial Framing	Sender:	Expectations of senior management; operational requirement for responding effectively to customer inquiries and complaints
	Subject:	business interface team; call centre management staff
	Object/Value:	effective working partnerships with other departmental staff and units
	Auxiliary:	sales 'pitches' made to key players in business units; recognised improvements to product design/marketing; customer feedback distributed to managers; growing use of intranet; expansion in scope of CSR service duties (NP-II)
	Opponent:	decentralised governance structure of business units; lack of institutionalised channels of communication; lack of information exchange infrastructure
Boundary Qualifications:		Related to working partnerships with other corporate units: appeal vs. obligation; non-essential vs. imperative

Table 6.1: NP-I at the corporate interface

NP-I is concerned with an ongoing effort to integrate the centre's activities with the operational activities of the wider Boots company (shown in Table 6.1). The aim of this scheme of action is the establishment of strong working partnerships and effective information exchanges between the centre's business interface team and the various other organisational units in the parent company. The context in which the centre's operations were implemented and begun may be seen as having contributed to the 'complication' that generated this NP. The creation and implementation of the centre had been the outcome of a project put forward and largely undertaken by the marketing department, within a traditionally decentralised environment of operations in the company. This led to an initial lack of institutionalised channels of communication

between the centre's business interface team and various other operational units in the company. This restricted, in the early stages of operations, the ability of the centre's staff to obtain adequate access to the information resources needed for sustaining the centre's efforts. Staff members at the centre were left, at the start, with a strong need to establish on their own initiative the centre's legitimacy as a viable operating unit, one that could contribute beneficially to the efforts of other corporate units in the firm. Those other units had not been obligated to work with the interface team, or respond in desired ways (e.g. timely and accurate information), by formally prescribed channels.

The interface team members thus sought to establish required work relationships and procedures by persuasion i.e. selling to influential staff in those corporate units the benefits offered by the centre. The valuable customer feedback reports that are provided to managers in those units, as well as the corresponding improvements that have come about in product design and marketing, are key factors of power by which the centre is mobilising support for a better integration with the rest of the company's operations. The reports and customer feedback that have led to these improvements are derived from information stored on the CustomerQ database, and distributed through the firm's intranet. The centre's management and interface team are using the leverage gained from this use of the centre's IT capacity to establish efficient communication channels and strong working relationships that are based on mutual obligations between the centre and the corporate units (i.e. stemming from benefits accruing to both parties).

The expansion of service duties handled by the centre (i.e. NP-II, to be detailed shortly) is further contributing to strengthen the requirement for other corporate units to work closely with the centre. The key boundary qualifications that are thus being negotiated by the centre's staff, in NP-I, may be stated as: 'appeal vs. obligation' – reflected in the shift from work interactions with other corporate units that are based on persuasion to those based on obligation; and 'non-essential vs. imperative' – reflected in a shift of the perception of those units, from treating the information exchanges with the centre as being non-essential or of low operational importance, to that of being imperative tasks required to obtain the benefits provided by the centre.

NP-II Expansion of service activities	
Transformation:	From narrow, simple range of duties (i.e. complaint-handling and minor inquiry-handling only) to extended, complex scope of duties (i.e. inquiry, comment and complaint-handling, servicing of bookings and marketing campaigns)
Actantial Framing	Sender: Boot senior management expectations; requirement for centre's management to demonstrate operational value of the centre to overall Boots enterprise
	Subject: call centre management staff
	ObjectValue: increased operational contribution and value of centre to larger Boots corporation
	Auxiliary: permanent and ad-hoc operational schemes (e.g. handling Optician calls; supporting advertising campaigns) undertaken in concert with marketing and other corporate units; information management capabilities of database software and other IT systems; increased staff competencies
	Opponent: disgruntlement of CSR supervisory staff in coping with unanticipated call volumes, and perceived lack of sympathy by marketing staff to CSR need for maintaining control over customer interactions; reduction in CSR ability to meet performance targets; opposition from other parties unwilling to cede over control of their customer activities to the centre's staff (e.g. Boots Dentists clinic managers in pilot scheme); need to control rising call volumes (NP-VI)
Boundary Qualifications:	Related to assessment of appropriate CSR duties, responsibilities or workload: non-discretionary vs. discretionary; necessity vs. non-necessity

Table 6.2: NP-II at the corporate interface

NP-II is concerned with the expansion of customer service activities handled by the centre (shown in Table 6.2). The transformation being effected is an increase in the scope of duties and the complexity of the roles undertaken by CSRs and the rest of the centre's staff. Two key factors (in the sender-actant position) may be perceived to have engendered the undertaking of this program. One of them is the expectations of greater value and quality in the centre's service activities that have been placed on its staff by the company's senior management. The other factor is the requirement placed on the centre's management to demonstrate the value of the centre's activities to the Boots company. Elements that have played an instrumental part in advancing this program are the new permanent CSR service duties (e.g. handling of Optician calls, pilot handling of Dentists calls), and ad-hoc duties (e.g. advertising/marketing schemes), that the centre's management has worked out with the marketing department and other corporate units.

Other key resources that are supporting the achievement of this program include the information management capacities of the centre's IT systems, and increases in staff knowledge and abilities resulting from work experiences over time. However, there are also several factors that are impeding or creating a counter-reaction to this scheme of endeavour (NP-II). These include a reduction in CSR ability to maintain performance targets, as the general expansion of duties lead to rising contact volumes that cannot be

coped with, or triggers unpredicted and overwhelming resource requirements (as in the example cited during the case description, of the marketing promotion). The increased workload may, as it has done in the past, generate disgruntlement among staff (e.g. CSR supervisors), as well as political opposition from other corporate units whose work practices are being changed as a result (e.g. dentist clinic managers unwilling to cede control over customer relations in the latest pilot project). Another key opponent-actant is the need to control rising customer contact volumes. This is another micro NP (NP-VI), described shortly. The tensions bound up in this NP's transformation may be said to indicate the following boundary qualifications: 'discretionary vs. non-discretionary' – seen in the conflict in perception over the type of service tasks that are binding on CSRs to perform and not left to their discretion, and those that should be optional and left to them or their supervisors to decide, according to situational factors; as well as 'necessity vs. nonnecessity' – as seen in the conflict of perception over the type of services that are necessary for the centre to perform (i.e. in a centralised manner), and those that should be left to the responsibility of other units.

NP-III Promotion of call centre to a core service function		
Transformation:		From low priority of support by Boots corporate units to high priority of support
Actantial Framing	Sender:	senior management performance expectations; operational need for higher priority in corporate resource allocations
	Subject:	customer services director; call centre manager
	ObjectValue:	corporate service orientation that provides strong support and necessary resources for effective centralised customer service operations
	Auxiliary:	increased service activities (NP-II); integration into corporate operations (NP-I)
Opponent:		lack of political influence; priorities of senior management; history of strategic corporate focus on store development efforts and decentralised operations; corporate governance and procedures geared towards decentralised activity
Boundary Qualifications:		Related to resource allocation decisions by other corporate units concerning centre's operations: priority vs non-priority

Table 6.3: NP-III at the corporate interface

NP-III is concerned with the promotion of the centre to a core service function in the Boots enterprise (shown in Table 6.3). The transformation being sought by the centre's manager and the customer services director is for other corporate units in the Boots company to give greater priority of support and allocation of resources to the centre's operations. The centre's management is seeking to bring about this orientation by obtaining greater power and political influence in the company's decision-making

processes, on the basis of the increasing prominence of the centre's contribution to the success of the company's efforts (NP-II), and its integration with the operations of the company as a whole (NP-I). A key boundary qualification that may be said to be implicated in this transformation is: 'priority vs. non-priority' – reflecting the difference in the perception of priority, between the centre's management staff, and management staff in other units of the corporation, regarding decisions to allocate effort or resources in support of the centre's operations. These differences are seen in the decision by the marketing department not to devote resources to address the Item-ID problem, and the unwillingness of the MIS unit to supply adequate technical or programming support to alleviate the IT problems and deficiencies at the centre.

Micro NPs at the Customer Interface

The structuring of work organisation and performance at the customer interface of the Boots call centre may be characterised by three micro narrative programs, NP-IV to NP-VI. NP-IV is concerned with the satisfying of customers' needs, and the securing of their loyalty as patrons of Boots (shown in Table 7.1).

NP-IV Satisfying customers and securing their loyalty	
Transformation:	From ineffective means of customer inquiry/complaint handling to efficient and high quality inquiry/complaint handling efforts
Actantial Framing	Sender: institution of 'customer focus'; management expectations; customer expectations
	Subject: call centre management staff; CSR staff
	ObjectValue: surpassed customer expectations
	Auxiliary: adding free points to customer on Advantage software system; use of 'fulfilment' function in CustomerQ program to provide compensatory gifts; proactive compilation of information resources available for answering queries and arranging customer services; improved 'visibility' of internal operations (NP-V); communication of complaints and feedback through CustomerQ reports to relevant business units for appropriate action to satisfy customers
	Opponent: limitations of IT-based information resources (e.g. restricted search capabilities, insufficient descriptive and visual details); range and variability of customer queries; customers taking advantage of free Advantage points
Boundary Qualifications:	Related to responding to customer contacts: reactive vs. proactive; anticipated vs. unanticipated; deliberate vs. opportunistic

Table 7.1: NP-IV at the customer interface

This scheme of action may be seen as critical in determining the strategic value of the centre's operations. The Boots call centre management has sought to mobilise the

enthusiasm of the staff and CSR teams for this undertaking by investing work efforts with the key motivational vision of 'surprising the customer' (i.e. see Figure 4, pg. 135). This notion of delighting the customer, and of 'demonstrating ... that we understand and care about what is important to them' may be viewed as reflecting the social institution of 'customer focus' (or customer orientation), which came into prominence in business environments during the 1980s, and placed pressures on organisations to significantly improve their customer service processes (Bjorn-Andersen and Turner, 1998; Preece, 1995; Hammer and Champy, 1993). This emphasis has become pervasive in almost every industry: its positive effect on organisational performance has been established by marketing studies (Gronroos, 2000; Jaworski and Kohli, 1993; Narver and Slater, 1990). This prevailing institution stresses the need to win and retain the loyalty of customers, by catering to their needs and preferences (i.e. 'the customer is king' etc.) as a means of ensuring the continued profitability and survival of the firm. Management expectations that staff uphold this institution, and customer expectations on service quality, are key factors in the sender-actant position driving and shaping the progress of this course of action.

The nature of the services provided by the centre to Boots customers are primarily information oriented (i.e. answering queries, resolving complaints on product and service problems, receiving feedback etc). Thus, the centre's database systems and its other IT-based information resources are playing a major role in supporting the achievement of this NP. The adding of free Advantage points through the Advantage database, and the use of the CustomerQ fulfilment function to order compensatory gifts for customers, are specific examples of the way the centre's IT systems are utilised in this undertaking. Other factors contributing to this NP's progress (i.e. in the auxiliary-actant position) include: the regular obtaining and compilation of information from other corporate units in Boots (e.g. the daily 'news at ten' practice), which equips the CSR teams with the knowledge resources to respond competently to calls; the actions taken by the business interface team staff to ensure that customer complaints and comments are passed on to the relevant corporate units, as well as promptly followed-up with appropriate actions of redress and notification to the customers concerned.

The progress of NP-IV, however, is being retarded by the current limitations of the centre's software systems (i.e. search capabilities restricted by lack of specification

in the index categories of CustomerQ data), and mainframe-based information resources (e.g. lack of specification details in product data stored on warehouse inventory system etc). The main focus of staff efforts in promoting the achievement of this NP is the concern for being pre-prepared, or proactive. This requires making available, for CSRs, information resources and retrieval mechanisms that are of sufficient breadth and detail as to match the range and variability of customer queries and issues. A major boundary qualification may thus be said to be: 'reactive vs. proactive' – reflected in the attempt to shift CSR responses from a state of unprepared reaction, as characterised by time-consuming, ineffective replies to inquiries of customer, to being proactively prepared, as characterised by the adequate anticipation of customer issues and the pre-arranged availability of information. The problem of Boots customers not being told the product-IDs may be taken as an example of the staff's concern with extending their ability to be proactive. Another boundary qualification that can be cited is: 'deliberate vs. opportunistic' – relating to the significant concern, among certain of the managerial and supervisory staff, over the extent that certain customers appear to be taking advantage of the measures deliberately concerted by the centre to please or recompense them, such as the anticipation of free Advantage points by customers making repeat complaints, and the rise in casual customer inquiries directed to the centre rather than to the stores.

NP-V Improving access to customer-relevant operational information	
Transformation:	From inadequate and ineffective quality of support from IT/IS systems to relevant and highly effective quality of IT/IS support for CSR efforts
Actantial Framing	Sender: operational requirements for responding effectively to customer inquiries and complaints
	Subject: call centre management staff
	ObjectValue: increased visibility of company operations and information practices ('single view of product and customer')
	Auxiliary: IT technician, technically proficient end-users in centre's staff; programmability of software (e.g. larger number of indexes for database search capabilities); increased IT-based information resources (through end-user programming and new software acquisition)
	Opponent: lack of adequate descriptive detail in legacy database records; lack of specificity in indexical categories of data, for search processes; slow network and application response times; lack of integration between several software applications, causing CSRs to loose time as they cycle in between each program; low priority in corporate MIS improvement efforts
Boundary Qualifications:	Related to information management practices and use of IT systems: anticipated vs. unanticipated; priority vs. non-priority

Table 7.2: NP-V at the customer interface

NP-V is concerned with the improvement of the centre's access to customer-relevant information within the Boots corporation (Table 7.2). The transformation being sought is a significant increase in the quality and effectiveness of operational support provided by the centre's IT software applications. The problems currently being faced in this area are due mainly to the use of information from the firm's legacy systems (e.g. the warehouse inventory system). These IT based information resources were designed originally for internal management reporting and tracking, not for supporting CSRs in responding to customer inquiries. Another significant impediment to the success of this NP is the reluctance of the MIS department to spare the necessary resources to address the problem of modifying the centre's software-based information resources (e.g. index categories in CustomerQ) for dealing more efficiently with a wider range of inquiries. Key boundary qualifications implicated in this NP may thus be seen as: 'anticipated vs. non-anticipated' – mirrored by efforts to increase the capabilities and resources in the centre's information systems and thus enable the handling of a greater range of pre-anticipated inquiries; and 'priority vs. non-priority' – as seen in the desired shift by the centre's management regarding the priority assigned by the corporate MIS department to dealing with the restrictions of the centre's information systems.

NP-VI (shown in Table 7.3) has to do with the controlling of the predictability of call volumes and the rate of customer contacts being experienced by the centre. It may be said to be the most recent of the various courses of action described so far, having been triggered by growing concern among the centre's management staff over the trend of rapid growth in customer contact commitments recently. The aim of the management staff is stabilised call and email volumes that can be coped with in an effective manner by the CSR teams. The social institution of 'operational efficiency' (a key institutional property in all organisations; see King et al. 1994, and Robey and Boudreau, 1999) – described as the need to demonstrate maximum output with a minimum expenditure of resources – may be perceived as a principal factor (in the sender-actant position) that has led to this NP. The pressure to comply with budgetary restrictions on the centre's expenses, as well as the definition of the 'stock focus' of CSR duties being deliberated by management staff, may be seen as other factors driving and regulating this course of action. The measures used to support the achievement of NP-VI include: the reduction in prominence of advertisements of the centre as a point of

contact; and current moves to increase the information on the firm's web-site, so that more customers will find the information they need there, without contacting the centre.

NP-VI Control of the rate and volume of customer contacts	
Transformation:	From unpredictable call volumes and rapid growth in contacts, to predictable and stable call volumes
Actantial Framing	Sender: institution of 'operational efficiency'; budget constraints; notion of 'stock focus'
	Subject: call centre management staff
	ObjectValue: call volumes that can be efficiently coped with available staff and other resources
	Auxiliary: reduction in size of advertisement on customer receipts; increasing the number of information resources available on the company's internet web-site
	Opponent: reputation of high quality of friendly service and willingness of CSRs to please customers; issuing of free Advantage points; accessibility of telephone/email communications in making inquiries or raising complaints (rather than travelling to, or dealing with staff at, the stores); difficulty of predicting customer responses to sales campaigns; displacement of inquiries from stores to call centre; expansion of service activities (NP-II)
Boundary Qualifications:	Related to servicing customer contacts: required vs. extraneous; predictable vs. unpredictable; regular vs. inordinate

Table 7.3: NP-VI at the customer interface

Factors that are perceived to be attenuating the progress of this program include: the reputation of the quality of service provided by the centre; customer preferences in contacting the centre for information, because of the ease of phoning rather than going to the stores to inquire; and customer awareness of the perks such as free Advantage points provided by CSRs for redressing complaints (not available at the stores). Several key boundary qualifications, reflected in managerial and supervisory concerns, may thus be adduced. One key qualification is: 'requisite vs. extraneous' – reflected by the preoccupation of management staff in setting a distinction between service duties that are necessary and binding on CSR roles, and duties which are not essential (i.e. the notion of 'stock focus'). This discrimination is also seen in the concern held by some of the supervisory staff, regarding the types of service duties that should be placed upon the CSRs by other organisational units within Boots, such as the marketing department. Their concern stems from the need to achieve service performance targets consistently.

Another key boundary qualification may be seen as: 'regular vs. inordinate' – pertaining to the concern among the centre's managerial staff regarding what may be considered as acceptable requests or demands from customers in service interactions, and what is to be seen as inordinate or irregular. This also pertains to concerns over the

extent that CSRs should be accommodating of customer service requests, and over the preference of customers for making inquiries at the centre rather than their local stores. The latter concern had led directly to the attempt to reduce the size and prominence of the advertisement of the centre on the back of customer purchase receipts. Finally, a further boundary qualification that may be adduced is: 'predictable vs. unpredictable' – as reflected in recent attempts to stabilise the rise and variability in customer contacts – this represents an effort to instil greater predictability regarding, and reduce uncertainty about, the volume and nature of customer contacts dealt with at the centre.

The macro NP

From the preceding descriptions of the micro NPs, as well as the various boundary qualifications that have been identified, a composite picture was formed of the macro NP, which pertains to the overall course of action aimed at the establishment and performance of effective customer service activities. The macro NP is summarised in Table 7.4. It will be elaborated next, firstly in terms of the inter-relations between its different constituent courses of action (i.e. micro NPs), and subsequently, in terms of a collective consideration of identified boundary qualifications. This will complete the description of preliminary understanding, underlying the emplotment of understanding of IT based operations at the Boots centre, that is described in the next section (5.3.2).

NP-0 Establishment of effective customer service operations	
Transformation:	From decentralised, uncoordinated, low quality information and complaint-handling customer services to centralised, high-quality services
Actantial Framing	Sender: Expectations of senior management; customer expectations; strategic requirement for capturing customer loyalty; operational requirement for responding effectively to customer inquiries and complaints
	Subject: call centre staff
	ObjectValue: high quality of services and responses
	Auxiliary: successful integration into corporate operations (NP-I); expansion in scope of CSR service duties (NP-II); promotion to core service function (NP-III); securing customer loyalty (NP-IV); improving access to information sources (NP-V); control of the volume of contacts (NP-VI)
	Opponent: limitations of IT-based information resources; range and variability of customer queries; difficulty of predicting customer responses to sales campaigns; corporate governance geared towards decentralised activity; customers 'taking advantage' of centre's services
Summary Boundary Qualifications: Related to call centre operations: inessential vs. obligatory; optional vs. essential; designed vs. aberrant; predictable vs. variable	

Table 7.4: The Macro NP (NP-0)

A consideration of the inter-linkages between the various schemes of action (i.e. the micro NPs), which may be said to characterise work organisation and performance at the Boots call centre, is helpful for discerning the shaping of the centre's operations at the macro level. From the foregoing accounts of micro NPs, it may be perceived that the development and progressive accomplishment of certain schemes of action depend directly on the parallel development and accomplishment of one or more other courses of action (i.e. NPs occupying the auxiliary-actant position of other NPs). For example, the course of effort devoted by the centre's staff to the satisfaction of customers and the securing of their loyalty (NP-IV) is strongly reliant on the parallel achievement of two other courses of action: that which is aimed at the successful integration of the centre with corporate operations (NP-I), as well as that aimed at improving access to customer-relevant operational information (NP-V). Similarly, the scheme of effort aimed at promoting the call centre to a core service function (NP-III) is dependent on the success of the endeavours at integrating into corporate operations (NP-I) and the expansion of service activities (NP-II). It may also be seen that progress achieved in the promotion of the call centre to a core service function (NP-III) may have a positive effect, in return, on the undertaking of integration into corporate operations (NP-I), and the expansion of service activities (NP-II): it may lead to increased priority and resources being given by the senior management of Boots to the support of those two endeavours. There are also courses of action that provide *indirect* support to others. For example, if successfully undertaken, the promotion of the centre to a core service function (NP-III) could raise the priority level given by the MIS department to addressing the centre's IT problems, and thus augment the improvement of access to customer-relevant information (NP-V).

It may also be seen that one course of action can run counter to the progress of another (i.e. where the former NP occupies an opponent-actant slot in the latter). The course of action aimed at controlling the rate and volume of customer contacts (NP-VI) appears to be mutually inter-related in this way to the scheme of effort associated with the expansion of service activities (NP-II). It is foreseeable that the former may exert a tempering effect over time on the course of the latter. Management staff involved in the arrangement of the expansion of service activities may seek to be careful they do not induce a substantial increase in the rate/volume of contacts. If strong importance comes to be attached to the reduction or stabilisation of the rate/volume of customer contacts

(NP-VI) by the centre's management, it could even temporarily arrest the expansion of service activities (NP-II). Conversely, if the latter course of action grows considerably in priority in the centre's efforts, it could undermine the former. These two courses of action (NP-II and NP-VI) are thus counter-implicative. Their continued existence as schemes of action within the context of the Boots call centre operations will require an accommodation between them. Their co-existence reflects the phenomena of conflicting or contradictory courses of behaviour found in organisations.

The perception of these various courses of action (i.e. micro NPs) described in the preceding sections, and their inter-relationships as described above, was instructive. It bred an understanding of how, at the overall level (i.e. the macro NP), the emergent pattern of organising and performance in IT based work practices at the Boots centre has been shaped by several inter-related courses of action, that link those practices to the parent company's larger, internal context of operations (i.e. NP-I, NP-II and NP-III at the corporate interface), as well as its external environment of customer interactions (i.e. NP-IV, NP-V, and NP-VI at the customer interface). This will be elaborated in the next section, in the description of the emplotment of call centre operations at Boots. Further understanding of the form of emplotment came from considering the boundary qualifications identified during the earlier descriptions of micro NPs. Those various sets of boundary qualifications were implicative when considered in aggregation at the macro level. It was perceived that almost all these qualifications were associated with two main areas of transformation and stakeholder negotiation in the centre's operations: (i) the legitimacy (i.e. the appropriate value and scope) of service activities performed by the centre; and (ii) the control of customer service performance. These two prominent areas of change and negotiation in the centre's IT based work practices were seen to be shaped significantly by the influence of factors within the broader, macro operational environment of the centre, as well as by key tensions and contradictions that hold sway in the centre's operations. The explanation of the emplotment of IT enabled work operations at the Boots centre, in the next section, will thus revolve around those two thematic areas.

The understanding gained from the preliminary analytical treatment of data on the Boots call centre's operations, described in this and the preceding sub-sections, thus formed the basis for an appreciation of the emplotment of its IT based work practices, in

terms of the influence of the systemic operational context, and the contradictions and tensions implicated in those practices. This will be elaborated in the upcoming analysis.

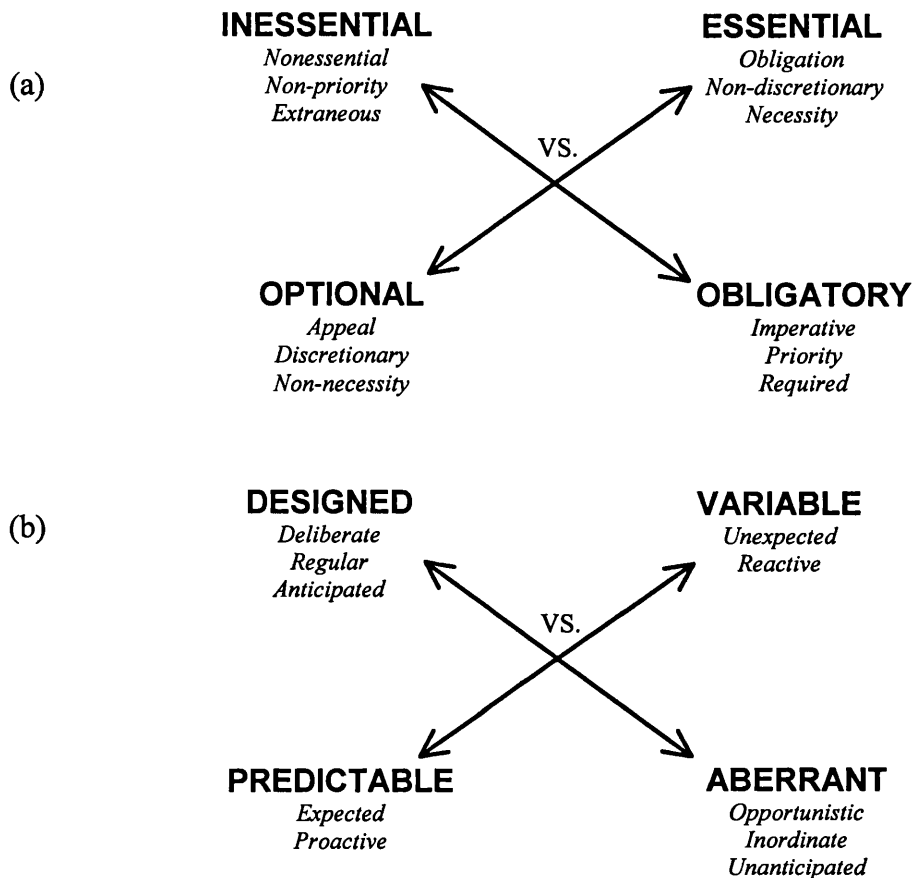


Figure 6: Summary boundary qualifications

To support this elaboration, the boundary qualifications identified earlier were reduced to summary form. Figure 6 depicts this synopsis. The boundary qualifications, shown in italics, fall congruently into two aggregate clusters, presented here as reduced semiotic squares (i.e. each qualification placed cross-wise). Summary designations, in bold, have been assigned to each cluster. These summary boundary qualifications will form semiotic square figures for thematically illustrating the upcoming elaborations.

5.3.2 The emplotment of call centre operations

The emplotment of IT enabled call centre operations at Boots may be said to be centred thematically around two areas of work organisation and performance: (i) the legitimising of service activity performed by the centre; and (ii) the control of customer

service performance. In the following elaboration of this, the emergent nature of work operations at the Boots centre (i.e. evolutionary, contextually-based and unanticipated nature) will be elucidated, from the standpoint of shaping influences within the internal context of the parent company and the external customer environment, as well as of the prominent contradictions and tensions implicated in the centre's work practices.

Ongoing efforts by the Boots call centre staff to establish the legitimacy of the service activities performed by them appears to be a critical area in which the centre's evolving work operations are being shaped. The notion of legitimacy implied here refers to an appropriate valuation of the centre's activities by other units and personnel in the parent company. On a secondary level, it also refers to the appropriate scope that these activities should take in regard to the needs and demands of Boots customers. These two dimensions of the legitimising of the centre's activities will be respectively elaborated next.

The concern of the centre's staff to establish an appropriate valuation of the call centre's activities by departments and staff in the parent company may be attributed to the mismatch between those activities and the traditional socio-structural orientation of the Boots company towards decentralised operations. The implementation of the call centre had largely been undertaken as a localised, intra-departmental project, within the small customer service department. The centre had thus, from the start, not enjoyed the advantage ideally, of being instituted with a pre-defined role, and integrated within a larger, well-planned and coordinated scheme of innovation by an organisation. The centre's relatively independent inception as a functional unit in the Boots firm may be seen to have amplified a key contradiction for its management staff: the challenge of capitalising on the centre's technological capacities, that are geared essentially towards supporting centralised information-based service activities, in a corporate environment traditionally geared towards decentralised activities, by its chain of store operations, and separate administrative departments (i.e. business product units) for the seven categories of products and services. Resolving this apparent contradiction has meant that the centre's management has had to give much effort and consideration to demonstrating the value of their efforts, and the centre's role as a whole, to the other corporate units in Boots, so that those units would agree to working with a centralised service operation. The centre's management has resorted to a strategy of expediency, as the means through

which they have been able to mobilise the effective cooperation of those units, for supplying the information resources needed to run the centre's services. This strategy involves ongoing collaboration and experimentation by the centre on new customer service initiatives and projects with other corporate units. The emergent transformation this approach has led to, in the value of the call centre's operations as a service function in the Boots corporation, will be elaborated next. The trajectory of this change is indicated by dark arrows in Figure 7 (i.e. a transformational semiotic square).

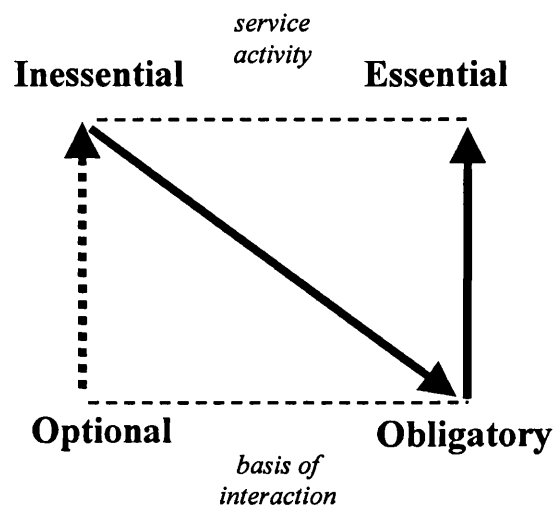


Figure 7: Transformation in value of service activity for Boots

At the start of its operations, and continuing to a certain extent at present, the Boots call centre had been perceived as an *inessential* (or extraneous) service outlet, performing only unwanted activities such as handling complaints from, and dispensing information to, customers. This has to do with the historical context of the company, in which such tasks had long been devolved to the stores, and were seen as bothersome activities by the various business product units. The prevalence of such a perception however, is incongruous with the need for the centre to work closely with the other departments and corporate units, and to obtain the necessary information resources from them to handle the wide variety of customer requests and issues. This perception has been presupposed by another one prevailing among other corporate units that they are not obligated to devote time and effort to supporting the centre's operations. The staff in those units (e.g. product units, marketing department, MIS department) may be seen as having treated the basis of their interaction with the call centre staff (particularly at the start of the centre's operations, and in some respects continuing to the present) as being

optional. Such units have possessed much discretion to respond, according to their own assessments and priorities, to the requests for assistance by the centre. This has over the past, and still in the present, restricted the availability of required information, and the improvement in the centre's IT systems, that the centre's staff are strongly reliant on for responding to customer call in a timely, effective manner. As a result, the management staff at the centre have been actively working out a transformation for the centre to be considered a pivotal service unit in the firm (i.e. NP-III), one strategically responsible for raising the value of Boots' product and service offerings.

This has been undertaken through two schemes of action. One of these (i.e. NP-I) involves demonstrating the performance-improvement value to other corporate units of the customer contact data captured by CSRs on the centre's database and IT systems. The other (i.e. NP-II) involves permanently taking on major duties, such as Advantage calls, Optician Calls, Dentists calls, as well as ad-hoc duties, like marketing promotions, besides the normal complaint-handling and information provision activities formerly handled by the product units. As a result of such schemes, the call centre is establishing a coalition of working partnerships with other corporate units based on the observance of mutual obligations. This is increasing the centre's power (i.e. influence and status) in the Boots company. The basis of cooperation is being shifted to one in which those corporate units are being *obligated* to work closely with the centre because of the clear benefits they have received from this partnering. By this way of proceeding (as reflected in the movement indicated by the dark arrows in Figure 7), the management staff at the centre are forging the position of being considered an *essential*, centralised customer service function within the operations of the larger Boots corporation, so as to obtain the resources and priority accorded such a status. This transformation in the legitimizing of the centre's IT based service operations is a key characteristic of its evolution.

