

**ORGANISATIONAL CULTURE AND  
INFORMATION SYSTEMS IMPLEMENTATION:  
A CRITICAL PERSPECTIVE**

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**Thesis submitted for the degree of Doctor of Philosophy**

**March 2003**

## **ABSTRACT**

This research explores how information systems (IS) implementation is accomplished when cultural change of an organisation is attempted and what this accomplishment means for those touched by it. Efforts of this kind are being made in the UK National Health Service (NHS), where modernisation programmes involving technological rationalisation and change are aiming to make the NHS more responsive to contemporary public demands. This study focuses on the ambulance services and specifically on a history of IS implementation efforts over 20 years at the largest and most appraised of the English services, the London Ambulance Service (LAS).

A perceived need for cultural change involving the use of advanced information technologies is pervasive in managerial and ministerial discourses about modernising the health service. Yet the way that ambulance services are regulated and monitored has given rise to a modernisation programme in which cultural change and IS implementation have been conceived largely instrumentally in terms of achieving performance targets. Moreover, goals to which the modernisation efforts aspire are at most partially realised. Organisational change is uneven, and the performance improvements achieved are contradictory, and this is not only true in London but elsewhere in the UK.

Drawing from organisational theory and critical social theory, past IS implementation efforts at the LAS are reinterpreted in light of recent developments, with contributions to theory and practice in mind. The theoretical contribution rests in exploring how emotion as well as rationality may be conceptualised to examine historically and culturally constituted working practices. Implications for practice address how IS implementation can give rise to cultural fragmentation, and also how professional identity can constrain IS innovation. Finally, the research contributes to a current debate about the future for ambulance services and the mechanisms used to evaluate their performance.

## ACKNOWLEDGEMENTS

This thesis is dedicated to my mother, who sat up with me the first time I burnt the midnight oil writing an essay. On that occasion I was 10 years old, doing a summer project – on *Police and Their Work* – on the last day of the holidays. Again I am writing about public servants, I continue to be most productive when a deadline looms large, and now I am grateful to many others who inspire me to write. These people include the staff of the London Ambulance Service (LAS). I conversed with over 150 of them during interviews and my observations of their work, and I learnt from many more, just by having an opportunity to see them at work. I thank them all, and especially Ian Tighe, who supported this study from the outset, Avril Hardy, who facilitated it in numerous ways, and Lynn Sugg and Pat Driscoll, who allowed me to squat in their office on so many occasions.

When I enrolled for a Masters degree at the London School of Economics (LSE) I was sceptical of Ian Angell's claim at the induction meeting for students that 'this place will change you'. I had 17 years' experience as an IS practitioner, the research papers I had read so far seemed to oversimplify that experience, and I taught my students to question them as I did. So I became a changed person at LSE when I realised that change did not mean accepting mainstream thought – it meant getting better at questioning it. Staff and fellow students in the Information Systems department inspired and supported me in different ways. I thank especially Chrisanthi Avgerou, who never lets me get away with a sloppy argument, Steve Smithson, for providing a contrasting take on many issues, and Shirin Madon, for supporting me through a time of conflicting priorities, especially in the early stages of my doctoral studies.

# CONTENTS

<i>CHAPTER 1 Introduction</i>	7
AIMS AND MOTIVATIONS OF THIS RESEARCH	7
THE CHAPTERS TO COME	14
<i>CHAPTER 2 Literature Review</i>	18
APPROACH TO THE REVIEW	18
THEORIES OF TECHNOLOGICAL CHANGE	19
CONCEPTS OF ORGANISATIONAL CULTURE	32
<i>CHAPTER 3 Adopting a Critical Framework</i>	49
ASPECTS OF CRITICAL THEORY	49
THE FULL CONTEXTUALIST MODEL	71
THE RESEARCH QUESTION	77
<i>CHAPTER 4 Research Methodology and Setting</i>	79
MY RESEARCH PHILOSOPHY	79
APPROACH TO DATA COLLECTION	83
APPROACH TO DATA ANALYSIS	88
OVERVIEW OF THE CASE	91

<b>CHAPTER 5</b>	<b><i>The Rise of an Internal Market</i></b>	<b>98</b>
	CHALLENGING A PUBLIC SERVICE MODEL OF ORGANISING	98
	THE LASCAD PROJECT	110
	REVIEWING THE LASCAD PROJECT	129
<b>CHAPTER 6</b>	<b><i>The Route to NHS Trust Status</i></b>	<b>134</b>
	HOW REGIMES OF TRUTH WERE CONSTITUTED FOLLOWING LASCAD	134
	THE CTAK PROJECT	145
	REVIEWING THE CTAK PROJECT	154
	REVISITING LASCAD	161
<b>CHAPTER 7</b>	<b><i>The Emergence of Priority Dispatch</i></b>	<b>166</b>
	HOW REGIMES OF TRUTH WERE CONSTITUTED DURING 1997/98	166
	HOW REGIMES OF TRUTH WERE CONSTITUTED DURING 2000	179
	CALL PRIORITISATION AND THE PRIORITY DISPATCH PROJECT	188
	THE PRINTERS ON STATIONS (POS) PROJECT	207
	POSTSCRIPT	214
<b>CHAPTER 8</b>	<b><i>Discussion</i></b>	<b>216</b>
	ON A THEORY-FIELDWORK INTERACTION	216
	ON HOW IS IMPLEMENTATION IS ACCOMPLISHED	220

<b>THE CONSEQUENCES OF MODERNISATION EFFORTS</b>	<b>230</b>
<b><i>CHAPTER 9 Conclusions</i></b>	<b>239</b>
<b>SUMMARY OF CHAPTERS</b>	<b>239</b>
<b>CONTRIBUTIONS OF THE RESEARCH</b>	<b>244</b>
<b>ON THE FUTURE FOR AMBULANCE SERVICES</b>	<b>257</b>
<b><i>REFERENCES</i></b>	<b>263</b>
<b><i>APPENDIX A Key moments and the discourses about them</i></b>	<b>296</b>

## **CHAPTER 1 Introduction**

‘Anniversaries ... are occasions to take stock ... an activity that is often a complex mixture of appreciation, wariness, anticipation, regret, and pride, all fused into thoughts of renewal’ (Weick, 1996, p. 301). In the 40<sup>th</sup> publication year of *Administrative Science Quarterly*, Weick remembered the founding values of its first editor and explored them in a story of organising and the death of 27 firefighters at Mann Gulch and South Canyon. “Drop your tools or you will die” is the image he examined.

Weick uses the image of dropping one’s tools and the occasion of an anniversary to explore a theme of modernisation – a process of simultaneously accepting change and renewing or regenerating remembered values. This thesis also has a theme of modernisation and it contains stories of what happened when people held on to their tools and when they dropped them. These are stories of organising in which people are told to change their working practices and renew their values around the tools of information technology. In one of the stories, 20 people die. That event occurred 10 years ago, the occasion was the implementation of the LASCAD (London Ambulance Service Computer Aided Dispatch) project, and the account presented here takes up the theme of renewal. It remembers the past in order to explore the possibilities for the future. It is critical, in the Foucauldian sense that we need to understand how we got to where we are today, so that we can examine the transgressions available and thereby raise the possibility of being otherwise. Or, in Weick’s much lighter way of arguing, we need to ask why people hold on to their tools, so that we can connect the past to the present and modernise remembered values in a process of renewal.

### **AIMS AND MOTIVATIONS OF THIS RESEARCH**

Being modern is a claim made by many organisations. In these discourses, they strive to show the efficiency of their operations, the quality of service they provide, and the benefits for staff and consumers of their adoption of perceived leading edge technologies. On the surface, a call to modernise that embodies such goals is acceptable to many. However, quality of service and efficiency of operations may be evaluated in

diverse ways, and even one individual's interpretation of both might suggest a conflict in achieving the two simultaneously. Moreover, leading edge technologies do not have properties that of themselves produce benefits. In an established way of organising and providing a service, some stability will have been achieved among conflicting views on key issues such as these. A call to modernise can then surface old tensions as well as presenting new challenges. Proponents of the modernisation programme examined in this study argue that cultural change is necessary and that the introduction of information systems is essential to the proposed changes. This research examines what is being attempted and achieved in these IS implementation efforts, focusing on exploring how they are accomplished.

This study is concerned with modernisation efforts in the UK National Health Service (NHS), in which technological rationalisation and change in health care organisations is aiming to make the NHS more responsive to contemporary public demands. It focuses on the ambulance services and examines their efforts to exploit information and communication technologies (ICTs) to improve the service they provide. In these efforts, information systems are intended to change working practices for ambulance service staff so that accepted discourses about what it means to be responsive are altered, thereby giving rise to cultural change.