This transformation, in the valuation of the centre's service activities with regard to the internal operating context of its parent company, is moreover paralleled by the ongoing social negotiation by stakeholders in another aspect of the legitimising of the centre's services. This secondary aspect concerns the determination, or 'configuration', of an appropriate range of service activities to be undertaken by the centre's staff, with regard to the needs and demands of the firm's customer environment. Figure 8 (i.e. a configurational semiotic square) depicts this predicament. The problem at stake is the

differentiation of *inessential* from *essential* service activities performed by the CSRs for customers. The status of inessential or essential accorded to particular tasks by different stakeholders is presupposed by the degree to which the basis of interaction between CSRs and customers is being seen as *obligatory* or *optional*, in reference to particular norms or institutions active in the organisation and its customer environment. Examples of this are adduced next.

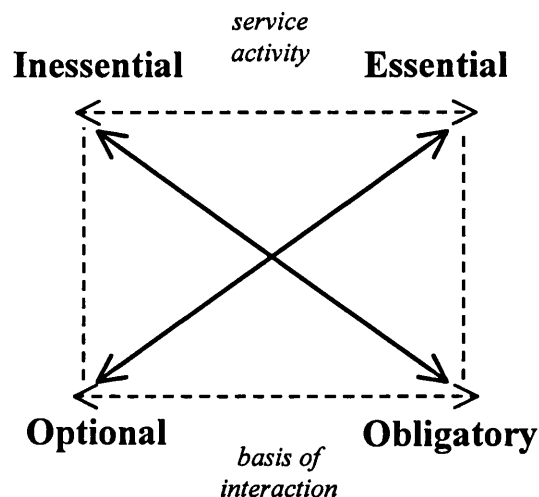


Figure 8: Shaping of appropriateness of customer service activity

From the standpoint of the customers who contact the centre to benefit from its services however, the centre's staff are obliged to them, as paying customers, and by the social institution of 'customer focus', to respond to all their requests for information or services. The evolving expansion of the centre's IT capability, such as the introduction of a Lotus Notes system as an information repository and the 'improvised' creation of a Lotus Approach database to hold store layout/merchandise information, is a response that is a direct consequence of the centre's staff being obligated to meet the expectations of customer inquiries. However, the emphasis by the management staff on establishing the stock focus of CSR work duties reflects a desire to make compliance to specific resource constraints, such as operating cost restrictions, or particular social institutions, such as 'operational efficiency', the basis for separating essential from inessential CSR service duties, and obligatory from optional interactions. The discontent of the centre's management over the significant amount of customer queries formerly directed to the stores being now displaced to and handled by the centre's staff reflects concern over the appropriate range of tasks that are essential and obligatory for CSRs to handle at the centre. Another arena of incompatible expectations in the legitimisation of CSR activity

is, in contrast, internal to the organisation (i.e. not involving customer expectations). This is the case of the centre's supervisory staff unhappiness over certain tasks imposed by the marketing department on CSRs, during the performance of ad-hoc service duties. It is incumbent for them as supervisory staff to meet the performance targets set on the ACD system, required to manage incoming call volumes and to maintain high customer satisfaction levels. From the viewpoint of these supervisory staff, tasks should be made optional that are not essential to the immediate satisfaction of customer requests for services. From the standpoint however of marketing staff who provide the instructions for the CSR tasks, these tasks are essential for improving service efforts in the long run, and thus justified as being obligatory for CSRs to observe during customer interactions.

Another critical area of work organisation and performance, in which the Boots call centre's emergent pattern of functioning is being shaped, has to do with the control of customer service interactions. The prominence of concerns over control in customer service activities, among management staff at the centre, may be strongly attributed to the variability of task demands and the performance pressures associated with servicing a mass body of customers. The intensity and instability of this work environment stems from the need to handle the large volumes of inquiries and complaints enabled by the capacity of the centre's technology systems (e.g. digital telephony systems and ACD). The challenge of maintaining control in this environment of rich information exchanges, marked by fluctuating profiles of customer issues, and diverse information needs and flows, is inherently complex. A conception of this complexity may be obtained from an analysis constructed around the motivational vision* of "surprising the customer", formulated early on by the centre's management to inspire the efforts of its staff. It is interesting to note that the root notion of surprise appeared to pervade the context of activity at the Boots call centre, both explicitly and implicitly. Explicitly, it could be perceived in several elements of the centre's work practices, such as: the 'Magical Moments' staff reward and recognition scheme, which incorporates a 'lucky dip'; the 'surprise' telephone interviews sprung by staff recruiters on potential job candidates (i.e. for CSR positions), in order to test their aptitude for handling calls from unfamiliar

* This 'vision' was internally formed and specific to the Boots call centre, and, as discussed earlier, generally reflects the social institution of 'customer focus'. Thus, this motivational vision may be seen to bear a loose affinity to, although it is more general and much less specified than, Swanson and Ramillier's (1997) concept of an 'organising vision', in which an institutional pattern or construction, rooted in the wider community of discourse of an industry or the general business domain, is introduced into an organisation as an encompassing blueprint for action.

persons; as well as the ‘test calls’ made to unsuspecting CSRs by clients, during pilot trials of new services. Implicitly, the notion was evident in the description, made by several staff at the centre, of their work environment as being essentially ‘reactive’ in nature. It thus seems pertinent that an illumination of different dimensions of control, over customer service activities at the centre, is correspondingly undertaken with an analysis organised around the notion of surprise. Figure 9 (a configurational semiotic square depiction) will be used to support the elaboration of this aspect of emplotment.

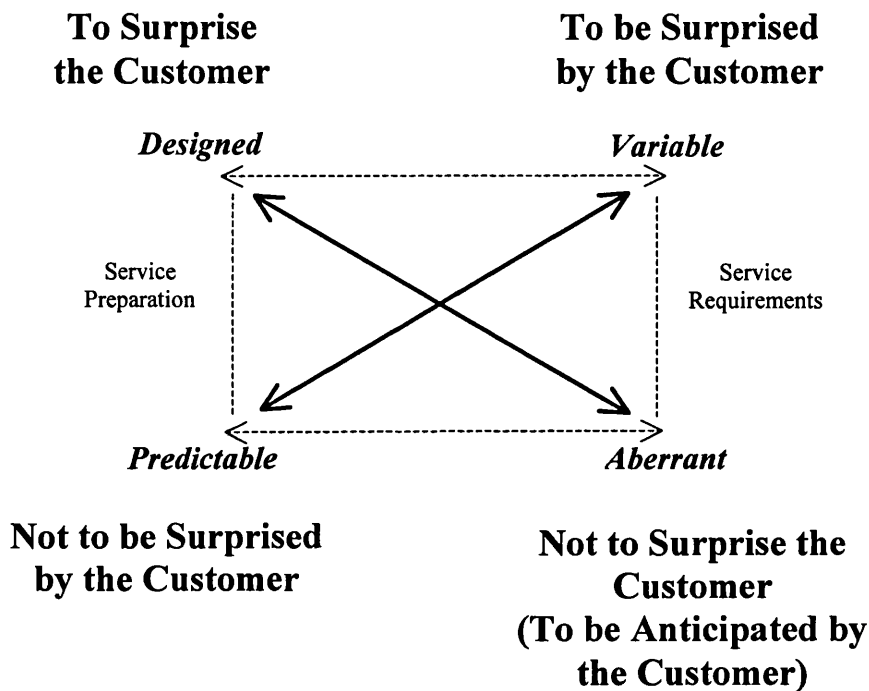


Figure 9: Shaping of control over customer service interactions

The effort by the centre’s management to control the performance of customer service interactions encompasses various measures of preparation in the delivery of inquiry and complaint-handling services by CSRs. Some of these measures, associated with the earlier described scheme of action (i.e. NP-IV) to satisfy customers and secure their loyalty, are designed (i.e. deliberately concerted) attempts to realise in concrete terms the notion of *to surprise the customer*. The use of certain software functions by CSRs, such as the bestowing of free Advantage points through the Advantage database, and the ordering of gifts for customers through the CustomerQ system, constitute key measures in this regard. The communication of complaints and feedback to relevant corporate units, through CustomerQ reports, so that actions can be taken to please the firm’s customers on the basis of responsiveness, is another instance of this. On a less

direct note, the course of action aimed at the expansion of services undertaken by the centre (NP- II) may also be seen contributing to this undertaking.

Consistent with the preceding undertaking, but reflecting another dimension of effort to control the quality of customer interactions, is the substantial scope of work organisation and performance at the centre that is focussed on ensuring that CSRs are *not to be surprised by the customer*. This effort is aimed anticipating customer needs and issues beforehand, and preparing CSRs with the necessary information resources and knowledge to respond effectively to customer contacts. The various measures that compose the course of action aimed at orchestrating adequate and timely channels of information exchange with other corporate units (NP-I), and the efforts to improve the quality and efficacy of the centre's IT-based information resources (NP-V), are critical undertakings associated with this preparation. The scheme of action aimed at controlling the rate and volume of customer contacts (NP-VI) is also essentially geared towards not being surprised (i.e. overwhelmed) by customer service requests, as well as checking the demands placed on the centre's resources.

However, factors within the internal context of the Boots company as well as the external customer environment are limiting the efficacy of these service preparations, and producing tensions and inconsistencies in the centre's operations. Despite the effort to proactively preparing the necessary information resources and knowledge for CSRs to engage with customers, the CSR staff often end up being *surprised by the customer* i.e. being unable to respond adequately or appropriately to their service needs up front in the first contact. This is due to several reasons, all related to the unpredictability of customer contact rates, as well as the variability of issues and service needs they raise. Customer call volumes are difficult to predict, and to prepare for in advance. The centre continues to be surprised by sudden, unanticipated surges in contact volumes (e.g. the advertising campaign on conference bookings). Furthermore, the present inadequacies of information resources stored in the company's legacy IT systems (e.g. the mainframe based warehouse inventory system), and other shortcomings in the centre's IT systems (i.e. the limitations of search mechanisms, lack of systems integration, slow response times), as well as the lower priority accorded to addressing the centre's IT problems by the MIS department, are also major factors contributing to the insufficiency of service preparations at the call centre. These inadequacies are being addressed in the course of

action aimed at improving access to customer-relevant operational information within the company (i.e. NP-V).

Another dimension of the service activities at the centre may be seen in direct contraposition to the earlier described deliberate arrangements to surprise the customer. Certain customers appear to be taking advantage of those beneficial arrangements, thus 'anticipating' the centre's designs. The actions of customers seen by the centre's staff to constitute aberrant opportunistic behaviour include contacting the centre rather than the stores to make complaints because of the potential of being awarded free Advantage points, and the displacement of casual inquiries from the stores to the centre. These are unanticipated consequences of the form of organisation of IT based service activity at the Boots centre. The centre's management is concerned with such outcomes and has attempted to address it, as seen in such measures as the reduction in prominence of the advertisement of the centre's services (i.e. in NP-VI). Such outcomes, however, appear difficult to control or abrogate, given that satisfying customers and establishing strong relationships with them is held as a key priority in work organisation and performance at the centre. The various elements that constitute this dimension of service interactions (i.e. *to be anticipated by the customer*) thus represent emergent situations in which the deliberate intensions and preparations of the centre's management and staff are being in a certain form 'undone', in unexpected ways.

Thus, the organisation and performance of customer service activities at the Boots call centre are characterised by the tensions, conflicts and inadequacies bound up within the four axial positions just described. Those, and the contradictions and tensions elaborated earlier in this analysis section, represent the manner in which the emergent pattern of IT based operations at the Boots call centre has been developing as a whole.

5.4 Evaluation of case study

The aim of this section is to offer some preliminary evaluation regarding the undertaking and results of the above case study at Boots, in relation to the aims of this research study. This will be in advance of a more comprehensive discussion that will be conducted in chapter seven. Brief assessments of the summarised case findings will be made of: (i) the influence of broad contextual factors on the shaping of the call centre

operations; (ii) the utility of the systemic appreciation framework for illuminating the contradictions and tensions implicated in IT based operations in organisations.

The evolving, emergent nature of IT based work organisation and performance at the Boots call centre has thus been characterised in terms of several courses of action. Three of the schemes of action represent the ongoing elaboration of work organisation aimed at linking the centre to the parent Boots company: (i) integration into corporate operations; (ii) expansion of service activities; and (iii) promotion of the centre to a core service function. The three other courses of action represent the ongoing elaboration of work organisation pertaining to CSR service interactions with customers: (i) satisfying customers and securing their loyalty; (ii) improvement of access to customer-relevant operational information; and (iii) control of the rate and volume of customer contacts. The interactions between these schemes of action were seen to involve supportive influences and inter-dependencies, and an accommodation between counter-implicative endeavours. The organisation and performance of work activity in the Boots call centre was seen to be shaped significantly by the influence of contextual circumstances and factors in the parent company and the customer contact environment. The centre's operations were illuminated in terms of inconsistencies and tensions existing in two key areas of work performance: (i) the legitimising of service activity performed by the centre; and (ii) the control of customer service performance. Concerns over legitimising the centre's activities were found to be tied to the problem of integrating its centralised-oriented form of service operations with that of a corporate environment traditionally structured and oriented towards decentralised operations. The prominence of issues of control was linked to the unpredictability or variability of customer contacts and issues.

In summary, the project of utilising the technological and organisational capacities of the call centre to innovate the customer service function at Boots may be characterised as being organically driven. The ongoing nature of work organisation at the centre has been less an outcome of pre-ordained design than one of expediency, shaped by the supporting of new corporate initiatives, the adjustment to institutional structures and legacy systems, and the demands of coping with the wide-ranging and ever-varying profile of customer needs.

The earlier analysis of the Boots call centre operations may be said to strongly demonstrate the need to take into account the influence of factors within the broad, macro domain of a company, encompassing both its inner and external environments, in the development of its associated IT based work activity. The ongoing development and effectiveness of service activities at the call centre has been seen to be strongly linked to the variously identified schemes of action that have been undertaken to set up and gear the centre's operational activities as a contextually appropriate response to the concerns of other corporate units within Boots, and those of the large body of Boots customers. Salient circumstances and events within the larger Boots organisation, that were beyond the influence or control of key social actors at the centre (e.g. management staff, CSR supervisors), were seen to be significantly instrumental in shaping the centre's IT based work activities. Examples of these include the inadequacies of the organisation's legacy IT systems (e.g. the mainframe based inventory system), the decisions of staff from the marketing department, and a corporate work environment traditionally oriented towards decentralised operations. Such considerations appear to validate the need for adopting the systemic emphasis, rather than the situated enactment and political actor emphases (as explained in chapter two, section 2.2.1), in accounting for the emergent nature of IT use. This theoretical emphasis lays stress on the need to consider an organisation's operating context as a whole, in addition to the situated or political agency of groups or individuals as constituent parts, in explaining the emergent nature of IT based activity. Further elaboration of this, and discussion of the key implications, will occur in chapter seven.

From a consideration of the analytical account of Boots call centre operations (in section 5.3), the concepts and method of the systemic appreciation framework may be deemed to have been useful for illuminating the emergent nature of IT based operations in that organisation, in terms of the tensions, inconsistencies and unanticipated struggles that characterised their shaping. The heuristic notion of narrative programs was found to be effective in this regard for discriminating the functioning of the call centre operations at Boots into different courses of action distinguished by unique concerns and interests. By sensitising perceptions of the operations in counterfactual terms, the heuristic notion of boundary qualifications aided in extracting descriptive patterns of significance and coherence, used to elaborate the shaping of those call centre operations along multiple dimensions. The conceptual device of the semiotic square was found to be useful (in the

mimesis₂ phase of analysis) for re-engaging and synthesising the disjointed, preliminary understanding, obtained from the identification of narrative programs (in the mimesis₁ phase) into key matrixes of dependencies and inconsistencies that represented the form of emplotment involved. Further discussion of the utility of this framework will occur in chapter seven.

CHAPTER SIX: CASE STUDY II

6. INTRODUCTION

This chapter undertakes the description and analysis of call centre operations at the British Broadcasting Corporation (BBC). The order of description and procedure of analysis will be the same as in the case study of the preceding chapter. The aim of this account is likewise to illuminate the 'emplotment' I arrived at in my understanding of work organisation and performance around the use of call centre technologies.

6.1 BRITISH BROADCASTING CORPORATION

The British Broadcasting Corporation (BBC), established in 1927, is a major broadcasting and media institution in the UK, as well as a household name the world over. The programmes it transmits on numerous television and radio channels in Britain have cultivated a widespread and devoted audience. These programmes vary widely in content, ranging from news to entertainment to educational documentaries. The BBC's operations are funded mainly through licence fees paid by its customers, the general public (i.e. individual households in the UK). The BBC's activities occupy a dominant position in the nation's sphere of socio-cultural and political communications. They are regarded as a key facet of British cultural life. The BBC derives its constitutional status from a Royal Charter and Agreement document, renewed every ten years, which states its purposes, powers and duties. The company's operations are fundamentally oriented towards upholding the ideals of 'public service broadcasting' (Broadcasting Research Unit, 1985). This broadcasting model consists of the following role-defining principles.

The BBC's activities are aimed at impartially and universally benefiting the nation's population. Its primary commitment is to offer its audience programmes of the highest quality. It is also committed to offering as much variety in its programming, as to cater for the interest and tastes of all of its viewers, with special provisions being made for disadvantaged minority groups. In addition, the BBC's activities are geared towards fostering a sense of national identity and values. Another main characteristic of the BBC's public service role is its editorial and socio-political independence from

vested interests. Its actions and broadcasting output, in principle, seek to avoid any bias that may promote the interests of a specific political party, social group or individual, over the interests of others. Moreover, organisational decisions are not allowed to be dominated by commercial interests only, as in normal business firms. The corporation displays its autonomy from purely economic motives by devoting a major portion of its transmissions to educational rather than entertainment programmes, aimed at informing and enlightening viewers on a broad range of socio-cultural issues and knowledge.

The 1990s saw major transformations being effected in the BBC's constitutional and operational structure. This was a response to significant changes in the broadcasting environment of the UK during that period. Prior to that decade, the BBC had received generous funding from the government. It had also been relatively untouched by any serious competition within the national sector. However, government subsidies began to decline in the early 1990s. The company's confidence in such provisions for the future also began to erode. At the same time, the company's operating expenses were on the rise. These mounting costs resulted from the increased technical sophistication of new broadcasting equipment and associated infrastructure (e.g. satellite transmissions), which were based on the digitization and convergence of new multimedia broadcasting technologies. In addition, new broadcasting companies were formed in the television and radio industry, creating significant commercial competition for the BBC. Finally, a considerable amount of public debate on the BBC's status and function took place in the early 1990s. These circumstances led to a major attempt by its senior management to restructure the company, and reform its strategic orientation.

This reorientation was seen in the (latest) 1996 Royal Charter, which placed increased, formal emphasis on the BBC's 'public accountability' to its licence-paying audience. This commitment to accountability was seen to imply greater transparency in the corporation's decision-making processes, and in the way it spent the public's funds (i.e. licence fees). A significant effort was thus initiated in 1996 by the BBC, aimed at rendering the organisation more answerable to the concerns of its viewers and listeners. One of the measures introduced was an annual declaration of promises to its audience, made every year since then. These promises are published in a booklet (BBC, 2000) distributed freely on request, and are also available on the internet. At the end of every year, the stated pledges are used as standards against which the company's performance

over that period is gauged by the company's senior management. This assessment is publicly reported the following year. This heightened espousal of its accountability to its audience may be seen as an attempt to buttress and improve the BBC's commercial viability, against increasingly competitive market conditions. The restructuring of the BBC in the 1990s also affected its customer service operations.

6.2 BBC CUSTOMER SERVICES

The BBC's present customer service operations (CSO) department undertakes several streams of activity. Its primary responsibilities are: (a) ensuring that telephone calls, letters and email messages from its audience members are properly responded to; (b) providing information about programmes, schedules, and opportunities to visit the BBC; (c) organizing the publishing of information about broadcast content on the BBC web-site; (d) providing advice on reception difficulties experienced by TV viewers or radio listeners, as well as advice on the reception of new digital TV services. These various service activities are currently being undertaken by staff at two call centres. The institution of these call centre operations is tied to the historical evolution of the BBC's customer contact activities.

From its inception in 1922, the BBC had set up telephone contact facilities for its audience. It viewed this as a key part of its public service mantle. These audience contact operations, from 1922 onwards and through to the mid-1990s, were small and decentralized in nature. Telephone calls were channelled to and handled independently by modest groups of staff, located at different regional corporate sites throughout the UK. These regional information services were mostly engaged in addressing inquiries regarding BBC programmes, or government and public resources that had been referred to in TV and radio broadcasts. During World War Two, these services played a crucial role as sources of information and advice for the British public. The BBC's customer contact operations grew significantly in scope in the 1970's. Radio programmes began to involve greater interaction with listeners, who were invited to phone in to converse, or voice their views with programme hosts or producers.

In 1988, the BBC began the nationwide National Radio Helpline service, based at its first modern call centre, set up in Glasgow, Scotland. This was a twenty-four hour

service, accessed by a toll-free telephone number. It provided BBC radio listeners with a free referral source. They could obtain further information on a wide range of subject matter, discussed on radio programmes typically involving social concerns or health issues. The installation and management of this first call centre was outsourced to an organisation named Broadcasting Support Services (BSS). They introduced computer systems to the Glasgow centre at the start of the 1990s, installing office software for administrative tasks, and an inhouse-developed database system to store information for answering audience inquiries. This computerization was not fully effective however. Although the inhouse-developed application worked according to design, a perception grew over time that it functioned much too slowly.

6.2.1 Implementation of call centre operations

The challenges faced by the BBC in its operational environment during the early 1990s, described earlier, led the company to reconsider its customer services strategy. The need for a stronger customer orientation appeared pressing. A greater portion of the company's funds had now to be obtained through market action. New audiences had to be won over, and the loyalty of present ones preserved, in the face of competing claims from new broadcasting companies. The time thus appeared ripe for a new project. When the Radio Helpline outsourcing contract (held up to then by BSS) came up for renewal at the end of 1998, the BBC revised the contract specifications, and placed it on the market for bids from outsourcing contractors. This revised contract included the setup and implementation of a new call centre.

The BBC had decided to setup a new call centre to reorganize and improve its customer service operations. This new centre was to be dedicated to centralised inquiry handling, and gathering feedback from the company's audience. With stiff competition being posed by the new rival broadcasting companies, the BBC felt a stronger need to better understand the responses of its viewers and listeners, in order to gear its media production efforts towards matching the needs of various audience segments. It was thus anticipated that centralized, call centre-based feedback gathering operations would supply a valuable repository of data on audience tastes and opinions. This data, captured by CSRs on computer databases, could be used profitably to mould decisions regarding programme making or scheduling. Reports compiled from this database could benefit

the producers of TV or radio programmes, providing them with informed awareness of audience reactions and interests, or suggesting new programme topics and ideas.

Other important and related factors were also seen to underscore the need for the new call centre. Up to 1998, customer contact operations (except for listeners using the National Radio Helpline) were decentralized and poorly linked. Service staff working at dispersed sites had gained much knowledge about the localized preferences and needs of their regional audiences. This knowledge however, was mostly undocumented, and was not stored on computer systems. Some of this information had been transmitted back to relevant BBC units, but a significant portion remained unshared. This was seen to prevent the benefit of a broad and integrated picture of audience needs based on such shared data. Thus, the opportunity afforded by the technological capacities of a new call centre, to centralize and manage audience information on a national scale, seemed ideal. Moreover, integrating the customer contact operations would reduce the duplication of resources in the former arrangements, as well as enable greater control over the BBC's customer service operating costs.

Conjointly, the past lack of centralized customer contact operations was seen as precluding a consistency in the content and speed of response, of dealings with audience members across the country. The BBC had been regularly assessing the satisfaction levels of those audience members who had contacted their regional sites or the Radio Helpline over the preceding years. It had found that overall, only an average of 66% of callers had been satisfied with the nature and quality of the service they had received. The BBC was eager to raise this customer satisfaction level by a considerable degree. The technological capacities of a call centre were seen as ideal, offering the necessary information storage resources, and quick access and dissemination mechanisms, for supporting customer service efforts at a consistent level of quality and content. It was thought that the centre's performance monitoring facilities could be used to ensure consistent service levels.

The adoption of a new call centre for inquiry handling and feedback gathering was seen to be strongly compatible with the company's emphasis on accountability. The 1996 Royal Charter had specifically set out certain functions to be fulfilled by the BBC management. Among these was the injunction to "ensure that comments and complaints

by viewers of, and listeners to, the licence fee-funded services are properly considered” (BBC, 1997, p.8). As a result, the BBC’s senior management initiated a new strategy in October 1996, known as ‘The BBC Listens’. This approach involved the setting up of systematic accountability mechanisms, such as audience research, independent advice and public consultation efforts, to obtain a clearer appreciation of audience views. The potential for centralized customer contact activities to make a vital contribution as an accountability mechanism was seen correspondingly as an inducement for undertaking the establishment of a new call centre. The new centre would provide viewers and listeners across the UK, for the first time, with a single telephone number for contacting the BBC on all matters. It was envisaged that audience members would thus enjoy easier access to communicating feedback and obtaining explanations, while the BBC would be better equipped to receive and manage its audience contacts.

These various anticipated benefits thus led the BBC to undertake the setup of a new call centre. The BBC’s main justification for turning to outsourcing to accomplish this project was that companies specializing in call centre operations would have the requisite expertise to successfully implement and run all-day all-year long operations at a high standard of service quality. In particular, the BBC was looking for an outsourcing vendor that could not only set up and run a new centre, but also integrate its operations with those of the older Glasgow centre. The integration was to include the replacement of the sluggish technology system at the Glasgow centre with the same new platform of IT and telephony systems to be installed at the new centre. With these stipulations, bids were invited from vendors in mid-1998. The contract was subsequently awarded by the BBC to Capita Business Services, a major call centre outsourcing/services management company in the UK. Thus, from 1999 onwards, the BBC’s customer contact operations were transferred to and run by Capita Business Services (abbreviated as Capita in the upcoming descriptions).

The new call centre came into operation in May 1999, and is known as the BBC Information Centre. It is located in a new 4-story building in Belfast, Northern Ireland. At the centre’s opening, the BBC’s director of corporate affairs stated (BBC, 1998): “Our aim is to give viewers and listeners who contact us a service which matches the excellence of our programmes. ... In the multi-channel, digital world of the future, we expect the range of enquiries we receive to become more complex and varied. The BBC

has an important role as a ‘trusted guide’ to this new world of broadcasting, providing help and reassurance for the digitally daunted.”

The BBC Information Centre is currently the ‘main hub’ of the BBC’s customer service activities. The operations at this call centre will be the main focus of description and analysis in this chapter. The operations of the older Glasgow call centre (formerly BBC National Radio Helpline), now renamed as the BBC Audience Line Centre, will be referred to occasionally however. The BBC’s customer service activities are presently organized around the two call centres. Each centre is primarily dedicated to handling one of two different streams of customer contacts, termed by the BBC as ‘Unsolicited’ and ‘Solicited’. The BBC Information Centre deals with ‘unsolicited’ contacts, which refer to customer-initiated queries, feedback and complaints about BBC broadcasting output and services. The BBC Audience Line Centre continues to deal with ‘solicited’ contacts, which refer to phone calls, letters or email messages invited from the audience, during or after the transmission of television and radio programmes.

The technology system at BBC Audience Line was upgraded after Capita took over. Following this upgrade, the BBC Information centre and the BBC Audience Line centre have become, to a certain extent, ‘virtually integrated’. Besides sharing the same CRM (customer relationship management) database system, both centres also share a common communications infrastructure. The main components of this communications infrastructure, including the primary telephone switch system, are housed and operated at the BBC Information call centre. The Audience Line centre is integrated into this infrastructure by a remote switch at its site. This common infrastructure means that telephone calls routed to BBC Audience Line can be switched to and handled by the BBC Information centre, and vice-versa, through the real-time configuration of their respective ACD systems. This permits appropriately trained staff at one call centre to assist their counterparts at the other site, by taking on excess calls arriving at the latter centre, when it is experiencing too great a surge in the volume of incoming calls.

6.2.2 Scale of call centre activity

The BBC Information centre is staffed by a hundred and twenty personnel. It is a medium-sized centre by industry standards (Datamonitor 1998). Its CSR staff handles

a diverse range of customer contacts on different channels (i.e. telephone, mail, email, fax and the internet). The inquiry and feedback services handled by the BBC Information centre cover all facets of the BBC's audience operations. This includes the programmes of main BBC TV and Radio channels, regional BBC TV stations, BBC Northern Ireland, BBC Scotland and Wales, BBC World Service, BBC Worldwide, as well as BBC Education. Inquiries regarding auxiliary service activities, such as BBC Reception Advice, and visits to the BBC Experience museum, are also handled. The BBC Information centre handles an average total of 1.5 million unsolicited contacts per year. This includes dealing with over 1 million phone-calls, 150,000 email messages, and 80,000 letters from audience members. The BBC Audience Line centre handles on average approximately 800,000 solicited contacts annually. The subject-matter of audience contacts received at BBC Information fall approximately into the following breakdown: 80% inquiries, 7% complaints, 11% comments, and 2% appreciation. The majority of inquiries are requests for information on television and radio output. The most common sources of complaints are late programming schedules or programme overruns, often connected with sporting events being broadcasted live.

6.2.3 Work organisation: customer interface

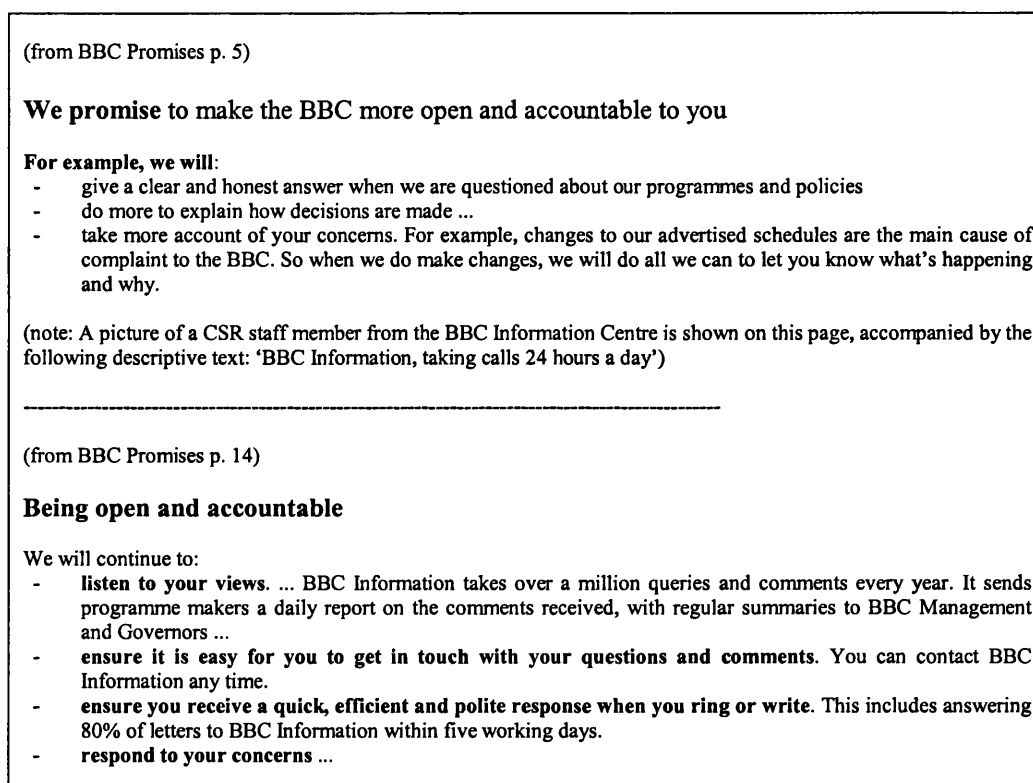
The CSRs at the BBC Information call centre are split into two workgroups. Six teams of around 9-10 agents, led by team-leaders, comprise the workgroup that handles the telephone calls. This telephone workgroup is managed by two supervisors, who each oversee three CSR teams. The CSRs on the telephone workgroup work on one of four 8-hour shifts that span the centre's 24-hour workday. The other workgroup consists of two teams of 16 CSRs. One supervisor manages this correspondence workgroup. These CSRs are responsible for handling email and lettered communications. Two operation managers direct the CSR workgroups. One of them, assisted by a deputy, oversees the administrative, IT-related and email handling work duties. The other operation manager directs the call handling and training operations. This manager is also responsible for coordinating with the London-based Customer Service Operations (CSO) department of the BBC (to be described later). The centre's computer systems are managed by a three-person IT team (a network manager, systems programmer and a telecommunications engineer), who also work closely with a two-person IT team at BBC Audience Line.