UK governments, past and present, have been prime movers in these developments. Through a diverse collection of consultative groups, professional advisors, surveys and opinion polls, successive governments claim to have understood contemporary demands on the health service, and have attempted to enact various strategies for responding to these demands. In the last 20 years, we have seen moves to introduce more professional management into the NHS (Department of Health, 1983), the establishment of an internal market (Department of Health, 1989) and, more recently, a proposal to replace the internal market with a system of integrated care (Department of Health, 1997). Each move has articulated a concern with patient care, but recent developments, including *The NHS Plan* (Department of Health, 2000b), 'reflect a trend towards a more "consumer-led" model of health care provision in which patients' needs and expectations are given higher priority' (Nicholl et al, 2001, p. 21). Increasingly in these moves, information technology is articulated as having a central role. So, after 20 years



of effort, we may ask why it is that the NHS, and specifically the ambulance service, is finding it so difficult to modernise. What characteristics of the discourses of modernisation and the discursive practices of ambulance workers make them reluctant partners?

Joint needs to change the culture of the NHS and to mobilise the potential of information technology are cited repeatedly in managerial and ministerial discourses about modernising the UK health sector. Although this research takes up both themes, it does so from a position that eschews the rationalistic perspective evident in the popular management literature that seems to inspire government policies and ministerial speeches. Rather, this research adopts a critical perspective, in the sense that it questions mainstream thought about the adoption of ICTs and the management of organisational change. In this way, the views that organisational culture can be changed in line with managerial objectives (Schein, 1985), and that particular technologies have properties that produce such effects, are seen as problematic. Attempts to change ways of organising or to implement technology to increase organisational effectiveness may not be readily accepted and may give rise to consequences that were not intended, which in turn may challenge the original objectives. This research explores these tensions and contradictions by asking:

How is IS implementation accomplished when cultural change of an organisation is attempted and what does this accomplishment mean for those who are touched by it?

### **The community of interest**

There are 35 ambulance services in the UK, 32 regional services in England and a single national service in each of Wales, Scotland and Northern Ireland. Together these services employ about 23,000 uniformed operational staff and managers, of whom 17,000 are employed by the English services. Although plans to modernise the NHS affect all UK services, some variations apply in Scotland, Wales and Northern Ireland. This research focuses on ICT implementation and related cultural change efforts within the 32 English services, and specifically on the efforts of the largest, arguably the most

challenged and, in the IS literature in particular, the most severely criticised of the English services – the London Ambulance Service (LAS).

The ambulance services are often viewed as the “Cinderellas” both of the emergency services (Radio Four, 2002a) and of the health service (Ambex, 2000). Indeed, where the ambulance community belongs is an issue of much interest to its members, but the answer to this question is by no means clear. A recent study (Nicholl et al, 2001) reveals that ambulance service chief executives want the community to be perceived as the emergency arm of the health service rather than the health care arm of the emergency services, but messages from government are ambivalent on this point. *The NHS Plan* (Department of Health, 2000b) barely mentions ambulance services, the services are not represented on the main groups charged with implementing the plan but only on the subgroups, and the Health Minister acknowledged that ambulance services sense they are ‘on the periphery’ (Ambex, 2000). Nevertheless, since 1974, ambulance services have fallen under the remit of the Department of Health, whereas the police and fire services are accountable to the Home Office, so ambulance services can neither ignore government plans for the NHS nor risk not having a voice in them.

The ambulance services are a community in the sense that acting as providers of pre-hospital patient care grounds their identity. All are subject to the same government monitoring mechanisms and each has access to public funds and other resources relative, in principle, to the demands of the population it cares for. Moreover, as part of responding to the needs and expectations of those they serve, each has adopted the same or very similar types of ICTs, perceived as performance enhancing. In Foucault’s (1980a) sense, these mechanisms are the basis of a regime of truth for the ambulance service community, and modernisation in line with government imperatives is a discourse to which they are being applied. Still, the detailed working practices of each service add further dimensions to this regime of truth, and the outcomes they achieve may be seen as substantively different.

For nearly 30 years, the official measure for assessing whether ambulance services are responding to the demands of the public has been based on how frequently they get to emergency scenes within a predefined target time, set at national level. So:

If you get there in 8 minutes and the patient dies you've succeeded, but if you get there in 9 minutes and the patient lives you've failed (Director of Corporate Resources, Ambulance Service, quoted in Nicholl et al, 2001, p. 16).