The CSRs make use of several software applications in dealing with customer contacts. The main application used is the 'CustomerQ' CRM (customer relationship management) database. This system is known throughout the centre and the BBC as the 'BBCQ'. Each call received at BBC Information is logged in the BBCQ system. CSRs record descriptive notes on the nature and outcome of each interaction with audience members. By restricting the size of the database field in which these notes are typed to around five lines of text (i.e. 100 character spaces), the centre's management has made it necessary for CSRs to carefully summarize the details of interactions. This restriction facilitates the daily reading and summarization of BBCQ audience interaction data into reports sent to BBC units, to be described later. In certain cases of audience contacts, such as serious complaints or literature requests, CSRs will record the name and contact details of the caller. Each record of an audience interaction is categorized as one of the following: comment, complaint, appreciation, fulfilment or enquiry. Other applications besides BBCQ are used as well. The Microsoft Outlook messaging system is used for quick dissemination, among CSR staff, of information and briefing-sheets pertaining to immediate or short-term events. The CSRs also use a browser to access information on the corporate intranet, and the company's huge internet website*.

The principle of accountability upheld by the BBC has a direct bearing on the inquiry and complaint-handling role of CSRs. Figure 10 depicts extracts from two pages of the recent 'BBC Promises' booklet (BBC, 2000) which illustrate this. In relation to inquiry handling, the CSRs' task is to convey the BBC's 'answer' to audience members when they contact the centre to request information or explanations. Their responses are not impromptu formulations. Answers to audience requests for information are typically taken off documents in the BBCQ system, Microsoft Outlook, the corporate intranet, or the company's internet web-site. Explanations in answer to inquiries about policies or complaints about programmes are also taken from those systems. These explanations provided to callers by CSRs are standardized accounts, prepared or vetted beforehand by the BBC Customer Service Operations (CSO) department. The Capita staff at BBC Information and the CSO staff are continually attempting to anticipate likely inquiries or reactions to TV and radio programmes by the public. They produce together carefully

* The BBC maintains an extensive repository of information on its internet site: over half-a-million web pages (reputedly the largest website in Europe). Known as BBC Online, this corpus of web pages supplies detailed information on the contents of broadcast output, and daily news and events. The audience-related information pages are jointly prepared and updated by the publications team of the BBC's CSO department, and by production staff from the various TV and radio programme making teams.

considered, documented explanations for issues or problems that may provoke audience inquiries or reactions. Much of this information is also made available for direct access by audience members on the BBC's internet site. From the experience of the wide range of audience inquiries that have been received at the BBC Information centre, a large amount of information resources, answering to this range of interests, has been made available on BBCQ, Outlook, the corporate intranet, and the BBC's internet site, for the CSRs to have recourse to in answering audience queries.



(Note: Bold font highlighting of text in the figure follows original formatting of text in the booklet)

Figure 10: Extracts from 'The BBC Promises to you 2000/2001' (BBC, 2000)

The actions of CSRs in response to audience complaints is tied to the nature of the complaint. Less serious or minor complaints, such as grievances about unanticipated changes in schedules or programme overruns, are logged by CSRs in BBCQ. The CSRs are typically equipped beforehand with explanations on such problems, since up-to-date information on scheduling changes, and other potential circumstances that may provoke complaints, are placed on the corporate intranet and the internet. The CSRs will thus provide irate callers with, or attempt to obtain from their superiors, the reasons for the rescheduled, postponed or cancelled program. They will also assure the callers that their

complaints will be passed on to relevant programme makers and scheduling staff, and that the BBC will do all that it can to minimize such disruptions in the future. The CSRs also typically seek to educate the callers on the way to find explanations for similar programme delays or rescheduling at the BBC's web-site. This is to encourage callers to obtain information directly from the web-site (without calling BBC Information) if such incidents recur in the future.

More serious complaints, involving perceived breaches in programme standards from editorial, ethical or moral standpoints, are also logged in BBCQ, and notes taken on the caller's grievances. The CSRs then mark the BBCQ records of such complaints with a 'need for follow-up action' comment. Callers are informed that their complaints have been noted, and that they will receive a response on the matter within 72 hours. These specially marked complaint records in BBCQ are then picked up and handled by the CSO editorial investigations team based in London (described in the next section). The CSRs have guidelines on the type of complaints to be directed to the editorial team. While having to deal sensitively with the circumstances of audience complaints, the CSRs are also under strict instructions not to indicate any subjective assessment, or approval/disapproval, of the viewpoints expressed by upset callers. The CSRs observe certain prescriptions and prohibitions of conduct during their interactions with callers. For instance, it is important that information provided by CSRs in reply to inquiries or criticism does not bias or privilege the views of one group above another. These precepts are derived from the BBC Service Guidelines. This publication, described by staff at the BBC Information centre as a 'bible', is used by the centre's management for establishing the standards and procedures of CSR work practices. The BBC Service Guidelines specifies various principles and rules for dealing with the public, including instructions for responding to inquiries from the press, and questions or objections from audience members regarding BBC programmes. The instructions are strictly observed by CSRs. The main reason for this is the need to prevent any controversy or legal action against the BBC on the basis of CSR responses to public inquiries or comment. The BBC is subject to regulatory requirements, set out in its Charter, and by government and public agencies, regarding standards of fairness, accuracy and impartiality in its work practices.

The CSRs at BBC Information observe prescribed targets for call handling. The targets apply equally to all CSRs, since calls are not distinguished by any particular categories. Individual performance targets are 2 minutes and 30 seconds for the length of call, and a 15-second ACW (after call work) time period. The target for the centre as a whole is 90% of calls answered within 20 seconds. Each CSR workstation is equipped with an electronic panel that displays relevant performance monitoring information, such as average time of call, number of calls answered etc. The supervisors take turns at monitoring the overall group and individual CSR performance, using a central computer that displays ACD performance-monitoring data.

The efforts of management staff at BBC Information display an overt emphasis on the achievement of high quality in CSR work outputs. These efforts extend beyond conventional monitoring activities based on ACD data and call-listening facilities. They include comprehensive daily checks, by supervisory staff, of BBCQ records on CSR audience interactions. In addition, a practice of peer auditing had been instituted among the CSR teams. This occurs regularly, two to three times a fortnight. Individual CSRs are given the task of evaluating several cases of audience interaction performed by their team members. They assess the BBCQ records of their colleagues in terms of actions carried out and the notes taken. The CSRs look for mistakes, from major faults such as wrong information being provided to callers, to minor faults such as incorrect grammar or spelling. Management sees these peer audits among the CSRs as promoting a culture of shared performance norms and information practices. The goal of monitoring efforts, stated by the Quality Officer in charge of coordinating them, is to promote consistently high standards in CSR work output. A primary reason for this explicit focus on quality is that it is a key aspect of performance Capita is contracted to fulfil, in its Outsourcing Service Level Agreement with the BBC. Management and recruitment staff at the BBC Information centre place high value on the attributes of general knowledge, intelligence and resourcefulness in the CSRs. Correspondingly, 95% of the centre's CSR staff are university graduates, an unusually high proportion by industry standards (Income Data Services 2000). The centre claims a low 5% staff turnover rate.

The role of CSRs at the BBC Audience Line centre, Glasgow, is more complex than those of their counterparts at BBC Information. These CSRs handle calls, invited from the public, regarding certain TV and radio programmes. Those programmes deal

typically with sensitive social or medically related issues (e.g. political dilemmas, rape, debt problems, cancer). They might also be programmes with a social action emphasis, tied to public campaigns (e.g. anti-smoking, obesity) by the government. Viewers and listeners usually contact BBC Audience Line for information on topics addressed in the programmes. The information seeking and presentation tasks of CSRs at that centre are thus 'narrow and deep', pertaining to specialist fields of social and medical knowledge, in contrast to the 'broad but shallow' information tasks at BBC Information. The BBC Audience Line's CSRs also frequently assume a semi-counselling role, assisting callers, often in a distressed or worried state, in finding local services or knowledge for coping with particular difficulties. The CSRs there, in contrast to those at BBC Information, are thus recruited for specialist subject knowledge and strong work experience. Over half have university degrees. Most had already worked in advice or counselling positions for 5-6 years, prior to being recruited to work at the BBC Audience Line. The experiences and competencies they bring from their previous backgrounds, spanning such areas as counselling, teaching, health, finance and employment services, are seen to be as crucial to the successful performance of their roles at BBC Audience Line, as the information resources they draw on from BBCQ and other systems.

6.2.4 Work organisation: corporate interface

If CSRs at BBC Information are unable to find information requested by callers, they inform the audience research team. The audience research team is responsible for getting and organising the information resources used by CSRs. The team obtains most of those through the aid of the BBC's Customer Service Operations (CSO) department, which oversees the operations of the BBC Information and Audience Line centres. The CSO department also serves as the primary link between the two centres and the rest of the BBC. This section will elaborate the work of the audience research team and the CSO department, whose activities together constitute the 'corporate interface' of the BBC Information centre. The role of the audience interface team will be described first, followed by that of the CSO department.

Besides acquiring information resources for CSRs, the audience research team is also responsible for creating periodic and ad-hoc reports for the CSO department and various other BBC units. The audience inquiries, comments or complaints in BBCQ are

used to create the reports. On a daily basis, the team members read and check through the day's records of contacts. Important comments or complaints regarding specific TV or radio programmes are selected and if necessary 'sanitized' (i.e. rewritten in a manner free from errors, ambiguity, inappropriate wording etc), and then compiled into reports by the research team. These daily feedback reports are subsequently made available to programme makers, and the production and scheduling managers of TV channels and radio stations. The corporate intranet is the main channel for distributing the reports. They provide recipients with an awareness of audience reactions, interests and needs.

Higher-level BBC managerial staff are also sent regular reports by the audience research team. These reports present audience contact information in summarized form, and some are tailored towards particular concerns. One of these summary reports, the 'audience issues' report, is seen to be especially significant. Created daily, it contains a listing and brief description of the top ten issues for which audience members have been contacting the BBC on a particular day. This report is not only distributed to the BBC's senior managers. More importantly, it is also sent to the BBC's board of governors. The board of governors is a set of supervisory but non-executive posts at the highest level of the organisation. It is held by prominent public members, elected by the Queen at each renewal of the Royal Charter. The latest Charter in 1996 had significantly redefined the board's duties. Its principal office is now 'to serve as guardians of the public interest', ensuring the BBC is properly responsive to its viewers and listeners (BBC, 1997). The audience issues report is held by the BBC management to play a vital part in upholding this accountability. These reports are a principal instrument used by the governors to monitor the organisation's compliance.

Another function of the audience research team, which the Capita management is currently focussed on developing, is an intelligence-gathering role. The research team has acquired a broad and detailed knowledge of the UK public's reactions to broadcast outputs. This knowledge derives from the considerable exposure to audience comments and criticisms, during their daily undertakings at summarizing BBCQ data into reports. The research team is currently involved in an ongoing effort to identify and 'profile' different segments of the BBC's TV and radio audiences, distinguished by their viewing or listening tastes in their reactions to broadcast contents. This knowledge, derived from information and statistical data in BBCQ, is conveyed to BBC corporate units, for use in

moulding their operations towards greater responsiveness to the audience. The audience research team has been providing significant advice to other units engaged in improving their resources on the BBC's web-site. Profiles of the interests and needs of various audience segments identified by the team have been used to inspire new and selectively geared forms of topical organisation and presentation of information at the web-site.

The BBC's CSO (Customer Service Operations) department plays a key role in facilitating the collaboration between the audience research team and other BBC units. This department is based at BBC Television House in London, a building from which much of the BBC's operations are managed. The CSO department's primary role is to prepare and assist the BBC Information centre's staff on all issues pertaining to their operations. The CSO organizes the transfer of information from other BBC corporate units to BBC Information, ensuring that CSRs are equipped with adequate and up-to-date information for responding to audience contacts. Certain CSO department staff also assist occasionally with audience inquiries that require a more informed response than what CSRs can offer. The CSO's management staff are also responsible for overseeing Capita's fulfilment of the contractual obligations of its outsourcing agreement.

The CSO organizes numerous briefings for staff at BBC Information. The main purpose of these briefings is to identify beforehand particular aspects of upcoming broadcast output that can be anticipated to stimulate inquiries, comments or complaints from audience members. Resource planning and preparation activities can thus be done, ensuring adequate readiness by the centre's staff. The briefings are held daily as well as in advance. A BBC team, based in the same building (i.e. Blackstaff House, Belfast) as BBC Information, meets every week with its management and audience research team, to inform them in advance of the television and radio broadcast operations scheduled for the following week. Similar two-day advance briefings are held everyday by CSO staff from London, who communicate with BBC Information staff in Belfast through video-conferencing sessions. These daily briefings provide updated information about subsequent broadcast operations as they draw closer. Finally, the centre's management staff also communicate with CSO staff in London three times throughout each workday by video-conferencing. These interactions enable CSO staff to update the centre's staff with finalized operational information or last-minute changes regarding programme schedules or contents. Correspondingly, the centre's staff use the sessions to inform

CSO staff of the emerging status and concerns of audience communications. Matters reported include the profile of ongoing contacts, issues requiring resolution, and any shortcomings in information resources. Altogether, the information flows, occurring daily between the BBC information centre, the CSO department and various BBC operational units, are strongly facilitated by the use of IT applications, such as shared network files, intranet web-pages, email messaging, and video-conferencing software.

The CSO department staff are divided into four workgroups: (i) the research and publications team; (ii) the editorial investigations team; (iii) the education team; and (iv) the reception advice team. The workgroups range in size from four to nine members. Each workgroup undertakes distinct functions in supporting the call centre's activities. The research and publications team is the main administrative link between the call centres and BBC units. Its members carry out the many BBC Information staff briefings described earlier. The team compiles information required by CSRs, placing most of it on the internet or intranet for them to access. The research and publications team also creates reports using BBCQ. One of these is an important monthly report in the line of the BBC's emphasis on accountability, placed on the internet for public access. This report describes the top ten audience complaints received at the BBC Information centre over the preceding month, and the actions taken in response.

The other three workgroups are specialist teams. The editorial investigations team consists of a group of very experienced employees, most of whom have worked with the BBC for above fifteen to twenty years. This experience is critical to their jobs. Their long work experience and first-hand understanding of the evolution of the BBC's operations has furnished them with a more sensitive appreciation of its current standards and policies. The team functions as an arbitral body, which interprets and polices the observance of certain programme making and broadcasting standards that the BBC has committed to upholding. These standards include the obligation for BBC programmes to be: unbiased in their content, presenting any controversial issues in a balanced way; fair to the people who participate in the programmes; fair in their representation of different social groups in UK society; and sensitive to the variety of tastes and beliefs held by different members of the audience. The team members actively monitor the programme material presented on BBC TV and radio channels, constantly 'reading' the environment of broadcasting output to ensure that these standards are being maintained.

The primary role of the editorial investigations team is to support the complaint-handling activities of the BBC Information centre. At a policy level, the team serves as an authority for explaining to audience members the BBC's particular 'line' on issues tied to their grievances. It also sets guidelines for the way CSRs respond to criticisms and complaints. At a practical level, the editorial investigations team members deal with the more serious complaints received at BBC Information. They access daily the BBCQ records of audience complaints that have been marked by CSRs as requiring a follow-up. They then act to resolve the complaints and communicate the associated response to the callers. The team members will undertake a detailed inquiry into the circumstances of complaints. Their substantial company background has afforded them the knowledge and assistance of appropriate persons for obtaining information, or initiating redress.

The resolution of most complaints involves sending a written formal explanation of relevant BBC policy and standards to the audience member concerned. In most cases, audience complaints are not upheld, after consideration of related circumstances by team members. The replies given to audience members explain that their views have been heard, but state firmly that the BBC does not agree, since the programme at 'fault' was found to have complied satisfactorily with its standards of programme making. The leader of the editorial investigations team emphasised that the BBC had strict standards of impartiality and accuracy to maintain, and that correspondingly, the 'subjective' complaints of individual viewers were usually seen to be not compatible with being fair to the mass body of viewers or listeners. The leader explained that the BBC's notion of accountability caters to a large audience, not to the individual viewer or listener.

Conventional customer service models give emphasis to pleasing the individual customer, as seen in the prevalence of 'the customer comes first' approach proclaimed in many organisations. In contrast, the BBC's service model is aimed at satisfying the needs or interests of the majority of its audience. Complaints had thus to be objectively assessed in terms of overall interests, and of universal ethical or moral standards. In the particular cases where a serious complaint is seen to be admissible, the investigation is handed over to the correspondence unit of the editorial investigations team to pursue. This unit will carry out a detailed inquiry. The case may also be brought to the notice of the BBC's Programme Complaints Unit, or the Broadcasting Standards Commission, an

independent statutory body. In such cases, the resolution of complaints may involve formal or public apologies, and measures instituted to prevent a recurrence.

The CSO education team supplies BBC Information with resources for meeting audience inquiries on the BBC's adult, university and school education programmes. This material is made available to CSRs through the intranet and internet. The team also handles calls involving in-depth inquiries the CSRs are unable to answer. The education team also coordinates the setup and maintenance, by TV and radio programme makers, of a large collection of education-related material on the BBC's internet site. One of the objectives in expanding this set of web-based educational resources is to ease CSR efforts at handling audience inquiries. When responding to education-related inquiries, the CSRs provide the callers with the specific web-site address in which the information is located, so that they can proceed directly to the site to find answers for future queries. The CSO reception advice team provides CSRs at BBC Information with daily details for handling simple queries regarding TV or radio reception, such as transmission times, temporary difficulties, and reception conditions (e.g. signal strength in certain regions). Technically complex inquiries or requests for assistance arriving are transferred by the CSRs to members of the reception advice team. The members of this team are trained technicians, able to solve complex reception problems and advice callers appropriately. They are equipped with advanced diagnostic software on their computers, used in the troubleshooting of reception difficulties. Their efforts, as well as those of the other CSO teams, thus provide significant support to the efforts of the BBC Information staff. The next section relates key challenges which have marked the BBC call centre operations under Capita's management.

6.2.5 Work performance: operational challenges

According to the project manager in the implementation of the BBC Information Centre, the scope of service duties performed by staff at that centre had largely been decided in the conception-planning stage of the project. The experience gained by the BBC from its long run of decentralized audience contact services prior to the inception of BBC Information had prepared its management with an understanding of the desired functions of the new centre, and the infrastructural support to be provided by the CSO department, needed to maintain its operations. These functions were specified

contractually by the BBC in its outsourcing agreement with Capita. The call centre was to serve as a single point of contact, on all matters, for BBC viewers and listeners. The focus of innovation in setting up centralized operations at BBC Information was thus not the creation of new services. Rather, the focus was on enhancing already existing services by centralisation, and more importantly, achieving a considerable improvement in performance. The outsourcing agreement thus emphasised service targets, against which the performance of the BBC Information centre could be measured each month, and any improvement evaluated.

The BBC set several primary objectives, and service performance targets, for the Capita management staff to fulfil in their running of operations at the two call centres. Since the BBC Information centre was the main focus of improvement for the BBC's audience contact operations, most of those objectives and targets applied specifically to that centre, in its handling of unsolicited contacts. The primary objectives set for BBC Information operations were: (1) to reduce the cost per contact of audience interactions; (2) to ensure a consistency of content and quality across all channels of communications (phone, fax, lettered and e-mail); (3) to help develop the BBC's public accountability; (4) to carry out an operational integration of the two call centres, so as to enable greater flexibility and speed of communication with TV and radio audiences; and lastly, (4) to institute one centralized contact management system across the BBC (i.e. BBCQ). The service level targets specified for BBC Information were: (1) to increase audience satisfaction levels from an average of 66% (under the previous operations) to 90% by July 2000, and to maintain this consistently after that; (2) to observe targets for length of call (i.e. average 2 mins 30 secs) and the speed of response (i.e. 90% of calls answered within 20 secs; written replies for mail/email made within 72 hours; literature requests fulfilled within 48 hours); and (3) to attain a quality of service that matched the 'high standards of excellence' of the BBC's core business of programme production and broadcasting. In contrast, no service level targets were set for the BBC Audience Line centre. No specific primary objective was set for the Audience Line operations either, as explained by its manager: only a general expectation to serve more of the audience within higher satisfaction levels at lower costs.

Since taking over the running of the BBC's audience contact operations in 1999, the Capita management has faced several challenges in meeting those various objectives

and operational targets just enumerated. These challenges, and the manner in which the centre's staff and the CSO department have responded to them, will be elaborated in the rest of this section. The unusual diversity and unpredictability of content typifying the contacts handled at BBC Information has been a major challenge. From the beginning, the centre's management and audience research team faced the problem of engineering the assembly of a detailed set of information resources for CSRs to cope with the gamut of audience inquiries. The web-based platforms of the internet and corporate intranet soon presented themselves as an attractive solution for organizing those resources in an accessible and searchable form. Moreover, audience members could be encouraged to self-seek on the internet. The audience research team thus collaborated with BBC units on the development of web-based resources to cope with audience inquiries. Ongoing requests are issued to BBC units to place information on the internet or intranet, tailored towards meeting the needs of audience groupings. This collaboration has acted as major catalyst for the growth of programme-related content on the BBC's internet site.

Another major challenge has been that of coping with an ever-swelling volume of email messages from audience members. Email traffic in 2000-01 registered a 300% increase over the previous year. The magnitude of this preference by audience members for email communication had not been foreseen. The BBC does not publish the email address of the BBC Information centre on any of its literature or web pages. The major portion (85%) of email messages received at the BBC Information come from audience members who visit the BBC website, and use the automatically generated and addressed email inquiry form available there. A rising portion of emails however, have begun to originate elsewhere. The corresponding increase in expenditure of effort and resources for coping with the burgeoning email volumes had over time provoked growing concern among the Capita and CSO management. The strong rise in email traffic was seen, as stated by the director of the CSO department, to pose a key problem for maintaining the centre's operational efficiency and minimising its running costs. This concern had led to the formulation and implementation of a scheme of economising, in the middle of the preceding year, that was aimed at containing the expanding commitment.

This economising process had involved reducing the length of email replies by CSRs to audience members, to the minimal required response. It has been introduced in a gradual manner. Initially, CSRs used to reply to an email inquiry from an audience

member with a detailed explanation of the information needed, along with the attached web-page from the BBC's internet site that addressed that general topic of inquiry. At a subsequent period, the CSRs were directed to modify their form of reply. The procedure of formulating a response was changed to copying only the required information from off the web page and pasting it directly onto the email reply. Part of the contents of the reply messages were also copied from a set of generic templates. Eventually, a further change was introduced. Currently, in replying to email inquiries, CSRs merely send the URL address of the web page containing the desired information. The incremental manner of this alteration, according to the CSO's customer services coordinator, has been to 'break them [audience members] in slowly' to the abridged format of replies, in order to diminish the possibility of any adverse effects on customer service satisfaction levels, which is a key management concern. The services coordinator is monitoring the audience's responses to these changes. He asserted that their reactions may not show up directly or immediately, but may be mixed up in an 'undertow' of opinion.

Similar efforts at economising have also materialised in other aspects of CSR work practice, related to email or lettered responses. An example of this involves replies sent out in response to messages of appreciation by audience members. Such messages typically involve the mention of a certain programme and which aspects of it the viewer or listener has notably liked. At an earlier period of operations, the replies directed of CSRs in response to such messages had been more personal in tone, and particularized towards acknowledging the individual's respective comments and reactions. With the growth in message volumes, however, this practice was changed. Currently, the practice is to reply with a standard brief message, that says nothing more than: "thank you for your message, we're glad you enjoyed our programme." No mention is made of the specific programme the user had favoured, or the particular details that had pleased. This standard, catholic form of reply is deemed to suffice for imparting to the senders a sense of acknowledgement for their comments. A repertoire of standardised message replies for responding to complaints and comments has also been formulated. Such measures are seen as imperative for meeting speed of response targets and cost-cutting objectives.

The reduction of BBC Information's operating costs is a key challenge for the BBC management, in the light of an unanticipated trend of continuously rising volumes

of call and e/mail contacts. These costs are fully borne by the BBC. Audience members are not charged for utilizing the centre's services; they only bear the cost of phonecalls or postage. In formulating a long-term strategy to minimize these costs, the CSO's management has turned to the internet as a solution. This strategy involves treating the BBC's internet site as more than just a receptacle of information resources for supporting CSR efforts. Considerable effort is being devoted by the CSO department to transforming that site into a surrogate contact centre, in which audience-members can find information to satisfy their queries, as well as provide feedback such as complaints and comments through structured email forms. The possibilities of using automatic reply-generation software tools in the future, to create automatic responses to audience comments that have been submitted through email forms at the BBC website, is being considered. The aim is to reduce the need to contact BBC Information.

The linchpin of this strategy is the notion of 'educating the public to self-serve'. This process of 'education' involves overt measures, such as having the CSRs at BBC Information provide callers with instructions on obtaining the information themselves from the BBC's web-site. It has also taken a more transparent form. Staff from the CSO's publications team are seeking ways to exploit the design of interactive features in web pages. One of the desired effects is to manipulate the amount of information provided so that it is sufficient to progressively 'lure' audience members into learning more and more details about the BBC programmes that interest them, the ignorance of which might otherwise be an inducement to call up the centre. The design of interactive features are being aimed at making the site's resources easy to navigate and yielding of 'rich' information, so that audience members will be attracted and eventually habituated to fulfilling their information needs through the internet. In all, the aim of these efforts at 'educating' the audience members is, as the director of the CSO department claimed, to cultivate in them 'less dependency on free rides in a Rolls-Royce' (i.e. to have the audience members make less use of the 'free' services at BBC Information).

The efforts of CSRs and the CSO's reception advice team, in providing effective assistance to callers faced with reception difficulties, have been hindered by a particular difficulty. This is tied to the growing adoption of digital televisions by people in the UK, since their introduction in the 1990s. A digital television experiencing a problem typically gives only two indications – either a blank or a wavy screen. Both of these

symptoms might stand for a variety of causes. Most of those causes have nothing to do with broadcast reception conditions, but with the way the technician that installed it had configured the TV. When callers ring about problems with digital TVs, the CSRs or the reception team members have to question them in detail about technical information related to the TV's configuration. This usually takes up a lot of time as callers search around for the information. In contrast, analogue TVs experiencing problems will display a wide range of specific symptoms on their screens, making it much easier to identify causes of problems. The reception advice team is seeking to diminish the expenditure of time and effort used to solve digital TV reception problems by providing detailed information on the BBC website (to 'educate' audience members, as explained by the team's leader). The information is presented in easily digested and downloadable formats, such as fact sheets, FAQ sheets and diagnostic flow-charts. It is meant to enable audience members facing problems on their digital TVs to either self-solve their problems or be better prepared with available information when ringing the BBC centre for help with diagnosing those problems.

Capita has been facing significant difficulties in the task of integrating audience contact operations at BBC Information in Belfast with those at BBC Audience Line in Glasgow. In accordance with the outsourcing agreement, the two centres are part of the same virtual or logical operation, being integrated via their technological infrastructure. Calls arriving at either centre can be diverted to and handled by staff at the other. The reason the BBC's insistence on the centres' integration was to enable BBC Information to provide back up or reserve resources for Audience Line operations on a daily basis. This coverage is needed for coping with unusual or peak time call overflows faced at the Audience Line centre. It is also essential for maintaining operational resilience, in the event that one of the centres is put out of operation by a major calamity or disaster.

The necessity for BBC Information to provide back-up coverage for Audience Line has to do with the usual patterns of incoming call traffic dealt with at each centre. The normal pattern of call traffic at the BBC Audience Line centre is one of excessive variation, characterized by high peaks and deep troughs. These alternating periods of heavy and light call volumes are the result of audience-members contacting the centre en masse, in reaction to specific media programmes being broadcasted. For example, an emotive topic (e.g. domestic violence) being discussed on a particular radio programme

in the morning could trigger a rocketing in call volumes experienced at the Audience Line centre during the afternoon. On the other hand, the pattern of call traffic handled at the BBC Information centre is much more uniform and unvarying. Increases and dips in call volumes are relatively shallow in comparison with those at the BBC Audience Line centre. As a result of these differing traffic patterns, a round average of 15,000 calls per month are 'lost' at BBC Audience Line (i.e. callers hanging up rather than waiting for an extended period of time for CSRs to answer), compared to an average of 500 per month at BBC Information. The BBC had thus intended the operational integration of the two centres to enable a reduction in this extreme disparity in lost calls. However, the attempt to have CSR staff at BBC Information step in and help to address the frequent call volume overflows at BBC Audience Line has been hampered by certain problems. These problems are mainly due to technology differences, CSR training differences, and reasons of performance management. These reasons are elaborated next.

The complex infrastructure uniting the computer network and telephony systems at BBC Information with those at BBC Audience Line is composed of numerous sub-components, manufactured by several different companies. Due to differences in make, they are not all fully compatible in every respect. The incompatibilities have forestalled, at an infrastructural level, the complete and disruption-free integration of 'virtual call centre' functionality between the two centres. Technical problems have occurred mainly at the remote switch end in Glasgow. A human factor compounded at an early stage the difficulties of the centres' technology staff in solving these problems. The staff consist of IT-trained and telecommunications-trained personnel. At the start of collaboration, each group had to adapt to the other's distinctive tradition of engineering knowledge. For instance, telecommunications staff had no notion of a 'life-cycle', the conceptual framework which underpins the organisation of IT software projects. Likewise, the IT staff had to learn the unfamiliar workings and terminology of telephony systems. These initial hurdles have mostly been overcome. However, the technology staff continue to work on reducing the occurrence of problems triggered by component mal-adaptation. These problems have occasionally disrupted the communications link between the two centres, temporarily impeding the reinforcement efforts of the CSR staff at Belfast.

Another factor that has impeded the operational integration of BBC Information and Audience Line is the difference in CSR skill bases. As described earlier, the CSRs

at the BBC Audience Line centre are semi-specialists in particular subject areas, and possess counselling skills. Efforts have been made to cross-train several capable CSRs at BBC Information in the duties and skills of their colleagues at Glasgow. These CSRs have been able to assist, to a certain extent, in handling the excess volume of calls at BBC Audience Line. The skill bases of these cross-trained CSRs however, are still not fully compatible with handling diverted calls that require more specialist knowledge. Much of the competence possessed by the BBC Audience Line's CSRs is tacit, rooted in their significant backgrounds of work experience in specific fields. An arrangement has been introduced to redress this skill disparity. Selected CSRs from BBC Information have been transferred to work at BBC Audience Line for short periods. The working partnerships that have developed between CSRs from both sites has facilitated transfers of knowledge through exchange and sharing.

The primary obstacle to the integration of the call centre operations however, as perceived by managerial staff of the BBC's CSO department, has been the priorities of Capita's management staff. This problem, ironically, from the viewpoint of the BBC Audience Line manager, is seen to be tied directly to the way the BBC has 'measured performance' in its outsourcing contract with Capita. The principal performance targets Capita has been required to maintain, for the length of call and speed of response, apply only to call handling activity at BBC Information. The reason the BBC had excluded the service activities at BBC Audience Line from liability to those performance targets lies in the difference between solicited and unsolicited contacts. The typical nature of audience transactions, such as inquiries, comments or complaints, that arrive at BBC Information, allows for their resolution at a quick pace of turnover. However, the calls handled at BBC Audience Line do not fit such a mould. They often involve requests by audience members for assistance with socially sensitive issues. The altruistic nature of associated CSR responses was thus seen to rule out the contractual imposition of a rigid target for length of call. CSRs can take as long as thirty minutes to assist a caller and resolve the interaction in such cases.

The way performance targets are specified in the outsourcing contract, however, has provided Capita with a reason (or 'excuse', as perceived by the CSO management) for giving foremost priority to handling the calls arriving at BBC Information. Since it is imperative that call handling activity at BBC Information keeps within the specified

parameters for length of call and speed of response, management staff at that centre are not very inclined or motivated to subject their CSRs to calls intended for the Audience Line centre, which usually take much longer response times. Correspondingly, Capita has attached less importance to BBC Information's responsibility for absorbing the call overflows at BBC Audience Line. The contractual formulation of performance has thus provided Capita with an apparent rationale for keeping operations at both call centres separate, rather than focussing on integrating them.

A related performance management issue that may also have predisposed Capita to giving a lower priority towards integration than desired by the CSO department, has to do with the work culture of the staff at BBC Audience Line. The Capita management has been finding it a challenge to generate higher productivity levels from these staff members. An intention by Capita to introduce a fixed target for length of call, when they first took over management of Audience Line operations, had been met with strong opposition from its staff. The Audience Line staff have traditionally viewed their role as a public service, empowering the callers to better their lives or find solutions to their problems. They were resistant to the length of call restriction as it was seen to curb their ability to respond effectively. The CSRs at Audience Line currently observe an overall speed of response target (85% of calls within 20 seconds), but no formal target for the length of call.

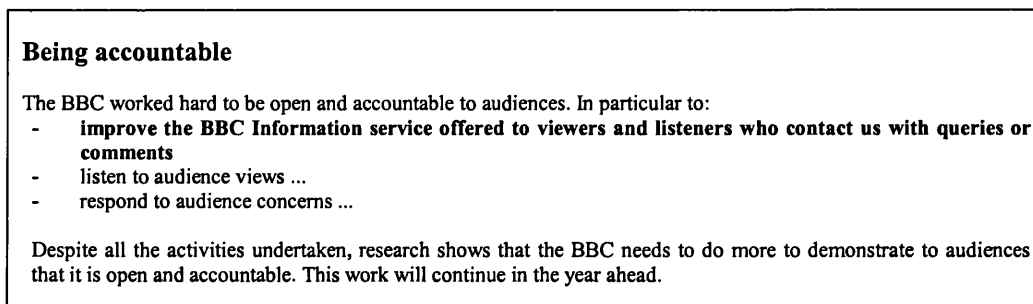
The CSO management staff have been attempting to steer Capita management staff at BBC Information towards complying with the BBC's perception of performance responsibilities implied in the stipulations of the outsourcing contract. A consensus has formed among the CSO management that the basic problem with Capita's running of the BBC Information centre's operations is their 'customer care model'. The approach to customer service applied by Capita staff at BBC Information assigns a high priority to pleasing individual audience members, and establishing strong relationships with them. The BBC however, as emphasized by the CSO's director, approaches customer service performance along very different lines. The BBC aims to be accountable to its audience as a whole, rather than to tailor its approach to individual views or concerns. This difference in service emphasis is evident in the shortcomings attributed to work efforts at BBC Information by the CSO's deputy manager. This manager is responsible for coordinating with Capita management staff on the operations of BBC Information,

and supervising its output. She identified two main areas in which the performance of the centre's CSRs need to be improved. Firstly, the CSRs have been seen to be spending too much time in friendly interaction with audience members over the phone, chatting immoderately on the caller's concerns, and engaging too often in 'unnecessary' banter. She sees these practices as incompatible with the BBC's cost-cutting focus.

Secondly, the deputy manager claimed that the CSRs had to learn to be more discerning of what callers were 'truly saying'. Hypothetically, for instance, an audience member may have phoned to voice what might have appeared to be a complaint about a TV programme that had hosted a discussion on a specific UK government policy. However, the underlying intention may have been otherwise. For example, the caller's real motive might have been to register disapproval at the BBC's airing of too many programmes that promoted the Labour Party's political viewpoints, in opposition to those of the Conservative Party; or vice-versa, depending on the caller's affiliations. The CSRs had thus to be more perceptive in their reporting of audience comments, when noting them in BBCQ records. That would contribute to more instructive feedback in the BBCQ system, and to the BBC's efforts to read the impact of its broadcasting activity on its audience. In addition, the discernment of CSRs had also to be extended to being able to discriminate whether comments or complaints made by callers were 'valid' (i.e. reasonable and credible), and relevant to the BBC. For instance, callers might phone to assert a racist viewpoint, or raise an improper allegation or comment. She saw such audience remarks as not worth recording in the BBCQ system. The deputy manager is currently working with Capita staff at BBC Information to rectify these shortcomings.

On the whole however, in spite of disagreements over its priorities and certain shortcomings in its working practices, Capita is perceived by the BBC to be performing credibly. The service efforts of BBC Information staff had resulted in a 92% customer satisfaction score, during the recent quarterly BBC viewer and listener survey (i.e. Jan-Mar, 2001). This score represents a significant improvement over the BBC's audience contact operations a decade ago. It also meets the outsourcing contractual stipulations, although not to the full extent in the CSO's viewpoint. BBC Information's management staff is presently focused on building the centre's staff and information resources, to match the concomitant growth in the range and complexity of audience inquiries. The CSO department is continuing to develop new and available means to realise the BBC's

pledge to be more open and accountable to its audience. The CSO management staff are working to improve the BBC Information services. The BBC considers it a critical need to devote more effort to addressing concerns with accountability, as audience data gathered in recent surveys indicates the public is not adequately convinced of its efforts in this arena. This is also acknowledged in the 'BBC Promises' booklet, as shown in Figure 11.



(Note: Bold font highlighting of text in the figure follows original formatting of text in the booklet)

Figure 11: Extract from 'The BBC Promises to you 2000/2001', page 20

6.3 Analysis of BBC call centre operations

This section presents a sociotechnical systems analysis of the BBC call centre operations described in the previous sections, using the concepts and analytical tools of the systemic appreciation framework. The focus is on elucidating the employment of IT based work operations at the BBC Information centre. The analytical descriptions and discussion occurs in two stages. First, the micro NPs and macro NP, which correspond to output from the pre-figuration phase of analysis (i.e. mimesis₁) are described (section 6.3.1). Subsequently, the main results of the analysis are presented (i.e. corresponding to the mimesis₂ phase). The employment of IT based operations at the BBC Information centre is elaborated (section 6.3.2), from a sociotechnical systems perspective.

6.3.1 Preliminary understanding from NP analysis

From an analysis of the data gathered on work organisation and performance at the BBC Information centre, seven micro narrative programs were identified in addition

to the macro narrative program. The seven micro NPs fall into two categories: those that pertain primarily to the centre's corporate interface, and those which relate mainly to its customer interface. The macro narrative program (NP-0) relates to the establishment and performance of effective audience contact operations for the BBC. This covers the BBC Information centre's operations, and the associated outsourced management of the BBC customer contact activities by Capita. The macro NP will be elaborated at a later stage.

Micro NPs at the corporate interface

The structuring of work organisation and performance at the corporate interface of the BBC Information call centre may be characterised by four micro NPs (NP-I to NP-IV). The numbering of these NPs (i.e. I, II, III etc) is not meant to imply any particular order of significance or hierarchy. These micro NPs will be elaborated next. The key boundary qualifications characterising the associated transformation of each micro NP will be highlighted, along with salient aspects of legitimisation, motivation or power. The summary details, actantial elements and boundary qualifications of each NP will be shown in an accompanying table, to aid the elaborations.

NP-I is concerned with improvement in the transmission of audience feedback to the BBC's senior management (shown in Table 8.1). This micro NP designates a key course of action in the BBC's drive towards greater accountability towards its audience. Its aim is the establishment of a systematic process for channelling audience feedback to senior management staff and the board of governors. The strong emphasis on public accountability introduced by the 1996 Royal Charter is a key factor (in its sender-actant position) that has legitimised the undertaking of this NP. This notion of accountability is conditioned by the institution of 'public service broadcasting', which, among other principles, encompasses the ideal of fair and equitable treatment towards the interests of the whole audience. During the period of decentralised audience contact activities prior to the setup of the BBC Information centre, audience feedback was perceived by the BBC's management to have been not been handled in a consistent manner at regional sites. Some of that information had filtered back to management staff in corporate units, but the remainder was unshared and discounted. The need to repair this inadequate state of accountability has led to this NP. The contractual stipulations for Capita institute a

centralised contact management system and improve the BBC's public accountability are other key factors regulating its progress.

NP-I Improving audience feedback to senior BBC management	
Transformation:	From decentralised and less formally managed channels of audience feedback to centralised, formally managed and standardised channels of audience feedback
Actantial Framing	Sender: 1996 Royal Charter; social institution of 'public service broadcasting'; outsourcing contract stipulations
	Subject: BBC Information staff; CSO staff
	Object/Value: systematic and high-quality feedback from entire audience
	Auxiliary: single point of contact (one phone no. for BBC Information); CSR peer audit quality-monitoring practice; regular BBCQ summary reports to senior management; daily 'audience issues' report to board of governors; restriction in size of BBCQ field (100 chr. spcs) in which CSRs enter notes on interaction; standardised procedure for CSR treatment of complaints, depending on seriousness, and use of BBCQ to pass more serious complaints to the editorial investigations team for handling; corporate intranet for feedback distribution
	Opponent: shortcomings in CSR reporting practices (inaccurate, undiscerning)
Boundary Qualifications:	Related to collection and distribution of audience feedback information: inconsistency vs. consistency; complexity vs. normalisation

Table 8.1: NP-I at the corporate interface

The BBCQ-based procedures formulated for complaint-handling by CSRs and the editorial team are instances of standard routines instituted to support the uniform treatment and delivery of audience views to the BBC's senior management, consonant with the upholding of public accountability. The peer audit based quality-monitoring practice among CSRs at BBC Information also reflects ongoing effort towards infusing shared norms of consistency and standardisation in information-reporting practices. However, factors that may be seen to be impeding this NP's progress at present include the shortcomings identified in the reporting of audience comments by CSRs at BBC Information, as noted by the CSO department's deputy manager. A major boundary qualification in this NP's unfolding may thus be seen as: 'inconsistency vs. consistency' – reflected by the shift from inconsistent or uncoordinated feedback collection efforts towards consistency. The daily summarisation of BBCQ data into management reports by the audience research team, aided by the restriction in the size of the BBCQ database field where audience interaction notes are entered, and the selective handling of more serious complaints by the editorial investigations team (through BBCQ records), are work practices that have been introduced for dealing with the complexity posed by the quantity of audience comments and complaints. The compilation into summary reports,

which present senior management staff with integrated and prioritised data on comments and complaints by callers, represents an attempt to reduce or 'normalise' the complexity of this large-scale information feedback environment. Correspondingly, another boundary qualification underlying this NP's transformation may be said to be: 'complexity vs. normalisation' – pertaining to the IT based efforts to organise, in a consistent and standardised manner, the collection of audience feedback and its distribution to senior BBC management.

NP-II Improving BBC programme makers' understanding of audience	
Transformation:	From fragmented, poorly shared understanding of audience tastes and interests (in former decentralised operations), to manipulation of centralised pool of feedback data affording shared understanding among programme makers
Actantial Framing	Sender: escalated competitive environment; expectations from BBC management to win and maintain audience loyalty
	Subject: BBC Information staff; audience research team
	ObjectValue: clearer and more sensitive understanding of audience needs and interests
	Auxiliary: CSR compilation of audience contact information in BBCQ; summarisation of BBCQ data by audience research team; daily BBCQ audience feedback reports sent to programme makers; corporate intranet as distribution channel; 'intelligence' gathering function of audience research team, in profiling audience segments; Capita's customer service model
	Opponent: CSR report shortcomings (inaccurate, undiscerning); conflict between public service and commercial interests
Boundary Qualifications:	Related to collection, manipulation and utilisation of audience feedback data: re-individualised vs. collectivised; tailorsisation vs. pluralism

Table 8.2: NP-II at the corporate interface

NP-II is concerned with improvement in the understanding of BBC programme makers regarding audience tastes and interests (shown in Table 8.2). The transformation being wrought is increased sharing of information, and improved understanding among BBC programme makers, regarding audience tastes and interests, through the use and manipulation of a centralised database of feedback information. The adverse alteration in the BBC's competitive environment during the 1990s is a key circumstance that has invoked this NP. Greater understanding among BBC TV and radio producers regarding audience tastes is seen as vital for enabling them to better serve the needs, and thus secure the loyalty, of viewers and listeners. The BBCQ system and the company's intranet, by providing mechanisms for the accumulation, arrangement, reporting and distribution of audience feedback, are key tools being used to support the achievement of this NP. Other significant factors occupying the auxiliary-actant position are related

to the intelligence-gathering efforts of the audience research team. These include the daily reports of comments and complaints compiled from BBCQ and sent to programme makers, as well as advice given to BBC production staff involved in the creation and development of programme-related information resources on the BBC internet site. A major boundary qualification that may thus be cited in this NP's transformation is: 'collectivisation vs. re-individualisation' – as reflected by the efforts of the centre's staff to shift from a general, indistinct perception of audience reactions to a more specific awareness of the interests and tastes of individual segments, differentiated by age range, geographical region etc (i.e.).

At the same time, the scope and value of the efforts of the audience research team and the CSRs at BBC Information may be said to be dependent on the outcome of an underlying conflict in the BBC's current operations. This conflict involves a choice between adopting a more commercially oriented broadcasting model, in which TV and radio programme production would be determined by market forces (i.e. selectively geared to the tastes of particular segments of the audience), or maintaining the company's traditional public service broadcasting model, in which media production is governed by enlightened ideals that take into account an understanding of the needs of the broad audience of viewers and listeners. A key boundary qualification at stake here may thus be said to be: 'tailorisation vs. pluralism' – pertaining to ongoing negotiation among stakeholders on the degree to which BBC programme makers should take into account the increasingly accessible audience complaints and feedback (facilitated by the use of BBCQ), and thus tailor their production efforts towards the interests of particular audience segments, rather than to continue to cater as fairly as possible, according to public service dictates, to the tastes of a wide range of viewers and listeners.

The subject-actant in NP-III is the CSO department. This micro NP (shown in Table 8.3) concerns the improvement of the compatibility of Capita as a working partner for the BBC's customer service efforts. The transformation being undertaken is for Capita staff at BBC Information to change from their present commercially oriented customer service model to the public service broadcasting model advocated by the CSO department's management staff. The CSO management staff are attempting to influence the Capita staff at the BBC Information centre to conform with their perspective and values on work organisation and performance. Their aim is not only to steer Capita staff

towards providing a service operation consonant with the BBC's strategic goals (e.g. increased public accountability), but also to have those staff maintain the BBC's public service tenets while dealing with members of audience. The strong cultural commitment evinced by the CSO's management and operational staff to the social institution of public service broadcasting constitutes the motivation for this effort.

NP-III Improvement of Capita's compatibility as a service partner	
Transformation:	From low cultural integration between Capita and BBC (through incompatible customer service models) to high cultural integration (through having the same customer service model)
Actantial Framing	Sender: social institution of 'public service broadcasting'; CSO corporate culture
	Subject: CSO management staff
	Object/Value: conformance of Capita's service model to BBC's traditional public service model
	Auxiliary: contractual legitimacy in applying political pressure on Capita; frequent and daily interaction between CSO and Capita staff (video-conferencing, email, phone)
	Opponent: Capita's customer service model; flaws in CSR information practices (i.e. inaccurate or undiscerning reports, and interacting unnecessarily with callers); latitude of interpretation afforded by outsourcing contractual stipulations for Capita to pursue their goals; value of Capita's customer service model to rest of BBC in providing information on tastes of different audience segments (NP-II); value of Capita's service model in heightened competitive environment
Boundary Qualifications:	Related to perspective and values regarding work organisation and performance: non-conformity vs. conformity

Table 8.3: NP-III at the Corporate Interface

The formulation of the BBC's outsourcing contract with Capita is a key factor in the opponent-actant position determining the outcome of NP-III. The power of the CSO management staff to effect the conformance of the Capita management staff is limited. The interpretive latitude afforded by the contractual stipulations of primary objectives and targets permit Capita legally to maintain its own work culture and customer service model. The value of their approach is also sanctioned by the benefits it has bought to BBC programme production staff, in an environment of increased competitive intensity. A key boundary qualification being negotiated in this NP's transformation may thus be said to be: 'non-conformity vs. conformity' – as seen in the attempt by the CSO staff to shift the degree to which Capita staff are conforming to the public service model which they strongly advocate.

NP-IV is concerned with the functional unity between the operations of the BBC Information centre and the BBC Audience Line centre (Table 8.4). The transformation

being undertaken is a smooth integration between service operations in the two centres, at both the technology infrastructure and the organisational levels. The desired aim (i.e. object-value actant) is for BBC Information to supply adequate supplementary or back-up staff resources for the Audience Line, during routine call volume overflows, or in the event of a crippling disaster being experienced at that centre. Factors in support of this NP's achievement include temporary transfers of several BBC Information staff to the Audience Line centre, and an improvement in the reconciling of the public service broadcasting model and the commercial customer service models (although a lack of improvement in that compatibility can also work to its detriment). Factors occupying the opponent-actant position in NP-IV include a pronounced disparity in normal call traffic patterns between the centres, problems with the integration of technological components, differences in CSR skill bases, Capita's problems with increasing the productivity of staff at the BBC Audience Line centre, and the priorities of Capita's management staff in fulfilling contractual obligations regarding performance targets at BBC Information.

NP-IV		Achieving the functional unity of BBC Information and Audience Line operations
Transformation:		From separate, disconnected service operations to infrastructural integration and inter-supportive service operations
Actantial Framing	Sender:	outsourcing contract; CSO management
	Subject:	Capita management staff
	ObjectValue:	Effective back-up and support by BBC Information to BBC Audience Line
	Auxiliary:	common communications/technology infrastructure; temporary transfer of selected BBC Information CSRs to Audience Line for training and knowledge transfer; improvement of partnership between the CSO and Capita (NP-III)
	Opponent:	strong disparity in call traffic patterns; sub-component mal-adaptation in technology infrastructure; differences in CSR skill/experience bases; problems with 'productivity' of Audience Line staff; Capita's priorities in performance management; lack of improvement in the service partnership between the CSO department and Capita (i.e. failure of NP-III)
Boundary Qualifications:		Related to fulfilment of contractual obligation to actively integrate operations at the two centres: adaptation vs. compliance

Table 8.4: NP-IV at the corporate interface

The last of those factors is an important determinant of the outcome of this NP. It relates to the motivation of Capita management (i.e. the subject-actant) for achieving this NP's aim (i.e. object-value actant). This motivation is significantly weakened by the need to meet the performance targets stipulated for the BBC Information centre in

the outsourcing contract. The need to maintain these targets gives Capita a reason to separate the operations of the two centres, as their active integration is likely to degrade performance levels at BBC Information. Thus, a boundary qualification involved in this transformation may be said to be: ‘adaptation vs. compliance’ – reflected in negotiation between the BBC and Capita over the degree to which Capita’s management continues to adapt its interpretation of the contractual stipulations as a rationale for foregoing the full extent of the operational integration of the two centres, and the degree to which it will comply with the BBC’s requirements for implementing that integration in a complete and effective manner.

Micro NPs at the customer interface

The structuring of work organisation and performance at the customer interface of the BBC Information call centre is characterized by three micro NPs (NP-V to NP-VII), described next. NP-V pertains to the efforts of the management staff and audience research team at the BBC Information centre, as well as the CSO department’s staff, to raise audience satisfaction levels, by improving the information and feedback facilities provided to audience members at the BBC Information centre (seen in Table 9.1). This NP is central to the overall undertaking of work activities at the centre. Its aim is high satisfaction among audience members regarding the BBC’s customer service provision efforts. The recently heightened drive in the BBC towards public accountability, and the contractual stipulations that Capita’s staff are bound by, are key factors in this NP’s sender-actant position.

The undertaking of NP-V is supported by such factors as: the production of standardised explanations and detailed information resources, and their storage on the various IT applications used at BBC Information; as well as particular work practices such as the peer audit quality-monitoring activities among CSRs, and the very frequent, regular briefings (facilitated by video-conferencing technology) between Capita and CSO staff. Impedances to the smooth achievement of NP-V amount from such factors as: the elaborate range of audience inquiries and issues dealt with; the large and complex stakeholder environment in which service operations are undertaken (i.e. expectations from a range of audiences; government and private bodies); shortcomings in CSR work performance; the legal and normative observances arising from the BBC’s

regulatory standards that restrict the responses of CSRs, such that audience members may not be fully convinced that their interests are being listened to; and an underlying conflict between the CSO department's upholding of public service ideals and Capita's inherent status as a commercial operation.

NP-V Increasing audience satisfaction levels	
Transformation:	From inconsistent and less organized inquiry and complaint handling resources provided to the public to effective, consistent and well-organized inquiry and complaint handling facilities
Actantial Framing	Sender: increased BBC emphasis on public accountability; audience expectations; (outsourcing) contract stipulations
	Subject: management staff and audience research team at BBC Information; CSO management staff and teams
	ObjectValue: high customer satisfaction level
	Auxiliary: consistency of standardised explanations to audience members (vetted by CSO dept); compilation of wide range of information resources on BBCQ, Outlook, intranet and internet, for responding to customer inquiries; CSR peer audit quality-monitoring practices; frequent briefings between Capita and CSO staff
	Opponent: complexity of audience inquiries, and responses to broadcasting output; complex stakeholder environment; restrictions stipulated by standards and principles in BBC Service Guidelines; complexity of trouble-shooting digital TV reception problems; shortcomings in CSR information practices (i.e. inaccurate or undiscerning feedback reporting, and interacting 'unnecessarily' with callers); conflict between the social institution of 'public service broadcasting' and the social institution of 'customer focus' (central to the commercial customer service model); audience members are not convinced about BBC's level of accountability
Boundary Qualifications:	Related to dealing with audience inquiries, complaints, complaints and feedback: variance vs. standardisation; deference vs. self-determination; solidarity vs. detachment

Table 9.1: NP-V at the customer interface

Several boundary qualifications may be perceived in the ongoing transformation represented by NP-V. One of these may be said to be: 'variance vs. standardisation' – as reflected by the effort, in centralising the BBC's customer contact operations, to provide its audience members with standardised and consistent explanatory information that was unavailable during decentralised operations in the past. Another boundary qualification to be cited is 'deference vs. self-determination'. This relates to the responses provided by the CSRs and the editorial investigation team in dealing with audience complaints and comments. The BBC, in its drive towards greater accountability, is faced with the problem of determining to what degree it must show deference to these subjective assessments of audience members, and the degree to which it should preserve its right

of self-determining its own evaluations and standards as an objective neutral party, representing the interests of all of its viewers and listeners.

This problem may be seen as involving a conflict between the social institution of 'customer focus' (Bjorn-Andersen and Turner, 1998; Preece, 1995), which seeks to demonstrate support for individual or group audience viewpoints as a means of winning their loyalty as customers, and the social institution of 'public service broadcasting' (Broadcasting Research Unit, 1985), which promotes objective disinterestedness and detachment with regard to the views or interests of particular individuals and groups. The BBC's concern over the results of recent surveys, that have indicated that audience members are not sufficiently convinced of its efforts at increasing its accountability, reflects this contention. Another key boundary qualification may thus be derived from this conflict is: 'solidarity vs. detachment'. This is mirrored in the CSO deputy manager's evaluation of CSRs as engaging too often in unnecessary chatter with callers on the phone. From the customer relationship-building viewpoint of Capita, such chatting or informal banter is essential for establishing solidarity with audience members, and gaining their loyalty, so as to increase their levels of satisfaction with the centre's services.

NP-VI Reducing audience contact volumes	
Transformation:	From high, increasing audience contact volumes to moderate or lower contact volumes
Actantial Framing	Sender: social institution of 'operational efficiency'; cost-reduction pressures
	Subject: CSO management staff
	ObjectValue: prevalent, heightened audience orientation towards self-servicing their information and feedback needs
	Auxiliary: CSRs instructing callers in how to find the information on web-site themselves; design of internet web-site as 'surrogate centre'; consistency of information provided to audience members; audience-profiling information provided by audience research team, used to create selectively-gearred web-page displays
	Opponent: Capita's customer service model which encourages interactive relationship-building and pleasing the caller; BBC's stress on accountability and accessibility to audience (NP-V) and campaign to heighten audience awareness of this
Boundary Qualifications:	Related to organizing inquiry and feedback services for audience-members: individualised vs. de-individualised; non-dependent vs. dependent

Table 9.2: NP-VI at the customer interface

NP-VI represents the efforts of CSO management staff to reduce the amount of ongoing audience contacts being handled by the BBC Information call centre (shown in

Table 9.2). The object-value actant of this NP is to cultivate a widespread and increased orientation among audience members to 'self-serve' – to seek their required information resources, or satisfy their need to provide feedback or make complaints, by utilising the BBC's internet web-site, rather than calling up the BBC Information centre. This micro NP is reflected in ongoing discourse among CSO staff to 'educate the customer'. The social institution of 'operational efficiency' (an institutional property in all companies; see King et al. 1994, and Robey and Boudreau, 1999), as well as cost pressures faced by the BBC, are primary forces that have given rise to its deployment. Several factors may be seen as contributing to this NP's advancement. They include: the CSR practice of informing callers about the web-site address of information resources they require; the careful consideration being given to designing the BBC's web-site as a 'surrogate' call centre; the information, extracted from BBCQ data, regarding profiles of interests and needs of various audience segments that have been used to inform the presentation of material on the web-site; and the standardised information and feedback provision mechanisms, that had started with the implementing of the BBC Information operations, and which now, translated to the web-site, permits audience members to obtain an equivalent quantity and quality of resources there (as when calling the centre).

Factors in NP-VI's opponent-actant position include Capita's customer service model, which emphasises friendly, interactive relationship-building between CSRs and audience members. This may encourage viewers and listeners to continue to call the centre and participate in the sense of a personal exchange of views with the BBC that they may not be able to obtain when dealing with the web-site. The BBC's continued campaign to increase public awareness of its efforts on accountability is also another factor that is likely to be attenuating the progress of this NP. Several key boundary qualifications are implicated in the transformation being undertaken in this NP. One of these may be said to be: 'individualised vs. de-individualised'. This is seen in the effort of the CSO department to reduce the human labour component of service interactions, by encouraging audience members to self-serve their needs at the BBC's internet site – effecting a change from individualised or personalised service to de-individualised, standardised service. This change is also reflected in the CSO's attempt to have CSRs cut down on the time spent in interacting with callers.

The CSO management's plan to encourage callers to fulfil their information needs at the web-site (i.e. to create less dependency on 'free rides' in utilising BBC Information's services) is an attempt to expand the extent to which audience members can independently self-serve their needs and interests through the resources at the BBC web-site, rather than be dependent on the BBC's provision of costly call centre based personalised inquiry and feedback services at BBC Information. This may be seen as reflecting another key boundary qualification being effected in this NP: 'non-dependent vs dependent'.

NP-VII Reducing complexity in service responses	
Transformation:	From more complex or elaborate service responses to simple and economical responses
Actantial Framing	Sender: cost-reduction pressures faced by BBC
	Subject: CSO management
	ObjectValue: reduced/minimal audience expectations on adequacy of service response
	Auxiliary: gradual, staged reduction in length of CSR email replies; introduction of repertoire of standard letters to unsubstantiated audience complaints; generic letters for reply to programme comments; (anticipated) automatic email reply generation software; standard, pre-formatted email forms at web site
	Opponent: BBC's emphasis on accountability and increased accessibility to audience (NP-V); research data which shows that audience members are not convinced about BBC's level of accountability
Boundary Qualifications:	Related to responses to audience members regarding inquiries and feedback: distinctive vs. generic; non-liability vs. liability

Table 9.3: NP-VII at the Customer Interface

NP-VII involves efforts to reduce the level of complexity inherent in the service responses provided by CSR and CSO team staff (seen in Table 9.3). The transformation being undertaken is a change from elaborate, personalised responses to simple, generic responses. Though this micro NP represents practical activity in terms of key changes introduced in the material nature of responses (e.g. reduced length of email replies etc.), it also involves a significant cognitive component. The gradual, staged manner in which the changes have been introduced, and the standardisation of email or lettered replies by CSRs, may be seen as an effort to redefine the expectations of the audience members: to accustom them towards less detailed responses, while still preserving the semblance of the BBC's accountability through a formal acknowledgement of their concerns. A key boundary qualification that may be seen as implicated here is: 'distinctive vs. generic' – the degree to which organized responses to audience members can be shaved of their

distinctive referential details and rendered generic, so as to facilitate re-use in dealings with mass contacts. The use of standard pre-formatted forms for email messaging, and the future use anticipated of automatic reply generation software, are also examples of factors that are or will be contributing to the advancement of this NP. The progress of this transformation however, may be hindered by the lack of belief among the audience members that it is keeping its promise of greater accountability (as revealed by survey data). Another key boundary qualification that may be thus seen to underlie this NP's transformation is: 'non-liability vs. liability'. The BBC may be required to reassess its efforts to simplify the degree of responsiveness in its replies and acknowledgements made to audience members, since this may be leading to a reduction in these member's perceptions of the BBC's liability to their expressed interests and concerns

The macro NP

From the preceding descriptions of micro NPs, and key boundary qualifications that have been identified, a composite 'picture' was formed of the macro NP, which pertains to the overall course of action aimed at the establishment and performance of effective service activities for BBC audience members.

NP-0 Establishment of effective audience contact operations	
Transformation:	From decentralised, inconsistent, low quality inquiry and feedback handling audience contact services to centralised, excellent quality customer services
Actantial Framing	Sender: Expectations of senior management; audience expectations; 1996 Royal Charter's emphasis on accountability to audience; social institution of 'public service broadcasting'; strategic requirement for audience loyalty amidst increased competition; operational requirement for familiarity with audience
	Subject: (BBC) CSO and Capita staff
	Object/Value: high quality of services and responses
	Auxiliary: improving audience feedback to BBC management (NP-I); improving understanding by programme makers of audience (NP-II); improvement of Capita's partnership (NP-III); functional unity of two call centres (NP-IV); increasing audience satisfaction levels (NP-V); reducing audience contact volumes (NP-VI); reducing complexity in service responses (NP-VII)
	Opponent: conflict between the social institution of 'public service broadcasting' and the social institution of 'customer focus'; complexity of audience inquiries and responses; complex stakeholder environment; range and variability of customer queries; shortcomings in CSR information practices;
Summary Boundary Qualifications:	Related to call centre operations: differentiated vs. integrated; particularised vs. universalised; autonomy vs. dependency; impartiality vs. attachment

Table 9.4: The Macro NP-0

This macro NP is summarised in Table 9.4. It is elaborated next, in terms of the inter-relations between constituent micro NPs, and in terms of a collective consideration of boundary qualifications. This completes the description of preliminary understanding that led to the employment of understanding on IT based operations at the BBC centres, that is described in the next section (6.3.2).

A consideration of the inter-linkages between the various schemes of action (i.e. the micro NPs), that may be seen to characterise work organisation and performance at the BBC Information centre, is helpful for discerning the shaping of the centre's service operations at the macro level. From the foregoing accounts of micro NPs, it may be seen that the development and progressive accomplishment of certain schemes of action are complementary to, or directly dependant on, the development and accomplishment of one or more other courses of action. The notion of accountability promoted by the BBC may be said to be a two-way process, involving communication from one party to another, and the communication of that second party's 'accountable' response to the first. The BBC's drive towards greater accountability to its audience members has thus been constituted by two parallel schemes of action: the improving of audience feedback transmission to senior management (NP-I), as well as the improving of information and feedback provision facilities for audience members at BBC Information (NP-V). Both these courses of action are complementary, and together form a significant realm of effort within the macro NP. Similarly, the course of action aimed at reducing audience contact volumes (NP-VI), and that aimed at reducing complexity in service responses (NP-VII), may be seen as complementary since they represent an effort by the BBC to scale down its cost and resource commitments in operating the BBC Information centre. On a different note, the integration of BBC Information and Audience Line operations (NP-IV) may be seen to be dependent upon the result of the CSO management's efforts at improving Capita's 'cultural' compatibility as a service partner (NP-III).