In this way, many argue:

They are not real targets. The real targets are the ones that have clinical outcomes (quality assurance officer, LAS)

Notwithstanding the argument that only some patients are life-threatened and so clinical outcome performance targets are less appropriate in other cases, the view that clinical outcomes are the real measure of success is an increasingly pervasive discourse within the ambulance service community. The new ambulance performance standards (Chapman, 1996), fully effective since March 2001, may be seen as a medium for and an outcome of this discourse. On the one hand, the new standards emphasise the need to provide an 8-minute response for *life-threatened* cases, which the previous standards did not, so that now what the outcome for a patient *might be* is factored into assessments of service performance. On the other hand, the outcomes *achieved* (for example, the number of patients who leave hospital alive following out-of-hospital cardiac arrest) still do not form part of the performance measures for ambulance services. Indeed, hospital departments do not exchange information with ambulance services about the clinical outcomes achieved by emergency patients, so that ambulance performance figures are de-rooted from the context that would give them meaning. Such one-way traffic sustains the 1950s image of the ambulance service as 'glorified porters' (Radio Four, 2002a), and reinforces the sense among its members that they occupy a marginal position in NHS plans.

Whether or not the way to shake off this image is to modernise in line with government proposals is an open question. Either way, the Health Minister advised the ambulance services at their annual national conference of what they need to do:

We need to change the way the NHS works ... *status quo* is unacceptable ... public expectations have changed ... technology has advanced ... what we are about is treatment based on clinical need. ... We are not trying to create league tables ... however we do need to learn from each other. ... In the past there may have been a

culture where one trust competed with another ... but as far as this government is concerned, this is not the way. ... We need to teach the public to help themselves ... to make the service the same wherever you are ... to work together. ... Targets need to be met. (Health Minister at Ambex 2000).

At the heart of this research is a consideration of the professional identities of ambulance service staff and how they are challenged by changing societal attitudes, modernisation programmes within the NHS, and accompanying IS innovation efforts at a local level. I explore these issues in a detailed examination of a long term and ongoing organisational change effort at the LAS. I consider what is involved in telling members of the LAS to drop their tools – to forget neither who they are, nor where they came from, but to find some continuity between the past and the present so that the future does not seem meaningless.

### **The theoretical perspective**

What value is there, some may ask, in studying an exceptional case – what general lessons may we learn? Moreover, is there anything left to say about an organisation that has featured in so much published work already? First, if the extent to which others draw upon an author's work is an indicator of value, then Foucault's studies of extreme examples of organising regimes have great value to management and organisation studies of many kinds. Although some have attempted to mobilise Foucauldian concepts to argue that certain communities should be given a greater voice, that is not the position I adopt here. Rather I suggest that there is much to learn from life on the periphery, where our ways of being in the world may be heightened. Such communities can experience earlier, more frequently or more intensely what others may experience later, increasingly often, and, if they deny the possibility, perhaps even crushingly. Indeed two public inquiries (Wells, 1995; House of Commons Select Committee on Health, 1995) into the performance of the LAS lobbied successfully for a national review of ambulance performance standards, recognising that the "extreme" events they examined could happen elsewhere. So the issues I raise in this research may be generalised to other settings or suggest that taken for granted discourses are reconsidered.

Second, most previous studies of the LAS have focused on the LASCAD project (for example, Beynon-Davies, 1995; Hougham, 1996; Introna, 1997; Silva and Backhouse, 1997), but ten years on there is more to say about the LAS than just to talk of 1992. Under the direction of a new senior management team, a programme of organisational change is in progress, in which information systems are being introduced incrementally, so that the position now represents a significant shift from the one that was evident in 1992. There are also different things to say about the LASCAD project. The above studies drew on the public inquiry report (Page et al, 1993) and so are secondary accounts. When I spoke to participants in the LASCAD project, they drew my attention to dimensions that previous studies have neglected. They prompted me to consider emotion within the organisation and not just a purely rational set of discourses. Moreover, their emotions surfaced again as I observed working practices during the course of my study.