It may also be seen that one course of action can run counter to the progress of another. The course of action by Capita staff at BBC Information, aimed at improving the understanding of BBC programme makers regarding audience tastes and interests (NP-II), may be seen to be related in this manner to the course of action by management staff of the CSO department, aimed at improving Capita's compatibility as a service

partner (NP-III). The efforts of the CSO management to convert Capita's management staff to the perspective of public service ideals is being undermined in to a certain measure by the success Capita has gained in applying its commercial customer service model (i.e. profiling audience segments) to the benefit of BBC programme makers. Similarly, the course of action aimed at increasing audience satisfaction levels (NP-V) may be undermined by the efforts to reduce audience contact volumes (NP-VI), and to reduce the complexity of service responses (NP-VII). The BBC's campaign to increase awareness and acknowledgement of its efforts at being accountable may lead to an escalation in CSR work activities and call volumes received at BBC Information, as well as a reversal of efforts to reduce the elaborateness and personalisation of detail in email replies sent to audience members. These various counter-implicative linkages between the courses of action just described imply that the continued co-existence of these courses, within the context of BBC call centre operations, will require some form of reconciliation or displacement between opposing endeavours. These counteracting courses of action may be said to reflect the phenomena of conflicting or contradictory schemes of behaviour in organisational functioning.

The perception of these various courses of action (micro NPs) described in the preceding sections, and their inter-relationships as described above, was instructive. It bred an understanding of how, at the overall level (i.e. the macro NP), the emergent pattern of organising and performance in IT based work practices at BBC Information has been shaped by several inter-related courses of action, that links those practices to its parent company's larger, internal context of operations (i.e. NP-I, NP-II, NP-III and NP-IV at the corporate interface), and the external environment of customer interactions (i.e. NP-V, NP-VI, and NP-VII at the customer interface). This will be elaborated in the next section, in the description of the emplotment of IT enabled call centre operations at the BBC. Further understanding of the form of emplotment came from considering the boundary qualifications identified during the earlier descriptions of micro NPs.

Those boundary qualifications were implicative when considered in aggregation at the macro level. It was perceived that these boundary qualifications were strongly indicative of a fundamental conflict between two contrasting approaches to the notion of accountability, represented by the public service broadcasting model and commercial customer service model. Though it may be asserted that Capita's approach represents

the commercial customer service model, it would be inaccurate to equate the BBC’s approach solely with the public service model. While the management staff of the CSO department have shown a particularly strong commitment to the institutional ethos of the public service model, the BBC’s operations as a whole involve being both a public service broadcaster as well as a commercial operator. The BBC has thus had to struggle innately with reconciling these two institutional models in its undertaking of call centre operations (i.e. as seen in NP-II, III and V). This underlying conflict was apparent in two particular areas of the operations at BBC Information: (i) the quality of service in inquiry and feedback handling; and (ii) the nature of accountability to audience members. The explanation of the emplotment of IT enabled work operations at the BBC Information centre, in the next section, will revolve around these prominent areas of change and negotiation in the centre’s work practices.

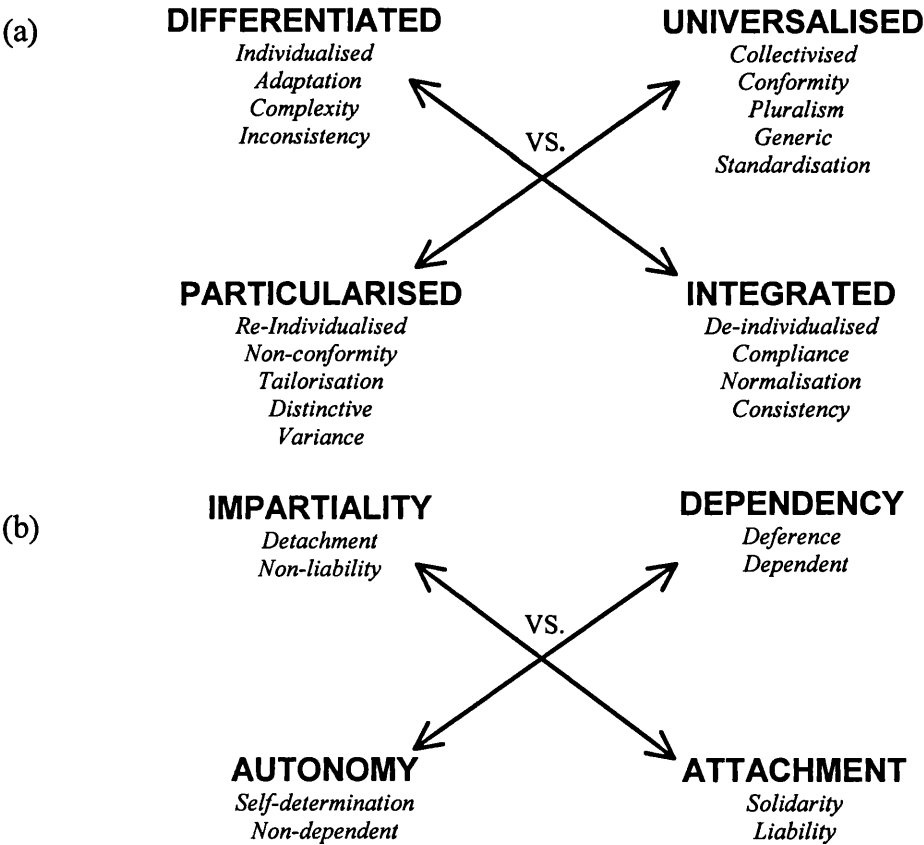


Figure 12: Summary Boundary Qualifications

The understanding gained from the preliminary analytical treatment of data on the BBC Information centre’s operations thus formed the basis for an emplotment of its IT based practices, in terms of the influence of the systemic operational context, and the

contradictions and tensions. This will be elaborated next. To support this elaboration, boundary qualifications identified earlier were first reduced to a summary form. Figure 10 depicts this synopsis. The boundary qualifications, shown in italics, fall congruently into two aggregate clusters, shown as reduced semiotic squares (i.e. each qualification placed cross-wise). Summary designations in bold have been assigned to each cluster. These summary boundary qualifications will be used for thematically illustrating the upcoming elaborations.

6.3.2 The emplotment of call centre operations

The emplotment of IT enabled work organisation and performance in call centre operations at the BBC may be said to be centred thematically on a fundamental conflict and accommodation between two different institutionalised service models: public service broadcasting and commercial customer service. The public service model, in relation to customer service practices, places key emphasis on critical detachment and enlightened representation of the interests of the audience as a whole, and on upholding the values of fairness, impartiality and accuracy in audience dealings. In contrast, the commercial customer service model places prime emphasis on catering to the particular interests and needs of individual members or segments of the audience.

Inconsistencies between these two models were most evident in two areas of work organisation at the BBC Information centre: (i) the quality of service in inquiry and feedback handling; and (ii) the nature of accountability to audience members. In the following elaboration of this, the emergent pattern of operations at the centre will be illuminated in terms of the shaping influences of interactions between the centre and the parent firm (especially the BBC's CSO department) or the external operational environment, as well as prominent tensions and contradictions implicated in the centre's work practices.

The BBC had introduced centralised inquiry handling and feedback services, through the implementation of the BBC Information centre, as a means to improve the management of its audience contact activity. This enhancement was seen by the BBC as a necessary response to its heightened competitive environment, and the public and regulative pressures for it to demonstrate increased accountability to its audience in its

broadcasting and service activity. The way the improvements were originally envisaged may be seen in several of the primary contractual stipulations laid down for Capita to fulfil (elaborated in section 6.2.5): ensuring a consistency in the content and quality of audience interactions; developing the BBC's accountability to its audience; and carrying out the integration of BBC Information and Audience Line. The resultant improvement in the quality of inquiry and feedback handling services, since BBC Information began its operations, has been characterised by two different forms of transformations. One of these, representing the approach of the public service broadcasting model inherent in the outsourcing contract stipulations, and strongly advocated by CSO staff, has brought about improvements anticipated at the start. However, the other form of transformation, representing the approach of the commercial customer service model embodied in the efforts of Capita staff at BBC Information, has brought about compatible enhancements in audience services, but unanticipated, conflicting tensions, between the management staff of Capita and the CSO department.

The focus of transformation related to the public service approach, undertaken by (the contractually bound) BBC Information staff and the CSO department staff, has been to seek a significant change in the quality of inquiry and feedback services that had formerly prevailed in the time of decentralised contact operations. The handling of audience inquiries and feedback at the level of regional centres distributed throughout the country could be characterised as *differentiated*, marked by inconsistencies in the quality and content of responses provided, lack of coordination between BBC units, and fragmented distribution and sharing of information. This standard of quality of inquiry and feedback services was seen in the 1990s to be incompatible with the public service oriented interpretation of accountability, which implied being answerable in a consistent manner to the whole audience. This had brought about several key courses of action, such as the efforts at improving information and feedback handling procedures (NP-VI) and the transmission of audience responses to BBC management (NP-I), as well as the attempt to achieve the integration of BBC Information and Audience Line (NP-V). The BBC has sought by these schemes of endeavour to *universalise* the standard and quality of its inquiry, complaint and comment handling services: (i) to achieve consistent and standard answers provided to audience members (i.e. concordant with public service ideals of accountability, fair and impartial treatment); (ii) to provide unlimited and free access to such services by all public members; and (iii) to provide access by BBC staff

to feedback (i.e. as concordant with the public service ideal of accountability). The shift to universalised standards has also assumed particular forms in those courses of action aimed at reducing audience contact volumes (NP-VI), and the complexity of service responses (NP-VII). It has led to key changes in CSR work practices such as the use of generic formats in, and the reduction of the length of email replies to audience inquiries, as well as the de-personalisation of standard responses to audience comments.

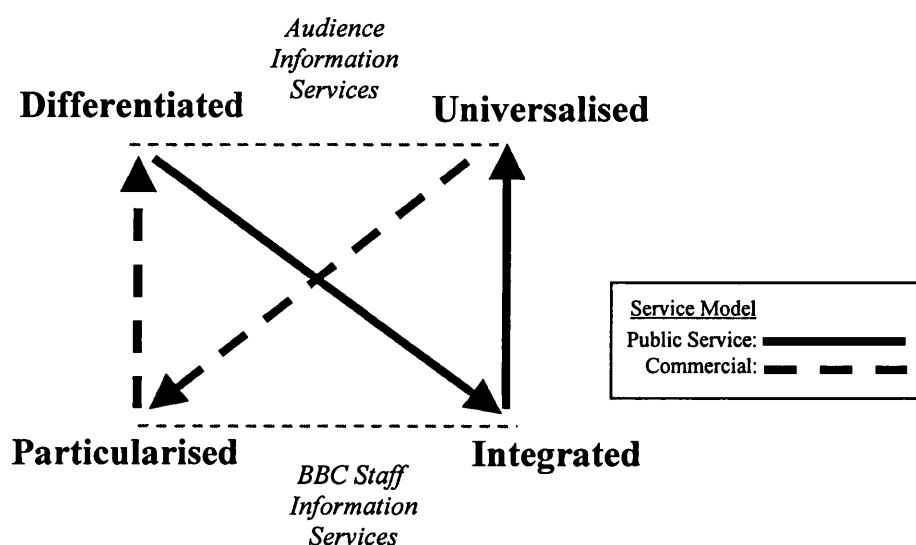


Figure 13: Contrasting transformations in quality of services

This transformation has been achieved via a process of *integration*, essentially based on the use of information management software at BBC Information centre (i.e. BBCQ, Outlook, intranet and internet). The use of these information management tools has enabled the BBC to carry out the integrated collection and distribution of comments and complaints to relevant management and production staff, and the provisioning of information in response to audience inquiries and interests. This transformation in the management of the quality of audience contacts, corresponding to the public service model, is shown by the solid-lined arrows in Figure 11 (i.e. a transformational semiotic square depiction).

The focus of transformation related to the commercial customer service model, exemplified in the efforts of Capita's management staff and the audience research team at BBC Information, has assumed a different emphasis. This transformation has been effected mainly by the course of action aimed at improving the understanding of BBC

programme makers (NP-II). The intensified competitive environment the BBC presently occupies has led to the undertaking of this transformation. In contrast to the other, it had begun from the position of *universalised* audience contact services afforded by the facilities and resources of the BBC Information centre. By making use of the collective audience feedback data stored in BBCQ, and the knowledge gained from the daily CSR contacts with audience members, the management staff and audience research team at BBC Information have subsequently sought to *particularise* the knowledge of various BBC units and programme production staff, as well as that of their own staff, regarding the needs and interests of audience members. This particularisation has been achieved through regular BBCQ reports created by the audience research team for distribution to BBC staff, as well as the development of the team's intelligence-gathering role, through the profiling of specific audience segments, distinguished by their distinctive interests and tastes in viewing/listening to BBC programmes.

The understanding gained by these efforts of the audience research team, and the CSR staff in general under the training and supervision of Capita management staff, has enabled the mounting of *differentiated* service responses, tailored to the interests of specific audience segments, by the centre's staff, BBC corporate units and production staff. This is reflected by a wide range of information resources made directly available to audience members at the BBC internet web-site (geared to the interests of specific audience segments), as well as indirectly through the corporate intranet used by CSRs to answer their queries. It is also reflected in the utilisation of BBCQ feedback reports by programme production makers to render broadcast output more engaging. The resulting transformation in audience service quality, corresponding to the commercial service approach, is represented by the broken-lined arrows in Figure 11. This is the direction the BBC's CSO department may have to take in the future, if it has to reverse its current effort to reduce the complexity of CSR service responses by de-personalising its service activity (i.e. NP-VII), because of a failure to convince audience members of the BBC's commitment to accountability and responsiveness.

This transformation in the quality of audience inquiry handling and feedback services being undertaken by the Capita management staff and audience research team at BBC Information, however, has generated tensions with the management staff at the CSO department who oversee their work, because of the inconsistencies with the public

service model (advocated by the CSO staff) in certain aspects of work organisation and performance at the centre. One of these areas of tension concerns the focus by CSRs at BBC Information on friendly interaction and customer-relationship building exchanges with audience members. Such interactions, seen from the viewpoint of the commercial service model, are vital for establishing rapport with audience members, and gaining a more particularised and sensitive understanding of their interests. From the viewpoint of the public service model, they are incompatible with the need to carry out cost-efficient interactions that would enable more audience members to be given a fair and standard amount of attention to handle their concerns. The tendency of CSRs, in accordance with the commercial model, to establish an uncritical solidarity with audience interests, and report indiscriminately in BBCQ on their comments, has also raised tensions with the CSO management staff, because of the public service emphasis on critical detachment, and reference to universal ideals and the interests of the entire audience.

The present dissatisfaction of the CSO department's management over Capita's failure to comply with the contractual obligation to fully integrate the operations at the two call centres, may also be tied to the different focus of service improvement in the two models (depicted earlier in Figure 11). The CSO management, in accordance with the public service model, wishes for Capita to integrate the two centres fully so that universalised service quality levels can be applied fairly to both solicited contacts (BBC Audience Line) and unsolicited contacts (BBC Information). Such integration had been meant to reduce the marked disparity in call handling traffic patterns between the two centres, by permitting staff from BBC Information to switch to handling the excess call overflows at BBC Audience Line. Capita's management, however, contractually bound to meet the performance targets that apply only to service quality, customer satisfaction levels and call handling at BBC Information, has not acquiesced with this universalised focus. It has focussed instead on differentiating the quality of its inquiry and feedback services to audience members who contact BBC Information, through particularised attention to meeting the service targets at that centre i.e. giving less priority than desired to integrating between the operations of the two call centres, and thereby keeping their operations largely separate. It may also be said that the CSO department's management is in conflict with Capita's management over its 'particularised' interpretation of the BBC's outsourcing contract requirements.

Another critical area of work organisation and performance, in which the BBC Information centre's emergent nature of functioning is being shaped by an underlying conflict between public service and commercial service based approaches, has to do with the accountability demonstrated to audience members. The implementation of the BBC Information call centre in 1999 had occurred in the context of a significant effort (following the 1996 Royal Charter) at strategic restructuring and change in the BBC, aimed at improving its accountability to audience interests and needs. The BBC's 'promises' about the BBC Information services stress the intention to listen and respond openly to audience concerns, and to take full account of their views and complaints. Behind this increased emphasis on accountability has been the need for the company to respond to the heightened competitive environment in the broadcasting industry, occasioned by the existence of new commercial broadcasting companies. The BBC has had to operate to a growing extent as a commercial operator, in addition to maintaining its public service ideals (i.e. following reductions in government subsidies, loss of viewers and listeners to rival broadcasting companies etc.).

The conflict between those two contrasting institutional models, that the BBC has had to reconcile, may be seen to have been accentuated in the operations of BBC Information, following its introduction as a site for handling inquiries, complaints and comments. Due to the capacity of call centre technologies to facilitate a 'concentration' of a customer environment – to support rapid interactions with audience members on a mass scale – the BBC has had to engage with its audience very much at the level of individuals. The manner that its call centre operations have evolved reflects contrasting dimensions of the BBC's accountability to its audience. These are elaborated next, with the support of Figure 12 (i.e. a configurational semiotic square depiction).

In accordance with the public service ideal of impartiality, the development of work organisation and performance at the BBC Information centre has been undertaken largely with the intent *to take equal account of the interests of all viewers*, and to respond to them in a consistent manner. This has been undertaken by providing access to inquiry and feedback services at this IT enabled call centre to all audience members (i.e. one number to contact the BBC on all matters), as well as by improving the supply of standardised information (stored on the IT systems) provided in response to audience inquiries, and of carefully considered responses to audience complaints and comments

(NP-V). This effort has also involved the computer based collection, manipulation (i.e. ordering and prioritising into reports) and transmission of audience feedback to BBC management staff (NP-I), in order for them to ensure that the BBC is aware of and responsive to the interests of its audience. These schemes of action have involved the significant use of database and other software systems, as well as formalised practices of information sharing among frontline staff (i.e. regular briefings between the staff of Capita and the BBC's CSO department, frequent report compilations from BBCQ data, CSR peer-audit quality monitoring).

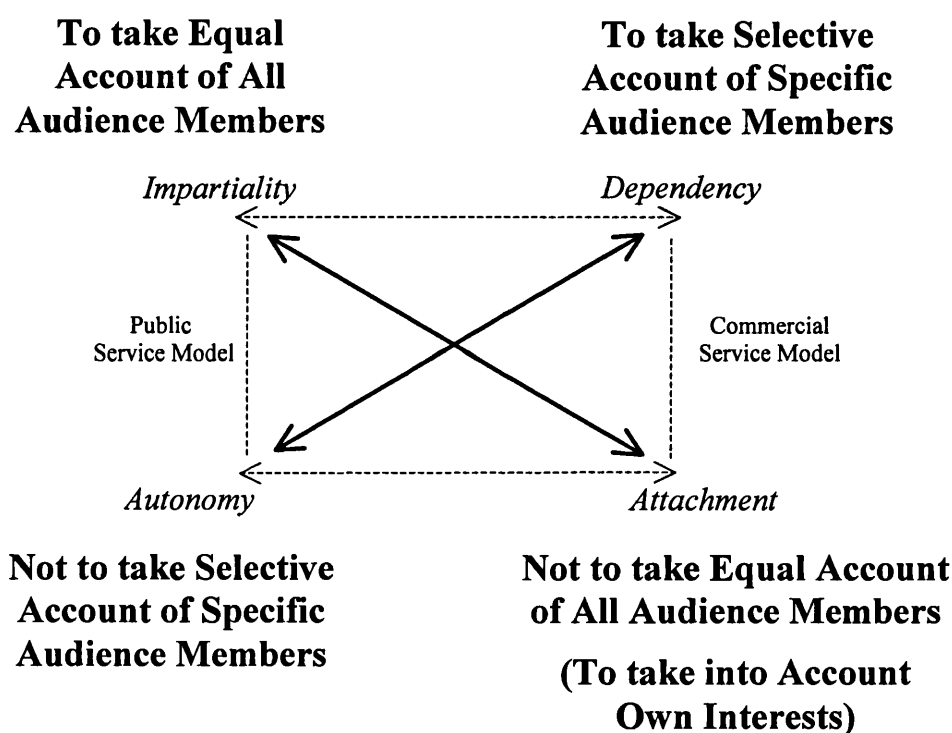


Figure 14: Shaping of accountability to audience needs and interests

This commitment within the BBC corporate culture to the public service ethos (i.e. impartiality, accuracy, and the representation of the interests of the audience as a whole), as embodied by the staff of the CSO department, has meant that standards and work procedures instituted for handling audience complaints and comments at the BBC Information centre are, correspondingly, designed *not to take selective account of the interests of specific audience members*. In other words, the centre's work practices are geared towards not giving preference in the treatment of, or in the form of responses provided to, particular individual audience members or groups, as well as maintaining

an independence from deferring to subjective audience viewpoints or assessments. Responses provided to audience members are invariably made with reference to, and discriminated towards upholding, the BBC's standards of objectivity and fairness. The effort by the CSO management staff to cultivate a similar outlook among Capita's staff at the BBC Information centre (NP-III) reflects effort to further develop this dimension of accountability, since the Capita management has brought an opposing approach, that of the commercial customer service model, to the centre's practices of dealing with and managing audience contacts. The stipulation in the outsourcing contract for operations at BBC Information and BBC Audience Line to be integrated, so that the excess calls arriving at the latter centre can be diverted to and handled by the staff at the former, may be said to reflect the public service ideal of not giving preferential treatment to certain members over that of others.

At the same time however, and representing opposing or contradictory positions to the dimensions of accountability just described, work organisation and performance at the BBC Information call centre has been shaped in certain ways by the commercial pressures faced by the BBC. The company has been placed, by the intensification of competition in the UK broadcasting industry reduction and the reduction in government subsidies, in a position of deeper dependency on the patronage of its large and multi-faceted audience. This has submitted it to increased pressures to be accommodating of the interests of its audience members. This has led to work organisation at the centre being, in certain respects, increasingly geared towards the commercial customer service model, and its central institution of 'customer focus' (i.e. aimed at giving precedence to satisfying customer needs and securing their loyalty as patrons). Certain aspects of work effort have been designed *to take selective account of specific audience members*. The course of action aimed at improving the understanding of audience tastes and interests by BBC programme makers (NP-II) exemplifies this focus. A specific instance of this effort is the newly developing intelligence-gathering role of the audience research team, which has involved identifying profiles of the needs and interests of particular segments of the audience by manipulation of data in the BBCQ system, so that the presentation of information resources (to audience members who fall within those categories) by CSRs at the BBC Information centre, as well as on the BBC's internet site, can be tailored towards better satisfying the needs and concerns of the audience members who call the centre or visit the web-site.

Another dimension of work organisation and performance at the centre may be seen to be in contradiction to the earlier described arrangements to develop the BBC's accountability to its audience in regard to inquiries and feedback. The courses of action at BBC Information aimed at reducing the complexity of service responses provided to audiences (NP-VII), as well as audience contact volumes (NP-VI), constitute an effort *to take into account the centre's interests* in reducing its operating costs, and preserving the economic viability of its operations. The strategy of 'educating the customer' being developed and applied by the CSO department staff has been an emergent response to the unanticipated rise in resource commitments at BBC Information, obtaining from such audience service demands as escalating email traffic, and the higher complexity of their inquiries (e.g. digital TV reception problems). This strategy has materialised in such effort as that aimed at developing the BBC's web-site as a 'surrogate call centre' (i.e. an alternate site for handling audience contacts), and the deliberate reduction in the length of email responses through depersonalisation. This dimension of accountability in the undertaking of the BBC's call centre operations may be seen as representing a fundamental attachment to the institution of operational efficiency in work organisation and performance at the centre.

The audience contact operations at the BBC Information centre has thus been characterised by the contrasts and inconsistencies bound up within the axial positions just described. These, and the tensions and contradictions elaborated earlier in this section, represent the manner in which the emergent pattern of work organisation and performance at the BBC Information centre has been developing since its beginning. On the whole, the BBC's endeavour to establish effective call centre based inquiry handling and feedback services has evolved as a unique entanglement between the obligations of conflicting institutional codes of service.

6.4 Evaluation of case study

This section offers some preliminary assessment regarding the undertaking and results of the above case study at the BBC, in relation to the aims of this research. This will be in advance of a more comprehensive discussion undertaken in the next chapter.

The evolving, emergent nature of IT based work organisation and performance at the BBC Information centre has thus been characterised in terms of several courses of action. Four of these represent the ongoing elaboration of work organisation linking the centre to the operations of other corporate units: (i) improving transmission of audience feedback to senior BBC management; (ii) improving understanding of BBC programme makers regarding audience tastes and interests; (iii) improving Capita's compatibility as a service partner; as well as (iv) achieving the functional unity of BBC Information and Audience Line operations. The three other courses of action represent the elaboration of work organisation or performance pertaining to CSR service interactions with audience members: (i) improving information and feedback facilities for audience members; (ii) reducing audience contact volumes; and (iii) reducing complexity in service responses. Interactions between these schemes of action were seen to involve supportive influences and inter-dependencies, and accommodation between counter-implicative endeavours. It was found that conflict and accommodation between two institutionalised approaches to provision of customer service, namely the public service model and the commercial model, strongly characterised the structuring of work performance at BBC Information. These contrasting models figured most prominently in two areas: (i) quality of service in inquiry and feedback handling; (ii) the nature of accountability demonstrated to the concerns of audience members. In summary, the outsourced project of utilizing a new call centre to innovate the BBC's audience contact activities has involved centralisation and enhancement of inquiry and feedback services. Operations at the BBC Information centre seem to be on the surface a very regimented endeavour, with specific contractual objectives and targets to fulfil, and work efforts undertaken under compliance to strict regulatory and normative standards. However, work performance at the centre has been significantly marked by underlying complications from the BBC's adherence to an institutional code of service (public service broadcasting) that is, to a significant extent, incompatible with the heightened competitive pressures of the commercial broadcasting environment in which the company currently operates.

The analysis of BBC call centre operations may be said to significantly affirm the need to consider the influence of factors within the broad, macro operational context (i.e. encompassing the inner environment and the external environment of a firm), in the shaping of IT based work activities. The ongoing development and effectiveness of service activities at BBC Information have been seen to be strongly connected to the

courses of action that have been initiated to gear the centre's activities towards fulfilling the specific performance goals stipulated in Capita's outsourcing contract, as well as the interests of CSO management. Moreover, the influence of certain circumstances and events in the BBC's operating environment that were beyond the control of stakeholders have been particularly instrumental in shaping the centre's activities. Examples include the preference of audience members for email communications, which has led to steeply rising email message volumes, as well as the heightened competitive environment and urgency of the BBC's need to prove its commitment and accountability to its audience.

From the analytical account of the BBC's call centre operations in section 6.3, it may be perceived that the concepts and method of the systemic appreciation framework appeared useful for illuminating the emergent nature of IT based operations in terms of principal conflicts and inconsistencies. The application of concepts such as narrative programs, boundary qualifications and the semiotic square was effective in forming an appreciation, and elaborating an integrative description, of multiple dimensions along which the BBC's call centre operations are being shaped. Further discussion of the utility of this method of analysis will take place in the next chapter.

CHAPTER SEVEN: DISCUSSION AND INSIGHTS

7. INTRODUCTION

This research effort set out to account for the emergent nature of IT based work practices in organisations from a contemporary systems thinking perspective. It sought to develop a methodological framework of interpretive sociotechnical systems analysis, aimed at illuminating the emergent character of organisational operations around the use of IT. The two case studies reported in the foregoing chapters formed the empirical setting for generating and refining this new framework, as well as for demonstrating the utility of adopting such a systems viewpoint. The application of this framework to the case data engendered new understanding of the emergent nature of IT based operations, corresponding to the study's four themes of inquiry described earlier (section 2.5.2).

This chapter discusses the insights gained specifically from those case analyses, and in general from the research of theoretical literature and call centre environments. This elaboration is divided into four sections, matching those themes of inquiry. Section 7.1 focuses on elucidating the emergent nature of IT based operations in the light of the understanding gained from the theoretical and empirical investigations in this study. It attempts to establish the utility of the systemic emphasis, in contrast to the situated enactment and the political actor emphases, in accounting for the way in which the call centre operations at Boots and the BBC have been shaped. It also discusses the utility of the systemic appreciation framework, as illustrated in the case studies, for carrying out a broad contextual analysis (advocated in the systemic emphasis) required to understand the emergent nature of IT based work operations in organisations. Section 7.2 reviews contemporary IS debate on the nature of interaction between IT and organisations, and then discusses how the understanding gained in this study of the shaping of call centre operations contributes to new theoretical knowledge in that area. It also discusses how the use of systems thinking illuminates the processual nature of IT based call centre operations, in terms of the implications for organisational design. Section 7.3 examines how the systemic appreciation framework promotes the utility of the sociotechnical systems approach in the IS field, in terms of its traditional instrumental focus. Section 7.4 considers the nature of theoretical and methodological innovation offered by this

study's formulation and application of an interpretive form of systems inquiry, for the contextual investigation of organisational functioning around the use of IT. From these discussions, the focal insights obtained in this exploratory research on the emergent nature of IT based call centre operations will be established (section 7.5).

7.1 THE EMERGENT NATURE OF IT BASED OPERATIONS

This research inquiry sought to illuminate the emergent nature of organisational functioning, through the development of the systemic emphasis, and the assessment of its utility in relation to the situated enactment and the political actor emphases. This section assesses the relevance of the systemic emphasis in the light of evidence from the case study data. The concepts and tools of the systemic appreciation framework had been introduced in this research to promote the systemic emphasis, by facilitating an integrative understanding of the effects of contextual structures and conditions within a firm's domain of IT based work operations as emergent properties of such operations. The utility of this framework towards that aim is discussed in this section.

7.1.1 Utility of the systemic emphasis

The findings of the two case studies both appeared to lend significant support for stressing the importance of the systemic emphasis in accounting for the emergent nature of organisational functioning around the use of IT. This theoretical emphasis, elaborated in the literature review chapter (section 2.2.1), holds that the emergent nature of IT based work practices can only be sufficiently accounted for by considering the complex 'whole' of actions, events, means and circumstances within the broad scope of an organisation's operational domain, extending across both its interior and its external environment. In this emphasis, the source of organisational emergence is seen to extend beyond just the intentional agency or ascriptions of meaning by individual employees or groups in the organisation (as highlighted in the situated enactment and political actor emphases). It is seen to be due also to the influence of material conditions and historical circumstances that lie outside the ability of organisational actors to control, selectively interpret, or ignore. These assumptions appear well supported by the case evidence.

The way in which work organisation and performance at the Boots call centre has evolved has had to do with contextual factors and circumstances within its parent company and the customer environment. The expansion in the range of activity handled at the centre has been driven by the need to demonstrate the value and legitimacy of its centralised customer contact operations in a corporate environment strongly oriented towards decentralised customer service operations. Whereas initially perceived to be mainly a complaint handling function, the call centre has grown to be a major point of contact for customer inquiries on Boots products and services, through the incorporation of contact services for new corporate ventures (e.g. Boots Opticians and Boots Dentists) and marketing campaigns. The expansion in the range of inquiry and feedback handling services at the Boots centre has also been due to the unanticipated range of customer information needs and issues. The social institution of customer focus, which represents the needs of the customers as the key organising principle of work arrangements and performance (Scarbrough 1998), may be seen as having placed strong pressure on staff at the Boots centre to expand its range of information resources, work procedures, and communication channels with other corporate units, in order to respond adequately to the variability of customer inquiries and issues. The inadequacy of data and retrieval mechanisms in the legacy IT systems of the parent firm (i.e. inadequate specificatory details and data indexing), in relation to the complexity of inquiries, has also led to the expansion of the centre's IT tools (e.g. installation of Lotus Notes as CSR knowledge base; creation of Lotus Approach database for store layout data) as emergent responses.

The way in which work organisation and performance at the BBC Information centre has evolved has also had to do with contextual factors and circumstances within its parent company and the external environment. The BBC's aim to raise the quality of its accountability to its viewers and listeners, and to reduce the costs of its audience contact operations, had led to outsourced centralised information and feedback handling services, formulated under strict performance stipulations in the outsourcing contract. However, features in the broad environment of the centre's operations have contributed to shaping the mode of work organisation and service delivery at the centre in a manner that had not been envisioned in those stipulations. The trend of strongly rising volumes of audience phone based inquiries and email communications have threatened the effort to reduce costs, leading to such emergent responses as the effort to shift information provision and feedback handling activities from off the call centre onto the company's

internet site (i.e. the CSO's scheme of educating the audience), and the economising of details in CSR email replies.