In Foucault's work, "strong textualist" (Rorty, 1982) descriptions of historical and cultural contexts dominate. He disappears from view, and the subjects of his study say nothing about the way they think and feel. Yet such descriptions can 'result in the reader unilaterally imposing a meaning onto the text, a "grid" in Foucault's terminology' (Golden-Biddle and Locke, 1993, p. 596). If we accept that 'the author ... however disguised, is always present' (ibid.), then Foucault does the talking. He tells us how the subjects act and why, but they do not speak (Ball and Wilson, 2000). Introducing participants' commentaries, often at length, on what happens and why is a key aspect of this study and a move in which I aim to show how my initial theories were useful to explain some aspects of my findings but seemed not to illuminate others.

Notwithstanding anything I have said so far, some of it represents a rationalisation after the fact. When I made early decisions about the theory that would guide this research, I decided to adopt a Foucauldian perspective with the following considerations in mind. First, key aspects of Foucault's work seemed especially significant in the context of this research, including his concerns with history, with process, and with the importance of and interaction between institutionally framed knowledge and local memories in discursive practices. In the case of the LAS, parts of its history are a matter of public record (for example, Page et al, 1993; Wells, 1995; House of Commons Select

Committee on Health, 1995, 1996). That which has gone before influences not just the way that members of the LAS now act, but also the way that many of us respond when we hear a mention of the London Ambulance Service. These public inquiry reports have given LAS staff more reason than most groups of workers to reflect on the processes in which they have attempted IS-related change of the organisation, and journalists and academics have not been slow to present further arguments about why such processes need critical attention. Moreover, the LAS is an organisation funded from the public purse, so government initiatives frame discursive practices at the LAS and there is always scope for government intervention in the affairs of the LAS. So I adopted a Foucauldian framework as a broad theoretical vehicle with which to approach the research setting.

Second, I saw a broad framework as appropriate at the start of the research, when I knew very little about the nature of detailed working practices at the LAS. I could adopt further concepts as I came to learn more in the field, but a Foucauldian framework captured what I felt I did already know about the institutional context for ambulance services. Third, although I recognised that Foucault's way of arguing and his exploration of life on the margin might prompt me to present a rather dour interpretation, I also knew that some of the events I would examine were exceptional ones in which actors' experiences were heightened for a time. So a framework that could address both everyday practices and what happens at the extremities of them seemed appropriate in this case.

## **THE CHAPTERS TO COME**

The chapters in this thesis explore the above ideas in a way that aims to present an unfolding argument, and also to demonstrate the process in which I arrived at it. In this way, I trace the incremental moves I made as a part of every chapter, rather than just describing them in a discrete section called *Research Methodology*. Thus I aim to demonstrate the reflection and questioning I engaged in throughout this research, and how I introduced further concepts as a response to these reflections.

In chapter 2, I review different theories of technological change and organisational culture. An implicit concern in my research question is with exploring how organisational culture and IS implementation shape and may reconfigure one another, but few studies consider both aspects of this interaction in detail. Rather there are two fairly distinct literatures that address, on the one hand, the nature and enactment of organisational culture without specific reference to IS implementation practices, and on the other, the IS implementation process without a very specific focus on how actors are constituted within specific organising regimes. Thus, I present the review in two parts, each with a number of subparts addressing the research agendas of different schools of thought on each topic. The first part of the review adopts a broad orientation as to the particular technology forms considered, but it focuses on studies that address how outcomes are contested in technological change efforts, rather than work that would ignore or smooth away such tensions. The second part of the review focuses on studies that see culture as an epistemological device with which to frame a study of organisation, rather than as a variable that can be shaped in line with managerial objectives. In each part, I consider the extent to which authors have attempted to produce critique and their motivations for doing so.

In chapter 3, I bring together my conclusions from reviewing two streams of literature to consider which concepts would be useful in a critical study of organisational culture and IS implementation in interaction. With this aim in mind, I discuss the sociological perspectives grounding the literature of critical theory. Challenging arguments that such a move involves examining the works of Habermas alone and that critical research must have emancipatory effects, I focus on the works of both Foucault and Habermas as major influences on the critical discourses that have developed in management and organisation studies and IS research. I present my argument for adopting a Foucauldian informed framework, and describe the concepts I selected and how they address the interaction I proposed to study. While adopting an initial framework to guide the study, I leave the research open to drawing upon further theoretical concepts, either to provide a more fine-grained analysis of detailed working practices or to reflect on the research findings.

In chapter 4, I provide details of the research approach adopted during this study. I explicate the philosophical standpoint that informs my research perspective and the research methods I used to collect and analyse the field data. Although I adopt a critical perspective, there is a lack of critical methods as such, and so my approach was informed by the work of researchers in an interpretive tradition, based on the view that we need to understand in order to be critical. In this way, I aimed, as a first step, to access the multiple perceptions of study participants about the organisational changes they had experienced while working for the LAS. This move helped to establish the discourses accepted by this community and the extent to which government imperatives might challenge them. Moreover, I argue that critical research may have different emphases, in which either insight or critique may predominate, and some measure of transformative redefinition may be attempted (Alvesson and Deetz, 2000). In this research, the emphasis is on providing insight with some complementary critical commentary in which taken for granted assumptions are questioned and the contradictory nature of social practices is revealed (Orlikowski and Baroudi, 1991).

At the end of chapter 4, I present a description of the research setting and outline the processes to be examined. This overview is no more than the bare bones of the story, a brief summary of the major events and initiatives in the history of IS implementation and organisational change at the LAS and an indication of the wider context in which the study is construed. These events and initiatives are examined in detail in subsequent chapters using the theoretical framework adopted for this study.

Chapters 5,6 and 7 are the analysis chapters. Each one presents a detailed examination of a specific period of IS-related cultural change effort at the LAS. The periods are distinct in that they are characterised by different ways of enacting the discourse of modernisation, but interrelated in so far as the outcomes achieved from earlier change efforts form a part of the medium in which subsequent efforts are attempted. These chapters examine the way that subjects are constituted within this community, the attempts that were made to change the constituting discourses, and the outcomes achieved by these change efforts. Alongside a desire to achieve a practical contribution from this research, a further aim was to explore the strengths and limitations of a Foucauldian framework. In this endeavour, I made a move that Foucault did not – I



introduce speaking subjects, and they give dimensions to this study that I did not anticipate in advance. In this way, I set the scene for a critical reflection on the achievements of this research.

Chapter 8 presents that reflection. In this discussion I consider what the theoretical concepts adopted reveal about IS-related cultural change efforts and how the case enhances our existing theoretical understanding. I introduce further concepts to interpret those dimensions that were not anticipated *a priori*. In this way, I am able to address some key questions: How useful was the theory with which I started? How did this analysis extend it? What insights does such an analysis contribute to our understanding of IS implementation in organisations and its social consequences?

In chapter 9, I present conclusions from the study. This chapter summarises the research and establishes its theoretical, practical and methodological contributions. I discuss its relevance to other settings and identify some areas that may be addressed by further work. Overall, this research contradicts two dominant views in the existing literature – that IS implementation can have homogenising effects on an organisational culture and that the value of information technology has been established for all professional groups so that IS innovation has acquired its own momentum. In this case, IS implementation has given rise to cultural fragmentation and the professional identity of some cultural members is constraining IS innovation. In these moves, the outcomes achieved by the change efforts are contradictory and the desired benefits are only partially realised.

## **CHAPTER 2 Literature Review**

This research adopts a critical perspective that challenges mainstream thinking that organisational culture can be changed in line with managerial objectives and that particular technologies have properties that produce organisational effectiveness. So my main concern in reviewing the literature and selecting a framework to guide the analysis is to examine the options available for being critical, how they are challenged, and what can be achieved by adopting one of them.

### **APPROACH TO THE REVIEW**

Addressing the joint themes of this research – IS implementation and cultural change of an organisation – I review the literatures of technological change and organisational culture. In focusing on those studies that make claims to being critical, I consider how the research addresses key issues of contextual focus, attitude to conflict, and orientation to change. These three aspects, in various incarnations, have formed the dimensions of several classification schemes for existing research work (Burrell and Morgan, 1979; Latour, 1993; Knights and Murray, 1994; Laughlin, 1995; Deetz, 1996; Hirschheim et al, 1996).

Contextual focus has longitudinal and vertical dimensions. The first is concerned with the extent to which a study establishes a historical context for the events and initiatives examined. The second addresses how much the research considers a global context, a local one, or both. Attitude to conflict reflects the way a study deals with tensions and struggles within the research setting, for example, ignores them or smoothes them away, considers them disruptive, or focuses on them. Orientation to change in research work reflects the degree to which a study challenges prevailing conditions; so for example, it may accept or reinforce the *status quo*, question it, or seek to disrupt it.