The increased competitive environment (i.e. due to rival broadcasting firms) has led to the development of the intelligence-gathering role of the audience research team, as well as the increased value of Capita's commercial customer service model for increasing the understanding of BBC programme producers regarding audience tastes and interests. However, this has also encouraged a lack of integration between the BBC Information and Audience Line operations, contrary to contractual stipulations, as well as a conflict between the CSO department and Capita management over the kind of principles under which the centre's operations are to be run. At stake is a fundamental conflict that has emerged in those call centre operations between established social institutions – a contention between upholding the constitutional principles and values of the public service broadcasting model traditionally observed by the BBC over its long history, and the increasingly prevalent commercial customer service model exemplified by Capita's approach (and also certain dimensions of the BBC's present operations in the current highly competitive environment).

These factors enumerated above, that have played a significant role in shaping the nature of work organisation and performance at the Boots and the BBC call centres, may be perceived as having been largely outside the ability of organisational actors to have changed or disregarded. They may be seen to suggest the limitation of the situated enactment and political actor emphases, described earlier in the second chapter (section 2.2.1). Both these forms of theoretical emphases accentuate the intentional agency of individuals and groups in inventively shaping the nature of organisational operations.

The situated enactment emphasis (reflected in Orlikowski, 2000; Ciborra, 1999) characterises organisational members as having the ability to actively constitute their environment through enacted, improvised responses to the situational demands of work environments. This emphasis posits the 'interpretive flexibility' or 'plasticity' of IT and its properties of use (Orlikowski, 1992; Ciborra, 1996): the autonomy of organisational actors to selectively interpret the significance or meaning of features of an IT system, and shape the ends to which it is used. Support for this emphasis may be seen in certain features of the call centre operations reported in the two case studies. For example, the

management staff at the Boots call centre have sought to 'enact' their environment of customer interactions under the vision of surprising the customer. This enactment has taken concrete form in practices of using the IT systems to deliver surprises to callers e.g. the use of the Advantage database to confer free points to customers, and the use of the CustomerQ system to requisition gifts of products or expense vouchers. Another example is that of the attempt of the BBC's CSO staff to enact a more simplified and routinised environment of mass email interactions with audience members. The scheme of economising on the amount of CSR work effort spent in handling email inquiries or feedback, through the use of generic formats, the reduction of the length of email replies (i.e. by removal of referential details), and the de-personalisation of standard responses, are examples of efforts to exploit the configurability of IT to specific enactments.

However, the active ability of organisational actors to interpretively shape or materially constitute their behavioural environment may be seen as being not entirely unconstrained in performance or in effectiveness. The enacted agency of organisational members, as might be perceived in the case study examples cited above, is shaped to a significant extent by the existence of social institutions and other forms of pressure or predisposition (e.g. structures of power) that regulate their actions. Social institutions, described earlier in chapter three, consist of "normative obligations ... taken-for-granted scripts, rules and classifications" which organisational members must take into account, accept, and not ignore, in all their actions (Powell and DiMaggio, 1991, p. 15).

The practice of using the functionality of the centre's IT systems as a means to please customers at the Boots call centre has been induced by the commitment to the social institution of customer focus (or customer orientation), which has been found to exercise strong pressures on contemporary organisations and their employees to attract and retain customer loyalty, as the way to ensure the profitability and continued survival of the company (Bjorn-Andersen and Turner, 1998). These IT based work practices also constitute creative responses to the pressure of expectations from the company's senior management that a high level of service quality is achieved. Similarly, the attempt to economise on email responses by the BBC's CSO management has also been compelled by the obligation of management staff to adhere to institutionalised ideals of efficiency (Robey and Boudreau, 1999), as well as to pressures, issuing from the expectations of higher BBC management, for operating costs to be reduced. The idea that the process of

enactment embodied in the actions of organisational members is the principal factor responsible for emergent outcomes in organisational functioning, as proposed by some researchers (e.g. Orlikowski, 2000), should thus be adjusted by the recognition that this enactment process is moulded and conditioned by fundamental structures that direct, and by realities of power that curb, its imbuelement of social action. Morgan (1986, p. 140) accordingly had cautioned: “enactment is usually seen as being a voluntary process under the direct influence of the actors involved. This view ... can be misleading to the extent that it ignores the stage on which enactment occurs. We all construct or enact our realities, but not necessarily under circumstances of our own choosing.”

In addition, the enacted agency of organisational members, as may be perceived in the case examples just cited, might also be constrained by the influence of events and circumstances that can deflect or undermine the intended outcomes of their actions. Those practices of using the functionality of the centre’s IT system as a means to please customers at the Boots centre have, in combination with other factors (e.g. promotion of the call centre as a point of contact), yielded unanticipated consequences, such as the preference by some customers to contact the centre to make complaints, or the trend of strongly rising contact volumes that has stretched the centre’s resources and operating costs. These circumstances may be seen as undermining that particular ‘enactment’ by the centre’s management. Similarly, the CSO management’s attempt to economise on email responses may also be seen as contributing directly or indirectly to fostering the lack of conviction among audience members (indicated in recent surveys) regarding the BBC’s efforts to be more accountable to their interests. Other pertinent factors such as the increased availability of email use to the general population, and the ever-increasing familiarity with computer usage by members of the public, may also be contributing to a continuation of the trend of significant increases in email contacts, and may eventually frustrate this effort of economising. The intentional agency of organisational members in enacting their environments is thus perceived within the systemic emphasis as being constrained by various social institutions upon which such agency is founded, and as bounded by the recalcitrance or collusion of unfolding events and circumstances that determine the effectiveness of such agency.

The political actor emphasis (exemplified in studies by Monteiro and Hanseth, 1996; Bloomfield, 1995) characterises the deployment and use of IT in organisations as

being fundamentally shaped by the contested or negotiated alignment of the interests of key stakeholders. The explicit and implicit political manipulation behind the actions and interactions of organisational members is seen as the main factor that contributes to the emergent nature and outcomes of IT based practices. This emphasis lays especial stress on the dimension of power in individual or group agency, as reflected in the ability of organisational actors to harness ideational and material resources to shape the behaviour or response of others in a way that conforms to their desires. Support for this emphasis may be seen in certain features of the call centre operations reported in the case studies.

For example, the distribution of informative customer feedback reports by the business interface team of the Boots call centre (created from the data in the CustomerQ system) to other corporate units in the Boots company, has contributed towards securing the arrangement of the regular information exchanges required for supporting the activities of the CSR staff, as well as the expansion of the centre's range of inquiry and feedback services (through projects of collaboration with such units). The decision by the management to reduce the size and prominence of the advertisement of the centre's services on the back of customer receipts, in order to stem the significantly rising rate of call volumes, constitutes another example of the in-scripting and political manipulation of material resources to achieve desired aims and interests. In the case of operations at BBC Information, the raising of audience awareness regarding the BBC website, by the provision of the web-page address of relevant information resources, in standard email replies or CSR responses to callers, constitutes an effort to shift audience inquiries from being serviced at the centre towards being self-serviced at the website, and may be seen as an effort to align the BBC's interests in increasing its accountability to its audience members with its need to reduce its operating costs. The effort by the CSO staff to inculcate the institutionalised ideals of public service broadcasting in Capita staff, and the efforts of Capita's audience research team to increase recognition of the centre's operational value, by benefiting BBC programme producers with instructive feedback reports and audience profile data from the BBCQ system, are also instances of the effecting or negotiation of interests among different stakeholder parties.

The political actor emphasis may thus be seen to have contributed usefully to highlighting the political facet of social interaction, which is an important dimension in the shaping of organisational IS activity (Kling and Iacano, 1984; Markus, 1983). The

emphasis on the active manipulations and intentional agency of organisational actors by this emphasis however, has led to an overstating of the dynamic, fluid, open-ended way in which IT related work organisation and social interaction is constituted, as seen in recent theoretical attempts to dispel altogether with the idea of patterned regularities or durable social structures (e.g. Truex, Baskerville and Klein, 1999, 1991; Latour, 1996). The danger may be said to exist within this emphasis of too much local autonomy being ascribed to social actors in shaping the course and outcomes of IT based undertakings (Walsham, 1997; Williams and Edge, 1996). Certain instances in the case studies may be cited to suggest that the active interventions of organisational members in promoting their self-interests are not the only salient elements which need to be considered in the political context of organisations. Enduring conditions or circumstances that are beyond the short-term* influence of organisational actors, may also be seen to play a key role in shaping an organisational domain. The case examples described next may be taken to suggest that the autonomy of actors in imposing their interests by material inscriptions or ideological scripts may need to be adjusted by the recognition that such autonomy is not unproblematic nor unbounded.

In the case of the operations at the Boots centre, the effort by its management to stabilise the rise in call volumes handled at the centre (i.e. through such actions as the reduction in prominence of the advertisement on receipts, and the creation of internet website based information resources for customers) may be seen as an example of this. That effort may be seen as being driven by the need to adhere to institutionalised ideals of efficiency. That effort however, is complicated by the need of the same management to adhere to the social institution of customer focus, which induces a commitment to expanding the scope and reach of the centre's interactions with the mass population of customers, in order to secure their continued loyalty as consumers of Boots products. This institution has gained influence through popular business discourse (e.g. Hammer and Champy, 1993), and the widespread adoption of Total Quality Management (TQM) schemes (Scarbrough, 1998). It constitutes a durable and enforcing social structure that exerts a significant influence within the macro order of organisational functioning, not easily ignored. The effort of the call centre's management to stabilise the call volumes

* The extent of malleability of structural or material constraints varies in different organisations, and are seen here as being short-term rather than long-term, since studies (e.g. Nandhakumar and Jones, 1997) have suggested that social actors are able eventually, through improvisation or ingenuity, to surmount them.

is also further complicated by the objective of increasing the perception of the centre's operational value to the larger Boots company, which has been pursued by taking on added duties in support of new corporate initiatives (e.g. Boot's Dentists) and marketing promotions. The effort by the centre's management to impose its interests has thus been shaped significantly by institutions, and rendered complex and problematic by the need to account for other inconsistent political objectives.

The problems posed by the centre's servicing of periodic marketing promotions further exemplifies the argument. These ad-hoc service duties have been undertaken by the centre's management in order to raise the value of the centre to the Boots enterprise. However the unpredictability of customer responses is a factor that cannot be controlled or adequately prepared for. This circumstance has on several occasions led to the Boots centre's performance levels being reduced, and its staff being overstretched, by the overwhelming responses to such promotions. This has led to dissension among the CSR supervisory staff, compounded by their unhappiness over having to comply with the instructions of marketing management staff that are seen to complicate their task of maintaining the service performance targets. Thus, politically inspired undertakings and interactions may often have adverse repercussions beyond the ability of the stakeholders concerned to control or avert.

Features of the BBC's call centre operations also support the assertion that the political agency of organisational actors could be compromised by inconsistent multiple objectives, persistent institutional structures, or intractable repercussions. The problems faced in integrating audience contact operations at the BBC Information centre with those at the BBC Audience Line centre are a case in point. The requirement for this integration had been stipulated as a performance objective in the outsourcing contract by the BBC's CSO management, as a means of ensuring the compliance of Capita staff with this key objective of the BBC. However, this objective is made problematic by the existence of several service level targets stipulated for BBC Information in the contract. A principal factor which has led to the continued lack of integration between the two centres is that those targets have engendered a complication: Capita's focus on giving first priority to meeting the BBC Information's speed of response targets is inconsistent with the full integration of the centres, since redirecting the efforts of BBC Information CSRs towards handling the daily call overflows at BBC Audience Line would result in

less ability to satisfy those service level targets at BBC Information. The power of the CSO management to enforce its aim of integrating operations at the two centres is thus weakened by its commitment to other, somewhat incompatible objectives.

Another factor that may be seen to have complicated the aim of the BBC's CSO management to achieve the operational integration of the centres is that the contractual stipulations set out for Capita to meet as an outsourcing vendor has contributed to a certain extent in mobilising the conflict between the two institutional models of public service broadcasting and commercial customer service. The service level targets have only been set for BBC Information, and not BBC Audience Line. This disparity has meant that Capita management staff have brought to bear their previous experiences (of running commercial call centres) mainly on the task of ensuring that service operations at BBC Information achieve these targets. The work culture that has thus been instituted at BBC Information approximates the commercial service ideals (e.g. individual focus; tailoring to audience interests), in contrast to the work culture at BBC Audience Line, which approximates the public service ideals, and which had already taken root and had been established long before Capita took over the centre's running. The outcomes of the effort by the BBC's CSO management to impose and enforce its interests cannot be adequately explained without taking into account enduring institutionalised models of customer service that have been brought into interaction by that attempt. Thus, the various examples from the case studies discussed above might be taken to suggest that the political actor emphasis may be inadequate in certain instances as a means of fully accounting for the political dimension of emergent IT based operations in organisations. It thus appears that the systemic emphasis, developed in this inquiry and illuminated in the case studies, offers a suitable frame of analysis for augmenting and complementing the insights of the political actor emphasis.

The preceding elaborations and discussions may thus be said to demonstrate that the systemic emphasis has significant utility, besides the situated enactment and the political actor emphases, as a theoretical basis in accounting for the emergent nature of organisational functioning in the use of IT. This emphasis does not over-accentuate the agency of organisational actors in shaping the emergent outcomes of IT use. Nor does it only focus on dynamic (i.e. fluid, loose or open-ended) structures. Instead, by asserting the need to take into account, in an integrative and inter-relational manner, the complex

‘whole’ of actions, events, circumstances, fluid and enduring structures (i.e. institutions) and conditions that comprise the internal operating context of an organisation and its external operating environment, this emphasis suggests that the emergent nature of IT based operations in firms is due to interactions between pertinent factors that encompass more than just the intentional agency of organisational actors, in their actions related to the use of IT (i.e. more than what individuals or groups may do with, or interpret about, the features or capacity of IT systems). Thus a consideration of evidence from the case studies has indicated that the systemic emphasis is a vital part of theoretical explanation on the emergent nature of organisational IT based operations. Its utility does not replace or invalidate the situated enactment and political actor emphases however, since each may be seen to constitute a unique focus of explanation on emergence phenomena, and can consequently uncover insights missed by the other two. The systemic emphasis is thus to be seen as being a complementary approach. Its further development is essential, given the support for its utility in the preceding case analyses and discussions.

7.1.2 Utility of the systemic appreciation framework

In the case study analyses of the preceding two chapters, the illumination of the systemic emphasis, in terms of a contextual consideration of the domain of IT based call centre operations at Boots and the BBC as a whole, has been undertaken through the use of the concepts and means of the systemic appreciation framework. The utility of this framework for illuminating the emergent nature of IT based operations, as seen in those two case analyses, appears to be very promising on two dimensions, as discussed in the following sections: (i) for delineating the domain of such operations; (ii) for analysis of the interpretive significance of technology use at a supra-individual actor level.

Navigating a relevant domain

It is vital to study the broad domain (i.e. the work practices plus the context) of IT use within an organisation, in order to obtain indepth understanding of the emergent nature of the organisation’s operations (Walsham, 1993). A fundamental problem that may be said to be faced by all IS studies however, that set out to analyse the contextual shaping of IT based work operations, is how to delineate such a domain of operations. This problem is partly one of finding a way of effectively structuring an operational

domain, because it is typically complex (i.e. multi-dimensional), fragmented and messy. The problem is also partly one of finding a way to establish relevancy, since the notion of an organisation's domain (and inclusively, its context) of operations is *unbounded* in its reference or implication, with respect to either spatial or time dimensions.

Early IS theoretical effort that had stressed the need to perform a contextual analysis of the utilisation on an IT system (in terms of social relations that extended far beyond the immediate behavioural setting in which the system was used) attempted to address this problem by proposing the metaphor of a web or network of linkages, as seen in the web model of computing (Kling and Sacchi, 1982). The use of the network metaphor has continued prominently in recent 'emergence studies' based on the actor-network approach (e.g. Monterio and Hanseth, 1998). This perspective has brought key insights to IS understanding of emergence phenomena in organisational functioning. However, it might be thought that such web or network based approaches are not fully adequate as an explanatory mechanism on one level, as Walsham (1997) has suggested. It may appear that while they bring fine-grained clarity and focus to the way in which the elements within particular domains of IT based work operations are linked, they do not provide sufficient analytical consideration of such domains from a macro viewpoint, or the viewpoint of an integrated 'whole'. Thus, for example, Williams and Edge (1996) had claimed that actor-network studies have paid too much attention to local or micro interactions, and had failed correspondingly to account for the influence of institutional properties at a macro level of analysis on the nature and outcomes of such interactions.

The other most prominent stream of IS studies in the emergence paradigm has looked to structuration theory to bring clarity to the complexity of contextual analysis (e.g. Majchrzak et al, 2000; Orlikowski, 1993). However, here too, as discussed earlier (see 2.1.1), these studies might be seen to have insufficiently addressed the conditioning of organisational activity from the viewpoint of a macro scope of contextual analysis, as some critics have claimed (Lopez and Scott, 2000, p.97). Finally, as noted in the earlier review, IS theory has not been adequately developed to account for contradictory and conflicting forces, when delineating the contextual influences and behaviours that shape the nature of IT use in organisations (Robey and Boudreau, 1999; Truex, 1991). The existence of such tensions and inconsistencies might be seen to be much more manifest

and pertinent when a process of analysis takes into account such a domain of IT based work operations as a broad or complex 'whole'.

The utilisation of the tools and concepts of the systemic appreciation framework, as demonstrated in the case studies, may be seen to make up for the possible or apparent shortfalls in IS theoretical capacity just mentioned. The use of the concept of narrative program (and its correlate, the actantial schema) offers a way to transcend simple web or network (relational) structures, by incorporating a role-based lattice of relationships, which are systematically distributed on dimensions of legitimisation, motivation and power (i.e. sender–receiver, subject–object–value, auxiliary–opponent), so as to achieve a logical binding and interlacing of heterogeneous elements, structures and conditions that make up an operational domain of IT enabled practices. This narrative framing thus facilitates thinking in terms of wholes, from a systems standpoint, through the analytical reduction of a complex environment of organisational functioning into heterogeneous assemblies of interrelated resources, factors, events and circumstances, bound through an integrity of coherence (or pertinence) by their correspondence to a particular set of prevailing concerns and rationales.

The creation and running of an IT based project of organisational innovation, as illustrated in the preceding two case study analyses of call centre operations, may thus be fittingly elaborated as a complex sociotechnical process of pluralistic constitution (Burns, 1981): entailing various courses of action that are set in motion to structurally elaborate that innovation into an emergent form that in some ways conforms to, and in other ways alters, the existing organisational arrangements, and the aspirations of key stakeholders. Thus the concept of narrative program and actantial schema enables an IS researcher or organisational analyst to comprehensively map out a domain of IT enabled operations.

Correspondingly, the central notion of emplotment in contrast enables him/her to integrate the delineation of this domain under key axiological schemes of thematic relevance, framed in a tensed unity of oppositional and associative relations (i.e. using semiotic square depictions). The contextual problematisation of IT use in organisations may thus be expressed from the standpoint of a relevant whole or set of wholes. As seen earlier in the two case studies, the undertaking of IT enabled call centre operations in a

company occurs in interaction with diverse factors and circumstances within its internal and external environment, such as the actions of actors and stakeholders, the impress of pre-existing material conditions and arrangements, the influence of enduring and fluid institutional properties, and the ramification of unrolling events. These interactions may be said metaphorically to 'release a plot': that is, they engender a thematic *pertinence* in the operations of that organisation, that is organic to, and that shapes the significance of the elements in, its particular operational domain. By capturing this thematic pertinence as one or more synoptic schematisations, the emplotment process is thus constitutive of an understanding of a domain of contextual factors and elements as a 'whole', through a synthesis of relevance (Ricoeur, 1981).

The case study analyses may be referred to for illustrations. In the case of Boots, the manner in which the emergent pattern of work organisation and performance at the call centre has been developing as a 'whole' was elaborated using three thematic schematisations, that illuminated the principle tensions and inconsistencies in two key areas of the centre's operations: (i) legitimising of service activity performed by the centre; and the (ii) control of service performance. The heterogeneous actions, events means and circumstances relevant to the evolving form of work operations at the Boots call centre were seen to be significant in direct or indirect relation to these key thematic concerns. Similarly, in the case of BBC Information, the way the emergent pattern of work operations at that call centre has been developing as a whole was described using two thematic schematisations, that elaborated the contradictions and tensions invoked by a conflict between the 'public service' and 'customer service' models in two areas of the BBC's service operations: (i) quality of inquiry and feedback handling services; (ii) nature of accountability demonstrated to the concerns of the BBC's audience members. The diverse actions, means, events and circumstances relevant to the evolution of IT enabled call centre operations at BBC Information and the CSO department were, for the most part, perceived as significant in direct or indirect relation to those areas.

Thus, the use of the systemic appreciation framework provides a viable means for studying the emergent nature of IT based work operations from the reference point of a broad, macro scope of analysis, by permitting contextual factors, influences and circumstances to be brought into an ordered coherence, along multiple dimensions of structure and relations of signification. The nature of IT enabled work practices in firms

can thus be contextually elaborated from the standpoint of a systemic emphasis. This framework in short helps an analyst to ‘navigate’ a relevant domain.

Conducting supra-individual analysis

Past IS studies that have adopted a contextually sensitive and processual focus in their investigation of IT based organisational functioning have traditionally placed key theoretical emphasis on the social meanings or signification attached to the use of IT systems (Walsham, 1993). The systems theoretical framework developed in this inquiry is consonant with this trend of prior IS studies in the emergent paradigm. However, from the consideration of the preceding case study analyses, it appears that this research has opened a new track of potential inquiry within that traditional focus.

Previous IS studies within the emergent paradigm have given central emphasis to the social meanings ascribed *by organisational members* to the use of IT (Markus and Robey, 1988, p. 595). This has arisen from the study of organisational emergence as a process, and from an enacted first-person viewpoint. These IS studies have focussed on elucidating the social meaning or significance that individual organisational actors and groups attribute to, or negotiate over, the features of IT based work practices and tools. This is because differences in signification, which lead to corresponding differences in response or action, are seen as being central to the occurrence of emergent phenomena in organisations, and responsible for the conflicting findings on the ‘impacts’ of IT use in work practices (Markus and Robey, 1988; Truex et al., 1999). The attribution made by these studies to human actors as being the critical source of meaning or significance of IT related activity reflects a strong *agency-centred* model underpinning the prevalent situated enactment and political actor emphases in current IS theorising on emergence.

However, in accordance with an elaboration of emergence from a third-person, property-focussed viewpoint, this study’s form of analysis suggests another source (or level) of signification to the features of IT based work practices and tools. The concept of emplotment that has been developed for illuminating the emergent nature of IT based operations as an analytical whole (from the viewpoint of an IS researcher or analyst) provides a means of apprehending how the significance that comes to be attached to the use or capacities of IT systems may be attributed to larger systems of signification that

may be seen to be representative of a particular domain of IT related activity. In other words, the value or meaning that is attached to the use of information technologies may also be ascribed to an inter-conditioning or inter-relation of significance that arises from the various events, circumstances, factors and actions seen as a whole (or as wholes).

This may be illustrated with an example from the case studies. The use of the Advantage database, at the Boots call centre, to award free Advantage card points to callers who make complaints, may, on the one hand, be seen as deriving its significance from the ascription of Boots management staff, who see this feature of IT use as a way of 'surprising the customer'. On the other hand however, the significance of that feature (i.e. awarding of free points) is also conditioned by circumstances that have arisen in opposition to those ascriptions or perceptions of the staff, such as the opportunistic bent of some callers to make repetitive complaints in expectation of free points, or the trend of rising customer call volumes received at the centre that is due to such 'perks' in the centre's service offerings as the awarding of the free points. Thus, its significance has come to be simultaneously qualified by the relational dimension of 'to be anticipated by the customer'. This demonstrates how the value of IT use in the call centre operations at Boots are shaped concurrently by contrary and contradictory dimensions. In accordance with the systemic emphasis, this study's framework provides a means of capturing the structuring of signification from an inter-relational and integrated standpoint.

The shaping of significance in the emergent nature of IT use in organisations may thus be seen as originating not only from the ascriptions of individual social actor or groups, but also from a socio-structural conditioning of significance at a macro level by the arising and unfolding of events, circumstances and uncoordinated actions within a particular operational domain. Salzman (1998), reacting against the dominant agency-centred or constructivist model that has come to characterise IS studies in the emergent paradigm, had earlier put forward a corresponding theoretical proposition: " ... we argue that interpretations of technology by individuals are bounded and structured in some systematic ways that allow for analysis at the supraindividual level," (1998, p. 99). A key utility of this study's framework's lies in meeting that need, along two dimensions.

The first dimension concerns the earlier described notion of 'institutions' (Scott, 1995) which refers to socialised patterns of expectations or premises that are not unique

to particular individuals only, but are pervasively shared by large groups of people who are members of an identifiable community or society. This key concept had previously equipped the IS field to undertake analysis of process of signification at a macro level of operational domains or societies (e.g. Avgerou, 2000; King et al. 1994). However, the notion of narrative programs introduced in this study's framework further extends current IS understanding of the role of institutions, by showing how the influence of an institution may come to be active in a specific course of action, and how it may conflict with that of other institutions active within the same scheme, or in other schemes of action. Hence, for example, within the course of action to increase audience satisfaction levels at the BBC (NP-V), the social institution of 'public service broadcasting' was seen to be in conflict with the institution of 'customer focus', in shaping the way service responses were organised and information processed at BBC Information and Audience Line centres.

On a second front, the use of this study's systems framework also extends supra-individual analysis of the interpretive significance of IT by illuminating the contextual shaping of a domain of IT based practices as a relevant whole, from the standpoint of an external researcher or organisational analyst. The IS field has hitherto lacked analytical tools to realise such a 'supra-individual actor perspective' in analysis of social meanings and perceptions regarding IT use i.e. an understanding of the significance and value of IT use from the standpoint of a researcher or analyst, and not the social actors involved. Through its hermeneutic approach to conceptualising the interaction of heterogeneous elements of an operational domain as a whole, in terms of systems of signification, this study's framework offers a method of capturing the interpretive significance of IT in organisational settings from a supra-actor viewpoint. By elaborating the contingency of social perceptions regarding the use of IT tool and capacities in terms of distinct courses of action (i.e. NP analysis), and overarching systems of inter-signification (i.e. analysis of emplotment), the systemic appreciation framework presents a means to integrate and disclose the patterns of signification by which an IS researcher or organisational analyst can form an evaluation of the form and outcomes of IT use in specific domains.

In summary, the utility of the systemic emphasis was established in the former section (7.1.1), and the utility of an interpretive form of systems analysis (for ordering relevant understanding of contextually shaped IT based work practices) was illustrated

in this (7.1.2). The method of interpretive systems inquiry developed in this study has thus been useful in illuminating how the emergent nature of IT based work operations may be holistically assessed as an outcome of heterogeneous actions, events, structures and conditions, that evoke adjustment-inducing tensions or contradictions in such work arrangements.

7.2 DYNAMICS OF TECHNOLOGY-ORGANISATION INTEGRATION

A key focus of current theorising in IS studies within the emergent paradigm is the nature of the interaction between technology and organisational arrangements in the undertaking of IT based innovation of work operations (Orlikowski and Robey, 1991). This section examines the insights into the dynamics of this interaction produced by this study's adoption of a novel systems perspective in its case study investigations. This discussion is undertaken on two fronts: (a) with a theoretical focus, in a consideration of how the outcomes of this inquiry improve conceptual understanding of the nature of technology-organisation interactions; and (b) with a practical focus, in a consideration of the implications for organisational management invoked by the illumination of the processual nature of IT enabled call centre operations.

7.2.1 Conceptualising the nature of interaction

In the IS field, the rise of contextually focussed, processual studies of IT-based innovation in organisations (i.e. the emergence paradigm) had come about in reaction to earlier mechanistic models of the nature and impacts of IT use, that typically proposed deterministic effects from technology use. Studies in the emergence paradigm, reviewed earlier in chapter two, have generally demonstrated that the use of IT in organisations produces complex, indeterminate reactions in regard to the structuring of human action: such outcomes are generally context-dependent. While recognition of the importance of the social context in mediating the outcomes of technology use is now widely accepted (Walsham, 1993), IS theorising in this area of research (i.e. into the emergent nature and effect of IT use) has nevertheless been generally polarised by disagreement over the properties and effects of IT usage on organisational functioning. Two fundamental areas of this realm of debate may be discerned, and they are discussed next in terms of their underlying attitudinal dichotomies.

A fundamental area of debate in the emergent paradigm concerns the degree to which the features of IT systems shape or are shaped by the behaviour of organisational members who make use of such systems. This debate is characterised by the following opposing positions: 'IT is flexible' versus 'IT is rigid/constraining'. Certain researchers with a constructivist stance, such as Orlikowski (2000) and Grint and Woolgar (1992), assert that IT tools have a considerable amount of 'interpretive flexibility', since users have a considerable degree of latitude to determine the manner they want to work with the systems, either in terms of moulding/configuring their properties, or in terms of choosing what meanings/significance to attach to their use. Organisational employees may thus be seen to enact or appropriate the use of IT systems in ways not prescribed or expected by designers at the point of construction. On the other hand, other researchers like Kallinikos (2002) and Salzman (1998) argue instead that IT systems and software introduce strictly structured and highly inflexible ways of doing things into workplaces, irrespective of the contexts of use. To illustrate his argument, Kallinikos (2002) drew on the example of ERP systems, which have a reputation for having imposed inflexible routines and rigid procedures of work organisation into many firms. He also argued, based on his own work (1999, 1995), and Zuboff's (1988), that IT systems introduce rigid signifying conventions into work activity.

Another key area of IS debate, more prominent prior to the 1990s, concerns the effect of IT use on human effort and work conditions. This had been comprehensively reviewed by Hirschheim (1986), who characterised the field of opinions by fundamental positions he termed as 'pessimism' and 'optimism'*. These are respectively summarised under the following opposing stances: 'IT is oppressive' and 'IT is empowering'. The position of pessimism, as held by some researchers (e.g. Cooley, 1980; Weizenbaum, 1976), sees the adoption of IT systems as inducing oppressive or stressful work regimes in companies, because of the capacity such systems afford for introducing practices or consequences considered dehumanising, like work performance monitoring, deskilling and reduced volition. Call centres, as new technology based organisational forms, have featured prominently as prime exemplars of this argument. These worksites have been adversely portrayed as 'modern sweatshops' (Ferne and Metcalfe, 1997). On the other

* Hirschheim noted a third intervening position, that he termed 'relativism'. This position corresponds directly to the constructivist position that 'IT is (interpretively) flexible' in the earlier-described contemporary debate among studies in the emergent paradigm.

hand, in the position of optimism held by organisational theorists and IS designers (e.g. Hammer and Champy, 1993; Olson and Lucas, 1982) the use of IT systems is viewed as empowering employees and organisations in their work effort, and enabling significant improvements to both individual and group performance. Call centres have been seen to be one of many IT based administrative mechanisms and tools that can yield remarkable performance benefits, when used to innovatively redesign processes in organisational production or service activities (Davenport, 1993).

Such attitudinal dichotomies have characterised contemporary conceptualisation of the nature of technology-organisation interactions. It may be suggested however, that both these fundamental disagreements represent, on one level, unsatisfactory disputes, because of an 'either/or' basis that such positions appear to imply. A consideration of the features of call centre work environments, and the case analyses undertaken earlier, may serve to demonstrate that it is insufficient to confine IS theoretical explanation to either side of each of those contestations.

Examination of call centre technology systems used at Boots and BBC suggests that such complex tools *simultaneously* contain elements reflective of rigidity as well as flexibility. The role of the ACD (automated call distribution) system, as described in the first chapter, is revealing. This system performs the 'virtual' organising of CSR effort in handling customer calls. An example in support of Kallinikos' (2002) argument that IT systems introduce rigid signifying conventions into the workplace is the notion of a 'skill', which held currency at both Boots' and BBC's call centres. As described earlier (chapter one, section 1.3.3), each training course a CSR completes in order to qualify to handle specific issues or types of calls is known in call centre parlance as a skill. This differs from the popular notion of a skill as multi-dimensional competence: rather, in call centre environments, a specific definition of this notion has been imposed by the need to program ACD systems to pass incoming calls to CSRs appropriately, according to the training they possess. However, such an argument that IT introduces rigid ways of working into workplaces might equally be seen to be countered in the case of call centres, by citing the wide range of flexibility offered by most ACD systems (described in section 1.3.3) for selecting the manner that they may be configured, on the fly, for distributing incoming calls to CSRs. Another example of the simultaneous occurrence of elements of rigidity and flexibility attending the use of IT in call centre operations

may be drawn from the Boots' case. Some components of this centre's IT system have induced operational inefficiencies through their inflexibility, such as the inadequately specified dimensionality of the data on the firm's mainframe system, and the restricted indexing capability of the CustomerQ system. Other IT components, in contrast, have proved highly tractable and amenable to sustaining the efforts of the staff to improve the level of service performance, such as the Lotus Approach database system programmed to hold information on Boots stores, and the Lotus Notes and intranet systems used as information sharing platforms.

To argue on the basis of ERP systems that IT introduces strictly rigid ways may be seen as failing to take into consideration the variability of types of IT tools. It may be suggested that ERP systems introduce greater rigidity because they involve *procedural* automation to a much greater degree than other type of IT systems. In contrast, database type software, which were mainly used in the call centres studied in this inquiry, may be said to reflect *provisionary* automation: these tools provide a capacity to hold data, and an organisation has wide choice in deciding how to use that capacity. Although both the Boots' and BBC's call centres used the very same type of CRM database software (i.e. CustomerQ system), the data held in each system differed in terms of its content and the uses it was put to (as seen in the case studies). The degree of inflexibility encountered in working with database software is less likely to be seen as momentous by employees, in contrast to that in ERP systems, since the main function of database systems is to hold and retrieve data, rather than to execute specific procedures or routines beyond the intervention of employees. The dissatisfaction over the capabilities of their IT systems expressed by CSRs at the Boots call centre, for example, did not involve inflexibility that stemmed from 'rigid ways of doing things': rather, it obtained from inadequacies in the capability of search mechanisms and the availability of data, and other issues like slow responses. Even on the basis of considering procedural type software alone, it may be said that ERP systems occupy an extreme end in the spectrum of inflexibility, since the ACD systems in call centres, although representative of procedural-type tools, offer considerable flexibility in terms of being configured in real-time. Finally, it may also be said that the degree to which IT systems in a call centre can be considered constraining or flexible is also contingent on other factors within the larger context of an operational environment, beyond the walls of the call centre, such as the variation in the profile of

customer calls, or the kind of workload laid on the centre in advertising campaigns (as seen in the Boots case study).

Accordingly, it might be said that the argument that IT is constraining on human agency can be seen as failing to take into account a range of intermediate qualifications that occur between 'rigidity' and 'flexibility', and that may characterise the use of any type of the large assortment of IT tools adopted by organisations in different domains. The same limitation may be seen as applying the opposite argument: that IT systems are interpretively flexible. This may also be suggested as true of the other major dichotomy underlying theorising of the effects of IT use, namely: 'IT is empowering' versus 'IT is oppressive'. The call centres studied at both Boots and the BBC were not seen to be the oppressive worksites that are conjured up by references to panopticons and sweatshops: nor were they found to be sites with perfectly happy staff and untrammelled work performance, made trouble-free by the empowering role of IT systems. Recent research has shown that call centre work environments exhibit a wide variety of work conditions and labour management styles, and that it is too simplistic, and therefore untenable, to claim that such centres represent inevitable and imprisoning technological nightmares (Richardson and Marshall, 1999).

As may be seen in both case studies, the use of IT tools, and of the call centre technological form as a whole, may be more accurately described as having provided an arena for struggle, in which there were simultaneously both gains and losses, plusses and minuses, and components of IT systems that were differentially rigid or tractable in respect of prevailing demands. IT systems may be said to be open-ended: their features and capacities constitute a *context of choice* that is variously enabling and constraining for the undertaking of social action; and conversely, organisational actors are variously freed or inhibited in their efforts to select a *choice of context* to exploit those capacities, by the socio-political and material resources they have inherited, or are in the process of forming. To argue or conclude that 'IT is constraining' or that 'IT is flexible' may thus be seen as unsatisfactory: they cannot adequately reveal the dynamics of interaction or transformation in specific organisational domains because they reflect only some parts, and ignore the variety within the whole, of such domains.

In the light of such variety or richness of technology-organisation interactions, it may be seen as useful to find a way to bridge the fundamental dichotomies or polarities (discussed above) which have characterised past IS theorising or debate regarding the emergent nature of IT based work operations. However, the IS field has hitherto lacked theoretical concepts and analytical instruments to capture and reflect the complexity of the contextual shaping of IT use that occurs in organisations.

In this regard, the concepts and tools of the systemic appreciation framework, as used in the two case studies of IT enabled operations, might be viewed as fulfilling that need. The use of the semiotic square device for articulating the thematic oppositions characterising the value or significance of IT based call centre operations may be said to advance current IS theoretical description of interactions between IT and organisation in two aspects: (i) the significance that is attached to such interactions may be elaborated along a far richer set of intermediate qualifications than binary 'either/or' positions; (ii) this elaboration may be undertaken in reference to an analysis of factors and influences in a particular domain considered as an integrated, complex 'whole'. Thus, for example, the contextual assessment of IT based call centre operations at Boots was elaborated from the standpoint of four axial positions of significance: (i) to surprise the customer; (ii) to be surprised by the customer; (iii) not to be surprised by the customer; and, (iv) to be anticipated by the customer. Multiple dimensions of the nature of IT-organisation interactions had been illuminated in that analysis (see section 5.3.2), with reference to those four zones of entanglement. This had included, implicitly, multiple dimensions of the qualities of rigidity and flexibility, which as seen are polar dichotomies in current IS debate. This will be made explicit by the following elaboration, illustrated by Figure 15.

With regard to 'surprising the customer', the utilisation of IT functionality such as the awarding of free points in the Advantage database, the use of an intranet or email for communicating feedback to corporate units aimed at activating remedial actions, and the ordering of gifts through the CustomerQ system, represent instances of the way the capacities of the centre's IT systems have proved amenable to the aim of management to promote goodwill and loyalty among Boots customers. This reflects a positive type of flexibility, interpretive and material, instilled by those features. However, the 'flip side of the coin' is that this has invoked some aberrant consequences (from the viewpoint of management), such as repetitive complaints by customers in anticipation of free points,

and a displacement of casual inquiries from stores to the call centre. This zone of being ‘anticipated by the customer’ may be seen to represent a kind of ‘negative flexibility’, in which the very same capacity of IT tools and features to be easily manipulated, in the interests of planned actions or desired behaviours, also incurs an inverse capacity to be manipulated in return* (through unanticipated actions or undesired behaviours).

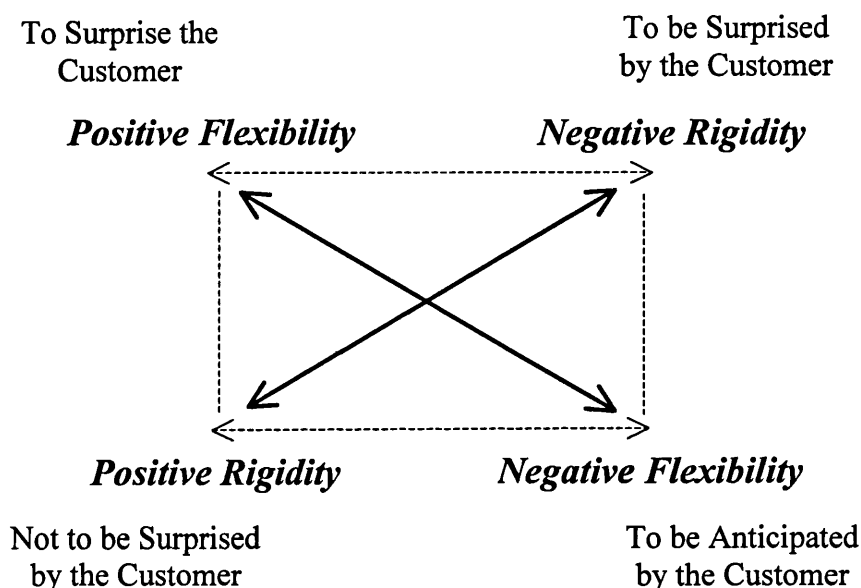


Figure 15: Rigidity and flexibility in the use of IT capacities at Boots

With regard to ‘being surprised by the customer’, the present inadequacies of information resources stored in the company’s legacy mainframe system (i.e. warehouse inventory system), and other shortcomings in the call centre’s own IT systems such as the limitations of search mechanisms, the lack of systems integration and slow response times, constitute a significant amount of rigidity that has negatively impeded the ability of CSRs to respond adequately or quickly to customer inquiries. In regard to ‘not being surprised by the customer’ however, the success that has been achieved in preparing the CSRs with the necessary information resources to handle customer contacts has resulted from the use of IT capacities to establish a *permanency* of communication exchanges with other corporate units. This ‘positive rigidity’ effected by the conscription of IT has been both material and symbolic. An intranet and other data exchange tools like email and Notes have provided stable material channels that are hosting collaboration between

* This is a property of information technologies that has, sadly, proved costly for some people in modern societies, such as those who have suffered from identity theft or credit card fraud.

the centre and other units. The informative feedback reports created from the centre's CRM database and passed to other corporate units has cemented strong symbolic bonds of obligation that sustain the adequate timely provision of information needed by CSRs.

It is also disclosed by this inter-relational analysis of the Boots' operations that the positive flexibility that can characterise the use of IT capacities is pre-supposed by the positive rigidity amounting from the same: and contrawise, that the negative rigidity that can characterise the use of IT capacities is pre-supposed by the negative flexibility of the same. For instance, in order for the Boots' management to transform the centre's ability to exploit the use of IT capacities to 'surprise the customer' (e.g. provide better information), it is necessary for the centre to harness the use of IT capacities to achieve the necessary communication exchanges and information resources from the rest of the company (i.e. the successful undertaking of activities in the zone of 'not being surprised by the customer'). Conversely as well, for instance, the difficulties facing the centre's staff in being unable to deal with the range of customer queries, needs and issues within the zone of 'to be surprised by the customer', may be ascribed to the almost unrestricted capacity (i.e. negative flexibility) created by call centre technologies to deal with mass incoming calls from a customer environment. Thus, an analysis of the employment of IT use at the Boots call centre has uncovered a far richer set of dimensions than just simple binary alternatives in the qualities of rigidity and flexibility that accrue to organisational practices and transformation from the use of IT systems.

The investigation and characterisation of the emergent nature of IT based work performance in this study, from a contemporary systems perspective (i.e. as systems of signification), has thus drawn an important benefit. Based on consideration of the earlier case analyses and the above discussion, it may be asserted that the use of the systemic appreciation framework equips IS research with a new robust method of analysis that can reveal, beyond unsatisfactory binary dichotomies, the dynamics of integration and change that characterise the use of information technologies by organisations.

7.2.2 Corporate integration of call centre operations

As seen earlier, there has been a lack of processual understanding regarding IT enabled call centre work environments in research literature. This study was presented

with an opportunity to investigate the potential challenges faced by organisations in running call centres. A consideration of the two case studies provided an insight, from a systems thinking standpoint, into key problems that may emerge when such IT based organisational forms are incorporated by companies into their operations.

The case studies indicated that the process of integration between the call centre and the parent organisation can form a key area of difficulties. In the case of Boots, the centre had not been implemented as part of a wider scheme of a planned re-organisation of the delivery of customer services in the company. The centre has thus been operating, to a certain extent, as a supplementary (or 'tack-on') service function in the company. This has created problems for the undertaking of service efforts at the centre, in such areas as: the establishment of effective channels of information exchange and work procedures that require the cooperation of other corporate units in Boots; the adequacy of information resources, stored on the company's legacy IT systems, for supporting inquiries handled at the centre; and conflict over the 'ownership' of responsibility for customer contacts e.g. the opposition from managers of Boots Dentist clinics over the centralisation of booking services, and the issue of dividing responsibility for servicing customers between the centre and the Boots stores. These integration problems suggest that the integration of a new IT based organisation form such as call centres necessitates serious consideration, especially in firms having traditionally decentralised governance structures like Boots. The manner in which the rest of the organisation's existing work arrangements need to be re-formulated to accommodate the new service duties handled by the call centre. There is a danger such IT based forms are treated as self-sufficient components that can be adopted without the need to make significant adaptations in the rest of the company. Call centres perform a gatekeeper role for the organisation, since they occupy the frontline of communications with customers (Frenkel et al., 1999). A redistribution of power and responsibility structures within the parent company is thus essential beforehand for supporting the intermediary role these centres perform.

In the case of the BBC, the problems of integration made an interesting contrast to those of Boots. Unlike Boots, the decision to implement the new call centre functions at the BBC appear to have been well-planned with regard to integration with the rest of the organisation, with the CSO department being given the responsibility of facilitating the cooperation and communication between the centre and the rest of the organisation.

Notably, the CSO department staff consists of several teams representing different areas of the BBC's broadcasting operations: the considerable experience of the staff, as well as their collegial links with most departments of the company, may be seen as a factor that has facilitated the effective operational integration of the BBC Information centre. However, the problems of 'cultural' integration between the BBC and the outsourcing partner, Capita, emphasise the need to consider the social dimensions of compatibility that attend the incorporation of an IT based organisational form into operations of the parent firm. The systems thinking perspective elaborated in this study stresses the need to undertake project planning and analysis with a broad scope and inter-relational focus, and a consideration of the effects and repercussions that extend to the organisation as a whole, and that are not only confined to the *local* interactions between organisational members that are immediately connected with the new innovation project. The adoption of IT enabled call centre operations by a company may require prior establishment of cross-department partnering and communication initiatives between staff from the new centre and those from other corporate units in the firm.

The systems thinking perspective elaborated in this study also brings attention to emergent phenomena that are properties of the whole (or of wholes) of an operational environment. Hence, the employment of IT based operations that occurs with the setup and running of call centre services in a company may be expected to yield unanticipated effects that are due to circumstances and factors beyond the control of organisational actors. Thus, management staff in call centres should be prepared to exercise continual vigilance regarding the nature of interactions with the parent company and the external environment, in order to take measures to deal with emerging issues as they appear. The use of the systemic appreciation framework may help in this regard, by sensitising staff to pertinent contextual factors and interactions in the organisation and environment.

7.3 RETHINKING PERFORMANCE IN SOCIOTECHNICAL SYSTEMS

Leading proponents of the sociotechnical systems approach have urged the need to introduce new conceptual and analytical resources, to increase the relevance of this older theoretical school for contemporary IS research and practical concerns (Mumford, 1997). One key area in which this school of thought can make a significant contribution concerns its traditional focus on improving organisational performance. Sociotechnical

systems analysis aims at improving the conditions and outcomes of IT based work performance (Mumford, 1997), uncovering inconsistencies and dialectical struggles in order to understand how quality of performance might be improved. The importance of developing this instrumental focus of the approach is especially warranted at present, as certain researchers have advocated.

Shulman (1999), for instance, complains that although recent newer IS theories on the structuring of work organisation and performance have generated rich insights into the structuring of human agency around the use of IT tools, they have offered little or no guidance at all towards understanding *what is good performance*, and how it is facilitated by the symbolic or actual use of IT. His question about how the significance or value (i.e. use-value or symbolic value, not monetary value) of IT based performance is determined is a particularly important one for the sociotechnical systems approach. If the IS sociotechnical systems approach is to achieve its goal of producing knowledge that can be used for improving organisational performance levels (i.e. performance as a level of accomplishment, not as the action of doing), then it must possess a fundamental theoretical capacity for addressing the process of signification. This school of thought should possess the capability to illuminate how the significance or value of performance in IT based work operations is shaped in order to be able to adequately theorise how the design or management of such operations is to secure the desired performance levels.

The development of the systemic appreciation framework in this study, and its application in the case analyses, was undertaken precisely to forge the IS sociotechnical systems approach with such tools, for conducting contextual analysis of IT based work performance and illuminating how such performance is valorised (i.e. assigned value). This is accomplished by elucidating the systems of signification (i.e. emplotment) that are representative of organisational functioning in particular domains, at both micro and macro levels. This section discusses the utility of this study's framework for elaborating how the value of IT based work performance is conditioned. It will be shown to shed some light on that key question raised by Shulman (1999) above.

At a micro level, the concepts of narrative programs and boundary qualifications were seen as useful for revealing how the value of performance is shaped contextually. The use of the notion of narrative programs clarified an understanding of the '*project-*

ability' of IT in the functioning of an organisation – the manner by which the features, functions or capacity of IT tools become relevant to a particular course of action. For instance, the use of regular reports generated from the CustomerQ system at the Boots call centre was seen as a critical resource in raising the institutional status of the centre in relation to other corporate units in the organisation, and in securing their active and much needed cooperation for sustaining the centre's customer service efforts. Another example is the way in which the organisation of information resources on the BBC's internet web site by the CSO department staff assumed the significance of a surrogate call centre, for 'luring' audience members away from too frequent contacts at the BBC Information centre. The web site became a mechanism of self-service that fulfilled the BBC's obligation to still serve its audience members, but at a much lesser expense. The notion of narrative programs thus served to highlight the process of social signification concerning the use of IT capacities in the call centre operations. The notion of boundary qualifications was, correspondingly, perceived to be useful for identifying how shifts in contextual valuations of performance may occur as a result of such courses of action.

At a macro level, the concepts of narrative program and emplotment illuminated the way in which the value of organisational performance is conditioned within a broad operational domain. The use of NP analysis helped delineate the pluralistic constitution of organisational performance, as involving multiple and sometimes conflicting courses of action. The integrative and multi-dimensional concept of emplotment, central to this study's framework, replaces the uni-dimensional and static notion of a fit (or match) in the traditional sociotechnical systems analysis of performance. As demonstrated in the foregoing case accounts, the notion of emplotment served to fundamentally characterise the shaping of IT based call centre operations as: (i) contradictory trajectories of change (e.g. contrasting transformations in quality of inquiry and feedback handling services at BBC Information, in section 6.3.2); (ii) transformations between inconsistent states (e.g. a transformation in value of service activity at Boots, in 5.4.2); or (iii) a tensed gestalt of contrasting dimensions (e.g. the shaping of control over customer service interactions at the Boots call centre, in 5.4.2). Thus, the macro shaping of the value of performance of IT based operations was not only illustrated in relation to a *combinatory* standpoint, involving inter-adjusting interactions between parallel courses of action (i.e. NPs), but also from a *synoptic* viewpoint, as a whole or a set of wholes, conceived in the form of key trajectories of change, or of configurational matrices of opposing dimensions.

The importance of such characterisations in theoretical treatment of the nature of organisational performance is that by describing such performance in terms of particular patterns of significance or value, the inter-relational dimension of elements and factors that shape such performance become evident. The awareness of these inter-relationships renders such performance amenable to improvement. Organisational researchers have pointed out that the day-to-day management of organisational functioning in real world companies typically involves simultaneous management (i.e. juggling) or compromises between the multiple courses of action that emerge, alternative priorities and concerns, or conflicting values or approaches (e.g. Vickers, 1983). As seen in the case studies, the analysis of IT based organisational functioning at a macro level afforded by the tools of this study's framework offer a way of clarifying the nature and consequences of such multiplicity, and representing how the emergent nature of organisational performance is constituted and shaped in a complex and convoluted manner, not a straightforward one.

Moreover, the method of diagnosis incorporated by the systemic appreciation framework may be said to develop sociotechnical systems analysis further, by providing a way to answer the important question raised earlier by Shulman (1999) regarding how the value of performance is determined. From a consideration of the illumination of IT enabled call centre operations in the case study accounts, the following definition of the way in which the value (i.e. use-value or symbolic value, not monetary value) of work performance is determined may be submitted: *the value or significance of performance in IT based operations is constituted and shaped by an inter-relational matrix (or a network) of differential valuations.*

That the value of performance in IT based work activity is thus constituted by a network of differences in significance was illustrated in the analyses of the employment of Boot's and the BBC's call centre operations. For example, valorisation of the BBC's call centre activities as a whole had been seen, on one key dimension (i.e. accountability to audience interests), to be constituted by a dynamic embedding with respect to four axiological positions: to take equal account of all members; to take selective account of specific members; not to take selective account of specific members; and, to take into account own interests. This approach to conceptualising the process of signification by

which IT based performance is invested appears to offer much scope for developing the instrumental focus of IS sociotechnical systems analysis further.

One possibility is to introduce a notion that has been somewhat latent in analysis of emplotment as systems of inter-signification. This may be termed as a 'significance ratio': this shall be strictly taken to refer *not* to a quantitative or numerical measurement of value, but instead to an appreciation of the symbolic or use-value of an organisational element as constituted by its containment of complementary, contradictory and contrary conditions of a system of signification that it pertains to. Thus for example, the practice among CSRs at the Boots call centre of using the Advantage database to award free points to customers who complain may be seen to have a significance ratio somewhere between 'to surprise the customer' and 'to be anticipated by the customer': the symbolic or use-value of this practice is compounded by being both a contrivance for delighting customers (i.e. designed use) and an occasion for some of them to take advantage of the centre (i.e. aberrant use). The idea of significance ratios will require greater theoretical specification. It nevertheless represents a potential route for further development, since it offers a way to support more comprehensive assessments of the value of IT use.

Thus, on the basis of the above discussion, and the evaluations made at the end of the preceding case study accounts, the tools of this study's analytical framework may be deemed to be effectual for developing the instrumental focus of the IS sociotechnical systems approach, in a manner not simplistic. They facilitate analysis by providing a means to assess how the value of IT based performance is conditioned, and how such performance may be developed or managed to engender improvements within a specific organisational setting. When the shaping of IT based operations is thus described in its complexity, it can be better understood and handled more prudently. Corresponding interventions by organisational analysts or practitioners, aimed at improving the quality of a company's performance, may be informed by this deeper appreciation.

It may be suggested that increased knowledge of the conditions of IT based operations in an organisation, as promoted by a researcher's or analyst's elaboration of his/her emplotment of understanding regarding such operations, can be used to improve the effectiveness of such operations, by facilitating a change of the 'plot' (i.e. modifying the gestalt or trajectory of transformation characterising the operations). The plausibility

of this suggestion should not be allowed however, to mask the difficulty of achieving successful change. As has been seen in the two case studies, the particular nature of an organisation's IT based operations owes significantly to the influence of established or pre-existing institutional arrangements, and material conditions, beyond the immediate ability of stakeholders or actors to alter easily in the short term. In the Boots call centre, this took the form of the parent company's traditional focus on decentralised operations and governance structures, as well as other legacy arrangements not easily modified or redressed in the short term, such as the limitations of the information resources in the firm's mainframe based warehouse inventory system. At BBC Information, the pre-existing arrangements that have engendered conflict and tensions include the opposing institutionalised service models deeply ingrained in staff from Capita and those from the BBC CSO department. Such arrangements or conditions represent structural or cultural orderings not easily altered or shed in the interests of compatibility.

Moreover, the possibilities of fully resolving or escaping the contradictions and tensions inherent to the emplotment of a firm's IT based operations are never final. All forms of social organisation incur different sorts of contradictions, some primary and some secondary (Giddens, 1984). Every set of prescriptions in a social configuration occasions a corresponding set of incompatibilities (Greimas, 1987). Thus, the attempts by social actors to resolve the contradictions and tensions that characterise one form of emplotment may only, in interaction with circumstances and events beyond the control of those actors, produce a different form of emplotment, one that holds a fresh set of inconsistencies and oppositions. Jameson (1987) states rather pessimistically that one does not 'resolve' a contradiction (or set of contradictions): rather, in a Hegelian sense, one alters the situation by action so that the contradiction, now irrelevant or powerless, recedes into the past, its place substituted by a new and unexpected contradiction. In the sociotechnical systems school of thought, the undertaking of each project of technology based innovation in an organisation can be expected to engender new forms of conflict or inconsistency, or reinstate old ones (Mumford, 1996; Pasmore, 1988).

Regardless of the inevitability however, of having to encounter and to manage conflicts and tensions in an IT based work environment, the understanding gained from a clearer recognition of (and sensitivity to) their existence may increase the degree of success in interventions to improve work operations. The richer understanding gained

through the use of the systemic appreciation framework may be coupled with feasibility studies to heighten the suitability of a choice when deciding among alternate courses of action to proceed by. The framework thus significantly boosts the theoretical capacity of the IS sociotechnical systems approach for producing penetrative understanding on the emergent nature and value of performance in IT enabled operations.

7.4 DEVELOPING INTERPRETIVE SYSTEMS INQUIRY

It was seen in the literature review in chapter two that the IS field has lacked the use of a method of systems thinking for investigating the contextual shaping of IT based organisational operations, chiefly because systems thinking has hitherto been poorly developed for the purposes of sociological description. The formulation and application of such a systems framework had been undertaken in this study. This section discusses this study's theoretical and methodological advances in relation to the development of interpretive systems inquiry.

7.4.1 Theoretical innovation in systems thinking

The method of interpretive analysis formulated in this study, and demonstrated in the elucidation of IT enabled call centre operations in the foregoing two case studies, represents an attempt to advance the theoretical articulation of systems thinking in the IS field, for the role of sociological description of contextually embedded, processual IT use in organisations. The achievement of that aim in this research has necessitated the introduction of novel features in the form of systems thinking elaborated here, which set it apart from the traditional systems approach. These changes may be clarified through a comparison of key features of the systemic appreciation framework with those of the mechanistic/organic systems framework (Weiner, 1961; Emery and Trist, 1960) that was reviewed earlier in chapter two (section 2.3.2), and that had resulted from the first generation of effort* at using systems thinking for theoretical description of the nature of technology based organisations. The dissimilarities are summarised in Table 10.

* Comparison with second and third generation systems thinking methods (e.g. SSM, Critical Systems Thinking) was excluded because, unlike first-generation systems thinking and the interpretive systems inquiry developed here, they are geared towards intervention, not sociological description.

	Traditional systems thinking	Interpretive systems thinking
Ontology	realism	internal realism/subjective idealism
Root metaphor	mechanical/biological entity	narrative
Representation	mechanistic/organic systems	signification systems
Descriptive focus	functional interactions	symbolic and functional interactions
Correspondence	elements linked by cause-effect sequence	elements linked by pertinence/coherence
Relations	exchange (inputs and outputs)	significance (contrariety, contradiction, implication)
Boundary-setting	a single, physical boundary	multiple boundaries of value/significance
Precedence	system over process (process reflects integrity of system)	process over system (system reflects integrity of process)

Table 10: Differences between interpretive and traditional systems thinking

A central feature of the new form of systems thinking represented by the study's systemic appreciation framework is its hermeneutic orientation. It is characterised by an interpretivist ontology, in which an understanding of organisational reality is seen to be either an inter-subjective or purely subjective construction of the researcher and social actors involved in making sense of such reality. Such an ontology, of internal realism or subjective idealism (Walsham, 1995), differs from the objective realism of traditional systems analysis: it concurs with contemporary systems thinking philosophy (Midgley, 2000; Checkland, 1981). As exemplified in the case studies, this analytical framework is based on the root metaphor of a narrative. The complexity of IT based functioning is ordered by narrative frames and a central notion of a plot. An integrative understanding of the interactions of heterogeneous contextual elements and factors in the broad scope of an organisation's operations is thereby achieved, by their representation as systems of signification, based on matrices of relations of dependency and inconsistency.

This is a major departure from traditional systems thinking and its root metaphor of mechanical or organic entities. The main motivation for this change is that this new form of systems analysis has had to be geared towards addressing the social dimension of organisational functioning in theoretical description (i.e. the central inadequacy of traditional systems analysis), and thus has had to be able to take account of the symbolic aspects of human agency, such as power, legitimisation and motivation. In other words, this interpretive systems inquiry was formulated to treat the social (i.e. symbolic or affective) dimension concurrently with the technical (i.e. functional dimension). It was

perceived that such aspects were inextricably bound up with the process of signification (i.e. production of significance, meaning or value) active within specific organisational domains. The use of ideas and tools by Greimas, for disclosing the way heterogeneous elements in organisational functioning are ordered in relevance and coherence to human agency, were thus seen to offer the most promising route for adapting systems thinking to the task of illuminating the emergent nature of IT based work operations. This form of interpretive systems analysis foregrounds the relations of significance (oppositional, associative) and multiple boundaries of value that characterise systems of signification, unlike traditional systems analysis that identified relations of exchange (inputs, outputs) and a single perimeter-type boundary separating a system from its environment. Such changes, as the notion of boundaries being unfixed and plural, have been required to render systems analysis with a dynamic capacity for mirroring the shifting, complex and polysemic nature of contextual factors and influences that shape the emergent nature of IT based work operations.

Another central innovation in the systems perspective embodied by this inquiry is the precedence given to process over system. The emplotment of IT based call centre operations was represented or schematised, in the foregoing case analyses, as 'systems of signification', through various inter-relational elaborations. The idea of a system thus upheld in this new framework of interpretive analysis is that of a synoptic description, extracted from an elaboration of a process. In other words, the system that frames an understanding of evolving IT based operations in an organisation is fully contingent on the interpretations of ongoing actions, events and conditions, for maintaining congruent patterns of pertinence or significance within the affairs of that organisation. The validity of such a system, as a representation of this pertinence, will eventually collapse, as key unfolding actions, events and circumstances come through time to constitute a new disequilibrium, and thus register new patterns of signification (i.e. emplotment). This notion of a system thus constitutes only a temporary, interpretive accommodation of the processual complexity of organisational functioning. Accordingly, this contemporary systems approach avoids the ontological weakness of traditional systems analysis, that had represented organisations as stable, unchanging entities (giving precedence to the equilibrium or integrity of the system over the process it reflected), and had thus been strongly unsuited for addressing the dynamic nature of organisations (Dahlbom, 1996).

These new features that have been introduced to enhance systems thinking as a method of inquiry for IS research into emergent organisational functioning, have thus resulted from this study's effort to compensate for the major shortcomings of traditional hard systems and sociotechnical systems analysis. They enabled the illumination of IT based work operations from the systemic emphasis, as demonstrated in the discussions earlier of the case studies of call centre operations. The next section brings up the end of this chapter's discussions by elaborating further the methodological benefit that analysis based on systems thinking can bring to IS research.

7.4.2 Methodological utility of systems inquiry

Systems thinking is fundamentally inter-relational and integrative in its mode of analysis. The use of systems thinking to elucidate the emergent nature of IT based work operations provides a key benefit, by enabling the contextual shaping of such operations to be studied from the standpoint of integrated, inter-related analytical wholes. Further elaboration of the utility of this methodological emphasis of systems thinking may be derived from a reflection over the way the general epistemological form of IS studies on the use of IT in organisations have evolved. Underlying the general transformation that has come about in the IS field, by the increased prominence and quantity in recent times of processual, contextually focussed studies of IT use in organisations, may be said to be a fundamental effort to rethink the theorising of causality, or *effectivity* as it may be more appropriately designated.

The rise of contextually focussed and processual IS studies since the 1980s (i.e. the emergent paradigm) had come about in reaction to the earlier predominance within the field of mechanistic models of causality regarding the use of IT. Those mechanistic models incorporated an essentially deterministic notion of effectivity as involving one or more cause-and-effect sequences (i.e. analogous to the motion of striking billiard-balls). They were seen to be inadequate for explaining the nature and effects of IT use. Such models were faulted for being acontextual, ahistorical and aprocessual (Pettigrew, 1985a); they could not account for unanticipated outcomes (Markus, 1994; Kaplan, 1991); their basis in a simplistic cause-and-effect model of causality precluded them from dealing with complex, indeterminate interactions between technology and human actors, that had come to be seen as characterising IT adoption (Cecez-Kecmanovic and

Kay, 2001; Markus and Robey, 1988; Morgan and Lawler, 1984); and moreover, they could not account for rich, subtle differences of significance or meaning attached by organisational members to the features and uses of IT in specific domains (Markus and Robey, 1988). To those key constraints of mechanistic models cited in the IS literature might be added another, that concerns the argument being developed here. Mechanistic models of causality, which are formed by analytically reducing a phenomenon (e.g. the use of IT in organisations) to its parts or elements and then measuring the impact or effectivity of those parts on each other, may be said to have been unable to account for the effectivity of the *whole* of the phenomenon on its parts (Jameson, 1981).