A critical theory would address a historical context and a multi-level social one, would focus on contradiction and conflict as endemic in social relations, and would shape a critique to raise questions about how and why things might be otherwise. In this way, I give

scant attention to work in schools of thought that do not have these as their guiding concerns.

## **THEORIES OF TECHNOLOGICAL CHANGE**

In this section, I review theories of technological change in terms of the interaction between the ‘social’ and the ‘technical’. I explore whether and how researchers make such distinctions and the extent to which the boundary between them is thought to be negotiable (Bloomfield and Vurdubakis, 1994; Scott and Walsham, 1998). However, I do not limit the review to certain types or forms of technology or information system, for example enterprise resource planning (ERP) systems, the adoption of electronic commerce or the use of mobile telephony, since the technologies adopted by ambulance services are not the perceived mainstream ones. This exploration of concerns is conducted within a framework that refers to generally recognisable schools of thought, albeit ones that have shifting areas of concern.

### **Business and management theory**

This stream of work seeks to develop generalised principles that organisations can adopt for deploying their resources to greater effect. Although some theories are more universalistic in orientation than others, each was developed as a method for prescribing how organisations or types of organisation could respond to environmental pressures. In the 1980s, studies focused on strategic information systems, designed to support a corporate strategy aiming to align an organisation with its environment to achieve effectiveness and competitive advantage (for example, Porter, 1980; Ives and Learmonth, 1984; McFarlan, 1984; Porter and Millar, 1985; Rackoff et al, 1985). At the time, this work found considerable favour in practitioner circles, despite ambiguous, and even potentially damaging, outcomes from its application (Vitale, 1986), as well as evidence that some of the most acclaimed examples of ‘success’ had occurred by chance (Ciborra, 1994).

Nevertheless, the search for new solutions to the issues of managing and organising for commercial success has continued. In the early 1990s, approaches based on business process reengineering (Hammer and Champy, 1993) and total quality management

[drawing on the work of Deming (1986) and others] gained a substantial following. In later years, ERP systems became fashionable as a means of integrating the diverse functions of an organisation and hence streamlining operations to achieve organisational effectiveness (for example, Lee and Lee, 2000).

Criticisms of these approaches arise from the way they ignore or claim to smooth away tensions and conflict in local settings in a desire to maintain the dominant discourses of managerial control and commercial success circulating in contemporary, industrialised society. This work has been described as socially or technologically deterministic, in the sense that it is thought to suggest that forms of organising or technology itself have autonomous effects, hence will automatically and inevitably lead to the desired goal (or undesirable outcomes). Although there is certainly evidence of these traits in this research, in general the concern is with prescribing ways in which organisations should respond to a range of environmental pressures, and so it may be argued that these studies reflect a contingency view rather than one that is strictly deterministic. Nevertheless, contingency theory has been criticised as overly simplistic when applied to particular cases (Willmott, 1990; Powell and DiMaggio, 1991). These criticisms address the limitations of the theory in attending to the cultural and political dimensions of specific organisations.

### **Systems theory**

Systems theory addresses a broad range of concepts and ideas that span both different research traditions and different disciplines. Based on taking a holistic rather than a reductionist view of the world, it has developed in hard (based on mathematics and engineering), soft (based on exploring subjective meanings) and, more recently, critical forms (inspired by the works of Habermas). Overall, systems theory has made a mixed contribution to the development of approaches for implementing and managing information systems. Although soft systems approaches were developed as a response to issues raised by the value-free neutrality claimed by the hard approaches, they have not, even since Mingers (1992) argued it, resulted in a paradigm shift within the field. Rather the two strands have developed side by side, and in complementary discourses (Galliers et al, 1997), but with hard approaches still having the greater take-up by practitioners.

Checkland (1999) reviewed soft systems thinking, thirty years on. Although he makes a persuasive argument for the ways Soft Systems Methodology (SSM) has contributed to our understanding of problem situations and what is involved in intervening in them, the entirely retrospective nature of his review is disappointing. Even bearing in mind that SSM has been in a state of continuous refinement for thirty years, Checkland needs a more compelling argument if he hopes to draw attention to its potential for the future rather than just its contribution to the present. The pervasive nature of organisational politics and thus the inherent difficulties in undertaking and managing IS development projects are concerns that SSM does not address convincingly. Critical approaches (for example, Jackson, 1985, 1992; Mingers, 1992) are largely theoretical, with little empirical work done so far (Alvesson and Deetz, 2000). The lack of critical methods, as such, poses issues for researchers (University of Salford, 2001), even those who adopt the view that we need to understand in order to be critical, so that interpretive methods can help.