The perceived inadequacy of mechanistic models of causality thus engendered a sizeable body of IS research studies that have sought to develop contextually sensitive explanations and processual descriptions of the forms and outcomes of IT use. These studies have broadly focussed on elucidating the social meaning, or signification, that various organisational actors ascribe to the features and use of IT. As mentioned earlier, this is because such differences in signification, which lead to corresponding differences in responses and actions, are viewed as being central to the occurrence of emergent phenomena and properties in organisations, and responsible for conflicting findings on the 'impacts' of IT use in organisations (Markus and Robey, 1988; Truex et al., 1999). These processual, contextually focussed studies have thus tended to highlight the active agency of social actors in shaping the features and uses of IT tools, as seen during the earlier review and discussion of the situated enactment and political actor emphases that have dominated such studies in the IS emergence paradigm over the last decade. The underlying, fundamental model of effectivity that may thus be said to correspond to the majority of such studies is one that highlights human agency as the primary force or mechanism in the generation of emergent phenomena.

Those studies that have been based on agency-centred model of effectivity have brought considerable understanding and valuable insights to IS theoretical knowledge regarding the emergent nature of organisations. The studies have significantly clarified the nature of emergence in IT based organisational functioning as a process from a first-person enacted viewpoint: they have elaborated the emergent nature of IT use from the viewpoints, decisions and actions of social actors involved (i.e. organisational members and stakeholders), thus accounting for the manner in which the active perceptions and

actions of actors can, as a process over time, engender emergent phenomena in IT based work operations.

It might be suggested however, that the way in which the agency-centred model of effectivity has treated the nature of organisational functioning as a 'whole' (i.e. an inter-related, organised set of constituent parts) seems to have left this area inadequately addressed. Prominent IS studies within the emergence paradigm that have adopted the agency-centred model of effectivity (e.g. Orlikowski, 2000, 1996a,b; Truex et al., 1999; Cecez-Kecmanovic and Kay, 2001) may be interpreted to have focussed on elaborating the emergent aspects of organisational IT based operations from the point of reference of the *parts* – the micro contexts of individual or group behaviour in organisations – rather than from a point of reference of organisational functioning as a *whole*. This may be seen, from one angle, to be reflected in the alternative approaches such studies have adopted for representing organisational functioning as a 'whole'.

One approach has been to treat this whole as merely an incremental aggregation or combination of the parts. For example, in the major studies that have promoted the situated change model (Orlikowski, 1996), and the IS-organisation coevolution model (Cecez-Kecmanovic and Kay, 2001), the emergent form and outcome of organisational functioning as a whole is viewed as having amounted from a summation of numerous, repeated micro-events of adaptive individual and group employee behaviour. Truex et al. (1999) exemplify this approach in their claim that 'the emergent organisation' as a whole is the product of constant interactions, social negotiations and consensus building among its members. An associated outcome of this approach, it might be suggested, is that it may be seen to have bred an over-emphasis on constantly changing, fluid or loose social structures, and a corresponding effacement of regard for rigid (i.e. unchanging), regular, or stable structures, in the constitution of emergent outcomes. To arrive at an aggregate depiction of the 'whole' of organisational functioning as an emergent process, such studies may be seen to have overly-characterised the parts as unstable, in constant shift and irregularity (e.g. Truex et al., 1999; Orlikowski, 1996). Another key approach adopted for addressing organisational functioning as a whole, by IS studies based on an agency-centred model, is to dissolve dichotomies of scale between the micro and macro dimensions of social organisation, and to treat the properties of the whole or macro order as being analytically constituted in the same way as the parts. Thus, for example,

IS studies that have promoted actor-network theory (Callon, 1992; Latour, 1987) use the same conceptual apparatus, and base metaphor of a network structure, to articulate the properties of (or interactions between) the elements of social organisation at both a local and global scale of analysis. Similarly, the IS-organisation coevolution model (Cecez-Kecmanovic and Kay, 2001) represents the evolutionary effects of IT use from micro to macro levels of organisation as indistinguishably constituted, at all levels, by structural sequences of variation-selection-retention.

However these agency-centred approaches for representing the whole or macro order of emergent organisational functioning from the standpoint of the parts (and not the whole) appear to have left the area of understanding insufficiently addressed. This may be said to be reflected in the lack of conceptualisation of emergent phenomena that are properties of wholes, rather than the constituent parts of organisational functioning. Another way such a lack might be seen to be reflected by, is in the inadequate attention given to the way factors or properties within a macro scope of analysis shape the actions of organisational actors at the micro level of situated action, as noted by IS researchers working in the institutional theory based approach e.g. Avgerou (2000).

The different starting point and emphasis that this study took in investigating the nature of emergence in organisational functioning may be seen as providing a means to engage this methodological problem: accounting adequately for the effectivity of the whole of a phenomenon (e.g. the contextual shaping of IT based work operations) on its elements. By adopting a third-person, property-focussed account of emergent IT based operations, this study has not been able to account for the nature of emergence in the way that previous studies based on the agency-centred model have significantly done i.e. as a substantive process, and from the viewpoint of the actors. However, this study's framework of interpretive systems thinking does appear to offer a tentative way to formulate analytical conceptions of the an organisation's functioning as an analytical 'whole', and to represent the way this whole shapes its constituent parts or elements. It does this specifically by a focus on signification, as incorporated through a hermeneutic mode of inquiry.

An understanding of the phenomenon of contextual shaping of organisational IT based operations, as a whole or set of wholes, is comprehensively 'organised' around

the metaphorical notion of a plot, that is at the root of this framework's pivotal concept of emplotment. In a story, the plot functions to synthesise together (for the reader) the interactions and relationships between all the actors, actions, events and circumstances into a coherent system of significance, expressed in the form of the themes or the moral of the story. The whole of the story can then be summarily expressed in terms of the explanation of its plot and sub-plots. The plot thus, in essence, captures or encapsulates the 'whole': the multiple incidents, actions and circumstances that make up a story are apprehended in relation to the story's totality, or plot. The plot, moreover, invests those heterogeneous elements that make up a story with a particular order of significance, corresponding to the theme (or themes) of that story. In this sense, the plot shapes or transfigures the significance of the individual elements of a story: the whole conditions the parts. Otherwise incidental, minor or seemingly unrelated actors, incidents and circumstances are invested with a new or deeper significance, in relation to each other, and the story as a whole, when the plot becomes apparent or is made known.

Within the realm of signification, the notion of a plot thus serves to express the effectivity of the whole over the parts or elements. Following Ricoeur (1981), this study's interpretive systems framework extends the application of the notion of a plot beyond works of fiction, to encompass a comprehensive appreciation of the shaping of IT based organisational functioning as a whole. This is conveyed by the core concept of emplotment, which serves to express (i.e. in the two case analyses) an understanding of a firm's domain of IT based operations as 'wholes' or set of 'wholes' in the form of one or more systems of inter-signification, that clarify and foreground the relations which bind different elements or influences in association or opposition with each other. From an elucidation of emplotment, as seen in the two case analyses, the relevance of various elements or factors may be apprehended in relation to other elements, and to overall themes, according to particular patterns of significance that represent the whole. The concept of emplotment may thus be taken to be (approximately) indicative of the way an organisation's domain of IT based operations, when considered as a 'whole', shapes the significance of the heterogeneous parts or elements.

It was noted earlier that there has been a lack of theoretical conceptualisation in past IS studies regarding emergent phenomena that are properties of wholes, rather than the constituent elements, of organisational functioning. The concept of emplotment may

be considered as being one such emergent property. The emplotment of understanding by a researcher or analyst regarding the nature of a company's IT based work operations is a property of signification that is not atomistic, but one which arises out of the inter-conditioning or inter-ordering of different actions, events, circumstances and factors that comprise the domain of a company's IT operations. From a hermeneutic standpoint, the whole represented by the conception of emplotment may be said to be always more than the sum of the parts, in that the significance of the whole 'organises' or brings about a qualitative shift in the significance of individual elements. Thus, this framework of interpretive systems analysis encourages the investigation of emergent qualities of organisational functioning that are properties of the whole rather than the elements.

The interpretive systems framework elaborated in this research thus appears to offer a way to meet the methodological challenge of representing the effectivity of the whole of a phenomenon (e.g. a domain of IT based work operations) over its elements. The significance of various constitutive elements of IT based work operations may be seen to be shaped by their relation to the form of emplotment in which they come to be (to use a favourite term of Greimas) entangled within.

7.4.3 Use of the systemic appreciation framework

The role and function of this study's systemic appreciation framework had been introduced during an earlier chapter (section 3.1.4), and its utility elaborated earlier in this one (section 7.1.2). A summary account of the use of this framework in supporting systems based inquiry is forthcoming in the light of its demonstrated use in the two case analyses. As stated earlier, this framework is meant primarily for use by IS researchers or organisational analysts, in order to help them arrive at an evaluation of the emergent outcomes related to the IT based work operations of an organisation.

As seen in the case analyses, the concepts and tools of this framework provide a means for an IS researcher to illuminate the emergent complexity of organisational IT based operations from a holistic standpoint, as irreducibly integrated wholes. The use of the NP analysis may serve for *ordering* an organised understanding of heterogeneous actions, events, conditions and social structures in a domain of IT based operations from an inter-relational standpoint. Thus permits the accentuation and theoretical elucidation

of 'emergent' tensions and contradictions in such operations, that are an outcome (i.e. a property) of the inter-relationship of constituent elements (and found not in the elements themselves) of the domain. The use of the semiotic square device facilitates a mapping of the way that the value or significance of IT features and IT based work practices are partly constituted by the 'emergent' outcomes of integration and transformation in the adoption of IT systems or an IT based organisational form (e. g. call centres). In short, researchers may use this framework to support theoretical elaboration of the emergent nature of IT enabled organisational functioning from a property- focussed, third-person analytical standpoint.

For an organisational analyst, the improved understanding or insights that may arise from the use of the framework may be used to guide and inform the interventions they undertake, aimed at raising the effectiveness of work processes and environment of their client organisations. The framework might perhaps be of highest utility in serving to expose implicative contradictions (or contrarities) in organisational IT use, and then informing efforts to 'exploit' such contradictions. For contradictions are not necessarily negative in implication: they may supply, or be turned to constitute, a source of positive synergies. This is suggested by the consideration of the BBC study, in the instance of the 'contradictory' focus of goal and performance priorities between management staff of the BBC's CSO department and of Capita (i.e. as occasioned by differences between public and commercial customer service models), discussed in section 6.3.2. This major contradiction, at present a source of conflict, might through the skilful handling and the communication of organisational analysts/consultants, serve as a basis for negotiating a complementary partnership. For the potential exists for the present conflict between the CSO and Capita management to be reduced by a recognition that the strengths of their contrary approaches can profit each other's interests. These opposing models of service may be equally promoted and balanced 'correlatively' (i.e. using sociotechnical systems theory terminology), so as to secure the BBC's commercial viability (in an increasingly competitive broadcasting market), while simultaneously developing the adaptability of Capita to harness customer loyalty on different scales of social value (in customer-need environments increasingly fragmented by differentiation).

The above example thus illustrates another use of this framework. It might also serve to expose hidden or latent contradictions in organisational functioning: those that

are easy to miss, or difficult to pinpoint. For the primary contradiction described above may be perceived to 'hide' another. The conflict that has polarised the attitudes of some of the CSO management staff against Capita's management staff is based on the CSO's perceptions that the priorities and approach of Capita is based on a service model (i.e. the commercial model) whose underlying values, such as 'customer focus' or customer identification/precedence, directly contradict the values of the public service model i.e. objective distance, fairness to all etc. This perception has taken root so strongly among the attitudes of some of the CSO staff that it may be viewed as having hidden another contradiction: that Capita's service model might be a more effective way than the public service model for BBC programme production staff to gain more accurate or intimate access to the interests/viewpoints of their public audience. If, as stated in the preceding paragraph, this recognition was teased out by an analyst (or someone responsible for relations between the BBC and Capita), and propagated in an appropriate way among CSO management staff, then the possibility could exist for the first contradiction to be placed 'in perspective' by the second (hidden) one, and the synergies of complementary partnership, and a reduction of conflict, realised. Thus, the use of this framework's tools (in particular the semiotic square) can serve as a way to reframe the understanding of conflicts or tensions, through the disclosing of layered or buried contradictions.

Last but not least, the framework's tools might also serve as tools of awareness for organisational actors that can initiate constructive changes (managers, directors). As Giddens (1979, p. 5) had noted, all social actors are knowledgeable: "Every social actor knows a great deal about the conditions of reproduction of the society of which he or she is a member." Thus managers (or those staff who hold responsibilities) are typically knowledgeable of contradictory or conflicting demands and priorities which they must reconcile, or at times ignore, in their course of daily work organisation or performance. However, this knowledge might be tacit (below the level of discursive consciousness), or it might be undeveloped, because of a lack of conceptual tools to express or to clarify such knowledge of contradictions and tensions in an explicit, useful manner. The use of the semiotic square device, preceded by increased knowledge of the context induced the framework's other tools (i.e. NP analysis), may thus serve in this regard to benefit such actors (managers or analysts), who are able to carry out interventions informed by such gains in awareness and insight.

7.5 SUMMARY OF INSIGHTS

This research had set out with the question of determining how the shaping of IT based operations might be explained from a systems thinking standpoint. The preceding discussions of the understanding gained from a consideration of the case studies and the review of theoretical literature, has shed some insights into this study's focus of inquiry. This has encompassed fresh developments in understanding of both the emergent nature of IT based operations, as well as the benefits of using a systems approach to study the shaping of such operations. The insights are summarised next.

With regard to the emergent nature of IT based organisational functioning, key conclusions were drawn. It was seen in the case studies that the emergent nature of the IT enabled call centre operations is shaped by the conditioning influences and effects of heterogeneous factors and elements within both the inner organisational context and the external operating environment. Thus, the utility of adopting the systemic emphasis for illuminating the emergent nature of IT based practices was supported, as a complement to the situated enactment or political emphases. It was also found that the properties of organisational functioning around the use of IT, as in the two call centres studied, could be elaborated in a way that both integrates and compounds common binary dichotomies of IT evaluation, such as rigidity versus flexibility, or oppression versus empowerment. The value of performance in IT based operations, as illustrated in the case analyses, was seen to be shaped by an inter-relational matrix of differential valuations. The benefit of adopting such an inter-relational and integrative method of analysis, as emphasised by the systems approach, was thus demonstrated. The emergent nature of IT enabled call centre operations, studied from this perspective, was found to involve key difficulties of integration between the operations of each centre and those of its parent organisation.

In regard to the use of this study's interpretive systems framework to investigate emergence in IT use, several benefits were identified. This framework was found useful for organising a complex, multi-dimensional understanding of IT enabled operations, in an illuminative manner. The introduction of this framework was seen to heighten the capacity of the IS sociotechnical systems approach for revealing the emergent nature of IT based operations in ways that significantly addressed the approach's past limitations. This novel systems framework offered key theoretical and methodological advances on

traditional systems analysis, in the role of sociological description of organisational IT use and functioning. In summary, these findings may be said to contribute to establish the importance of adopting a systems perspective, for studying the nature and outcomes of IT adoption.

The next chapter brings this inquiry to a conclusion. It enumerates this study's findings, its limitations, the implications for future IS research effort, and the practical implications for organisations challenged by the management of emergent phenomena.

CHAPTER EIGHT: CONCLUSION

8. INTRODUCTION

The lack of a systems thinking based approach, among the IS research methods that have been used for investigating the emergent nature of organisational functioning, precipitated this exploratory study. Adopting the theoretical focus of the sociotechnical systems approach, this research formulated a contemporary framework of interpretive systems analysis to account for the emergent nature of the use of IT capacities in firms. As exemplified in the case analyses of call centre operations at Boots and the BBC, this framework was used to illuminate the way IT based work organisation and performance is fundamentally shaped by tensions and incompatibilities stemming from interactions of actions, events and circumstances in the internal organisational context and external operational environment. The results of this research generally establish the importance of adopting a systems perspective to elucidate the emergent nature of IT based activity in organisations.

This concluding chapter reviews the major outcomes of this research. These are elaborated in section 8.1. Section 8.2 relates the limitations of this study. Subsequently, section 8.3 enumerates the theoretical and practical implications of the insights gained in this inquiry. These implications include the potential directions for future IS research effort, and the practical benefits that management staff might derive.

8.1 OUTCOMES OF STUDY

The results of this research, as related to its themes of inquiry and exemplified in the analytical framework (i.e. the systemic appreciation framework) that was formulated and applied in the case studies, may be distinguished under four inter-related outcomes. These major outcomes are, in brief: (i) development of systems thinking for undertaking contextual study of IT based work practices ; (ii) illumination of the emergent nature of IT based operations in firms; (iii) support for conducting multifaceted analysis of IT-organisation interactions; and (iv) extension of the IS sociotechnical systems approach. These outcomes are reviewed next.

8.1.2 Development of systems thinking for IS contextual study

Although the use of systems thinking has been prominently championed by key IS researchers (Lee, 2000; Galliers et al., 1997; Klein, 1996), it has been conspicuously absent from contextual studies of IT use in organisations. A principal reason for this is that systems thinking has hitherto been poorly developed for the purpose of sociological description and analysis of IT based organisational functioning, especially in terms of revealing its contextually shaped, dynamic and often unanticipated nature.

A central outcome of this research has been to adaptively develop an interpretive framework of systems thinking for this new role of providing insightful explanation on the contextually shaped nature of IT based work operations in organisations. A systems framework brings certain key advantages to an analysis of IT use not offered by other IS theoretical methods, namely: (i) an inter-relational and integrative mode of analysis fundamentally centred on the properties of signification; (ii) clarification of problems associated with IT based activity in organisations from the standpoint of an analytical whole (or set of wholes) of contextual circumstances; (iii) a focus on contradiction and conflict in the social order; (iv) illumination of the way the interpretive significance of IT features or capacities is shaped from a supra-individual actor viewpoint (i.e. deriving from interactions within a domain of IT based work operations when viewed as a whole by a researcher or analyst, and not solely the attributions of individual actors or groups in this domain). This systems framework enables diagnosis of the contextual shaping of IT related activity and transformation in organisations, as constituted by distinct and often conflicting schemes of action and outcomes. The application of systems thinking has thus been significantly advanced in the IS field.

8.1.2 Illumination of the emergent nature of IT use

A pressing contemporary need has been recognised for IS theoretical explication of the emergent nature of IT based work operations in firms (Orlikowski, 1996a; Truex, 1991). Past IS theoretical and empirical effort in this arena has been characterised by three fundamental forms of emphasis: situated enactment, political actor and systemic. Both the situated enactment and political actor emphases reflect an agency-centred

model of explanation, that highlights the actions and perceptions of actors (reflected by dynamic or loose social structures) as being centrally responsible for shaping the use of IT in emergent ways and outcomes. In contrast, the systemic emphasis, which has been undeveloped in the past, lays stress on a consideration of the inter-relational interaction of pertinent conditions, factors, fluid and rigid social structures, within a broad scope of analysis, and from the viewpoint of an integrated 'whole'.

A consideration of evidence from the case studies suggested that the emergent nature of the IT enabled call centre operations is shaped by the conditioning influences and effects of heterogeneous factors and elements in the inner organisational context and the external environment. Thus, the utility of adopting the systemic emphasis for explaining the emergent nature of IT use was supported. This research thus contributes towards clarifying IS theoretical explication of the emergent constitution of IT based work activity.

8.1.3 Multifaceted analysis of IT-Organisation interactions

A key focus of contemporary IS studies is to theorise the nature of interactions that occurs between elements of technology and organisation during activity carried out in IT based work environments. However, past theoretical debate in this area have been characterised by binary dichotomies that may be seen as unsatisfactory in the light of the variety and richness of organisational IT based work environments. The IS field has hitherto been in need of theoretical concepts and analytical instruments for capturing and reflecting the complexity of IT-organisation interactions.

The concepts and tools of this study's systemic appreciation framework provide this ability to uncover a richer set of dimensions than the alternative predictions of past studies, when conceptualising the interactions and changes in IT based operations. The dynamics of integration and transformation in the use of information technologies were revealed, in this study's case analyses of IT enabled call centre operations, in a way that transcended unsatisfactory binary dichotomies. This study has thus demonstrated the use of theoretical tools which augment the analysis of IT use by disclosing intermediate qualities and compound implications in the characterisation of operational domains.

8.1.4 Extension of the IS sociotechnical systems approach

Leading proponents of the IS sociotechnical systems approach have asserted a significant need to recast this approach and augment its conceptual resources, to enable it to address the emergent nature of organisational functioning around the use of IT (Lin and Cornford, 2000). The need has also been recognised for broadening the focus of this approach beyond a predominant, normative concern with IS development practices. The systemic appreciation framework formulated in this study was designed to fulfil those requirements, while maintaining the approach's traditional orientation of foregrounding the inconsistencies and conflicts that may arise with the use of advanced technologies in the workplace. Thus, another major outcome of this study has been the extension of the IS sociotechnical systems approach through the concepts and analytical tools of this framework. These tools can be used to disclose or highlight contradictions and tensions in organisational functioning that are easy to miss, or difficult to pinpoint; thus aiding intervention efforts in improving IT based work organisation and performance. The use of this framework also preserves the instrumental focus of this approach by providing the means to illuminate how the value or significance of IT based work performance is conditioned within specific organisational settings. The insights accruing from such an analysis can inform intervention efforts aimed at producing performance improvements. The interpretive basis of this framework (in hermeneutics) extends the methodological basis of the sociotechnical systems approach beyond its past reliance on action research methods. This study has thus enhanced the IS sociotechnical systems approach.

8.2 LIMITATIONS OF STUDY

Two notable limitations of this research effort are described next. Although they do not detract significantly from the outcomes described above, they represent scope for redress in future research endeavours. One limitation of this research effort is the use of retrospective accounts to build a picture of the setup and evolution of the call centre services studied at Boots and the BBC. These accounts had been gathered in interviews with relevant long-serving staff members at the Boots and BBC call centres, who had had first-hand experience of the implementation and evolving transformation of the centre's operations which they related. Due to the limitations of memory and selective recounting however, it is possible that the comprehensiveness and accuracy of those

descriptive accounts might have been better. A better strategy of data collection would have required a longitudinal study, in which a more accurate, objective assessment of the evolving transformation of such operations could have been obtained, by interviews and examinations at periodic intervals. The resources for such a study were unavailable to this researcher. However, since the primary focus of empirical investigation in this research was methodological rather than substantive (i.e. aimed at the development of a systems framework for elucidating the emergent nature of IT based functioning, rather than the evaluation of call centre operations), it may be asserted that this limitation was not a critical barrier to the achievement of the study's aims.

Another limitation that may be cited regarding this study concerns the degree of conceptual development of the analytical tools, adapted from the work of Greimas, that form the systemic appreciation framework. The heuristic nature of the key concepts of narrative programs and boundary qualifications invites further theoretical specification of their application. The explanatory power of the concepts and method that constitute this study's systems framework may be improved through further conceptual refinement and development. This limitation is not a critical one either, since the framework in its present form was found to be adequate for the purpose of theoretical explication of the two case studies. This underscores a need for further IS theoretical effort at developing the systems thinking method for use in supporting studies of the nature and outcomes of IT use in organisations.

Both limitations of this study just described may be ascribed to the exploratory nature of this research effort. The concepts and tools introduced by this study were recruited and adapted in an evolutionary, improvised manner, via conduct of the case studies, which were used to instantiate the application and clarify the feasibility of those components of its framework.

8.3 IMPLICATIONS OF STUDY

Both theoretical implications for future IS research and practical implications for organisational management may be derived from consideration of this study's outcomes and the earlier case analyses. The theoretical implications are first described next.

8.3.1 Implications for IS research

The theoretical implications to be derived from this exploratory study cover both research in the existing arena of emergent IT based organisational functioning, and new tracks of research. The evidence from this study lends significant support for stressing the further development of the systemic emphasis in future research in this established arena, against the trend of recent IS studies which have stressed the local, dynamically constituted, micro-level agency of social actors as the main force shaping the use of IT. There is a need for more studies that adopt a broad scope of analysis, and take account of relevant influences in the larger organisational context and the external environment, including a focus on material conditions, or rigid institutional structures, which are not easily altered on the basis of individual or group agency. Recent calls for greater IS theoretical attention on the role of pervasive social institutions in the macro-structuring of organisational activity (Avgerou, 2000; Robey and Bondreau, 1999) are consonant with this study's findings.

Other theoretical implications of this study relate to the identification of new tracks of inquiry for future IS research effort. One of these new research areas concerns the use of concepts and analytical tools from semiotic theory for elaborating the process of signification surrounding IT use in organisations. A notable amount of past IS studies within the research areas of IS development, software design and IS security have relied on theoretical models and tools from the field of semiotics for elaborating the circuits of signification underlying the design of software features and IT policies (Stamper, 1997; Holmqvist et al., 1996; Liebenau and Backhouse, 1990; Andersen, 1990). This research, however, extends the application of semiotic concepts and instruments to the virgin role of theoretical description of the nature and consequences of IT use in organisations. The utility of such resources from the field of semiotics, as demonstrated in this research, suggests a significant amount of scope for future IS studies to adopt and develop the use of similar resources in illuminating the process of signification and meaning-making in IT use in organisations. Umberto Eco (1976, 1973), a leading semiotician, has argued strongly that all forms of social organisation can be studied under a semiotic profile.

On a similar note, this study also demonstrates the potential for new IS research related to the use of methods and tools of analysis from narrative theory (Boje, 2000)

for the elaboration of organisational functioning. The systemic appreciation framework developed in this study is based on organising an understanding of IT based operations under a narrative mode of apprehension. The adoption of such an approach is consonant with a recent call by Boland (1999) for the introduction of analytical tools in the IS field to elucidate the narrative structures of organisational functioning. Recent theoretical and empirical effort in the field of organisational studies (e.g. Deuten and Rip, 2000) also point to the applicability of narrative concepts in explanation of organisational activity. There is thus a need for IS studies to develop this area of research potential.

Other potential for further theoretical specification or empirical research may be derived from this research. One of these concerns the possibility of developing the use of semiotic square analysis, as demonstrated in this study, for improved specification of the value of performance in IT based work activity. The notion of 'signification ratios' was raised during discussion in the previous chapter. This could be developed further, as a means to inform evaluation of IS activity, or perhaps to aid in the identification of more comprehensive software specifications (i.e. specifications that take into account contradictory or contrary capacities of IT use). Another area of potential for further IS research is a question that issues directly from this study's demonstration of the notion of emplotment as a means to conceptualise the ordering of signification (around the use of IT) in organisational functioning at a supra-individual level. Future IS research effort may be directed at determining how a particular form of emplotment in an organisation gets eventually superseded by another: in other words, how are major reorientations in the realm of pertinence (i.e. the key thematic issues) in organisations triggered, and does the old 'plot' leave some form of imprint or trace in the new?

8.3.2 Implications for management

A key implication for organisational management may be drawn from this study. This is the need for staff, who are planning the incorporation and development of IT based customer service operations using of a call centre, to organise such operations not on a discrete or standalone project basis. Such planning is not to be divorced from serious consideration of the parent organisation, or the external operational environment (i.e. including the behaviour of customers or partner organisations, and the institutional or historical circumstances in which the organisation operates). In accordance with the

systems perspective validated in this study, there is a need to take a broad, integrative view of the incorporation of IT based work operations, and to be constantly vigilant and prepared for unanticipated tensions and contradictions that will arise, as a result of the inter-relatedness of internal operations, or the unpredictability of external factors and influences. This can be said to apply equally to projects in which the undertaking of IT based operations is characterised by strong, top-down pre-planning, as in the case of the BBC's call centre operations, or to projects that are loosely pre-planned, organically driven initiatives, as in the case of the Boots call centre operations: both forms of work organisation and performance are likely to incur unexpected difficulties or outcomes.

The tools and method of the systemic appreciation framework presented here provide a way for practitioners to gain a richer appreciation of the issues that emerge as a set of IT based work operations evolve. Such integrated, inter-relational understanding is centred on the notion of an ongoing, developing 'plot' (i.e. emplotment). This notion represents an ordering of the pertinence of key issues, that come to dominate the nature of such operations, in oppositional and associative terms. An organisation's IT based operations can be illuminated in terms of the key tensions and contradictions, unique to the particular domain, that shape the trajectory of its transformation, or that constitute a persistent gestalt in its functioning. A more insightful awareness may thus be obtained. The complexity of organisational functioning however, ensures that stakeholders will never have full control over the form or direction of evolution in such operations. More informed awareness of the specific form of emplotment involved, nevertheless, can help organisational members ride the bumps, and survive the diversions or interruptions, that are likely to arise and deflect the outcomes of projects away from planned or anticipated ends. Such understanding may even help facilitate the achievement of new, emergent arrangements more satisfactory in outcome than those originally intended.

8.4 CONCLUSION

My main aim in undertaking this study had been to develop a method of systems thinking to be used for illuminating the emergent nature of IT based work operations. In the course of successfully developing this methodological framework, I have achieved some progress in recasting systems based sociotechnical inquiry in a new form, one that is centred on the investigation and representation of IT based work operations in firms

from a standpoint of systems of signification. At a fundamental level, this study may be perceived as having advanced the sociotechnical systems theoretical approach along its next logical step of progression. For the most significant contribution, it may be argued, of the early researchers who pioneered this approach (e.g. Emery and Trist) had been an implicit recognition of the importance of *signification* in analysis of technology based organisational environments. This school of thought was erected correspondingly on the cornerstone of what might be said to be the most basic and ostensible qualification of significance in organisational functioning: a binary separation into separate categories of the 'social' and 'technical'. The greater theoretical sophistication of contemporary IS understanding however, has caused this original demarcation of signification to be no longer tenable nor unproblematic. In complex functional entities like organisations, the constitutive elements of IT based work operations possess both social and technical dimensions concurrently: these categories of the social and technical are not exclusive (Grint and Woolgar, 1997). The analysis of IT use in organisations can thus no longer be premised on such a rude division.

As a form of repair, I present in this thesis a modern reworking of that original analytical framework of sociotechnical systems theory. The framework of interpretive systems thinking introduced here enables the descriptive evaluation of organisational IT based work operations along multiple, context dependant relations of inter-signification. This allows for the analysis and representation of organisational functioning along a far richer set of dimensions than the simple either/or logic (i.e. social or technical) of that original approach. This new framework of sociotechnical analysis thus offers a means to illuminate, in a more comprehensive and integrative manner, the emergent nature and consequences of IT use. The dynamics of organisational performance or transformation can be revealed beyond simplistic or naive dichotomies of IT use and outcomes, such as fit/non-fit, enable/constrain, deterministic/non-deterministic. The webs of entanglement that IT based work operations are subjected to in particular operational domains may be more fully traversed, and unpacked, from a systems perspective.

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APPENDIX A.1: LIST OF INTERVIEWEES

BOOTS Staff

(Boots Customer Services Centre)

Category	Job Role of Interviewed Staff Member(s)
Management Staff	Director of Customer Service / Consumer PR Customer Service Centre Manager Asst Customer Service Manager (Business Interface Team)
CSR Staff	Team Leader Senior Advisor Information Seeker
Support Staff	Systems Development & Support Analyst Trainer (of CSR staff)

Note: In addition to formal semi-structured interviews with the above personnel, informal queries were also directed to CSRs while shadowing them in their job duties

BBC / CAPITA Staff

(BBC Information Centre / BBC Customer Services Operations)

Category	Job Role of Interviewed Staff Member(s)
Management Staff	Director of BBC Information, Marketing and Communications Manager Customer Services, BBC Audience Lines Manager, BBC Customer Services Coordinator, BBC Operations Manager, Capita Assistant Operations Manager, Capita
CSR Staff	Team Leader
Support Staff	Team Leader Editorial Investigations, BBC Team Leader Reception Advice, BBC Team Leader Education Unit, BBC IT Manager, Capita Client Services Quality Officer, Capita

Note: In addition to formal semi-structured interviews with the above personnel, informal queries were also directed to CSRs while shadowing them in their job duties