### **Socio-technical systems theory**

The socio-technical systems approach is closely related to soft systems theory and to SSM in particular. This work, pioneered by researchers at the Tavistock Institute in London (Emery and Trist, 1960; Trist et al, 1963), identified the mediating role of workgroups and social relations on the process of technological change. These researchers conceived organisations as systems in which technical, social and environmental concerns are interrelated, and sought to reconcile these concerns with a view to improving organisational performance. Early work focused on the relationship between types of technology deployed and organisational form adopted, seeing the latter as a social choice that should take account of the needs of the workgroups involved.

The socio-technical approach has been developed and modified within the field of information systems by Mumford and colleagues in the UK (Mumford and Weir, 1979; Mumford, 1995) and by a number of researchers in the Scandinavian countries (Hedberg, 1980; Kyng and Mathiassen, 1982; Ehn and Sandberg, 1983; Kyng, 1998). As with soft systems thinking, the progress of the socio-technical systems movement

has recently been reviewed (Kyng, 1998; Mumford, 1999, 2000). Writers suggest that changing ideas on work organisation, together with a narrow focus in socio-technical approaches on both the scope of IS innovation and the context in which it takes place, makes the theory appear 'sociologically naïve' (Avgerou, 2002) in our current harsher commercial climate.

Zuboff (1988) brought together the ideas of organising for effective performance and democratisation of the workplace in her concept of informing. Although she suggests that whether organisations deploy information technology in a system of managerial 'imperative control' or to move to one of collaborative 'co-workers' is a matter of social choice, her vision of the informed organisation can seem overly optimistic. It is not tempered by a detailed consideration of how or why managers would be persuaded to relinquish control, or the related issue of how workers might react to an environment of continuous learning and information sharing.

### **Processual and pluralist theory**

Early work on socio-political approaches raised a number of important issues for the study of organisational and technological change. Processual theory (for example, Pettigrew, 1973; Mintzberg, 1978; Mintzberg and McHugh, 1985) has drawn attention to the importance of developing a historically situated account of the way actions and events unfold over time. This theory attends to the career struggles and political processes operating in organisations as actors engage in a variety of strategies in attempts to gain control over scarce material and symbolic resources. What is less obvious in these writings is a consideration of either the unintended consequences of action or the way prevailing norms favour some while disadvantaging others in the struggles taking place. These issues are more evident in the later critical literature of strategic change (for example, Knights and Morgan, 1991; Alvesson and Willmott, 1995; Knights, Noble and Willmott, 1997; Morgan and Sturdy, 2000).

Pluralist theory has highlighted information as one of the valued resources over which much conflict and struggle takes place, and hence has argued that IS development practices are the site of much political activity in organisations. Keen's (1981) call for a political

perspective in IS research prompted a number of responses (Markus, 1983; Markus and Pfeffer, 1983; Franz and Robey, 1984; Kling and Iacono, 1984; Markus and Bjorn-Andersen, 1987; Kling and Iacono, 1989). This literature aims to raise awareness of these struggles with a view to offering guidance on how they may be managed, emphasising a concern with making a practical contribution to knowledge. Nevertheless, it fails to explain the practices of IS development and management in the broader historical and societal contexts within which these practices are embedded [Kling and Iacono (1989), to some degree, excepted]. Demonstrating a rather limited conception of user resistance, this literature seems rooted in a view of systems development as a rational process, albeit one that needs to find ways of dealing with local contingencies and irrational behaviour. Or, as Knights and Murray (1994) have argued, ‘while exposing the politics of organisation this literature seems oblivious to its own politics’ (p. 16).

### **Contextualist approaches**

The theory of contextualism is a development of Pettigrew’s earlier work on processual theory in that it preserves the interest in providing a detailed, longitudinal account of the unfolding of the change process, but it also develops a vertical dimension, in which interdependent levels of context are explored. These layers of context, which may exist at macro (for example national or societal) level or micro (for example, organisational actor) level, are seen as both shaping the change process and being shaped by it. Contextualism addresses the macro and micro environments of organisational change through the outer and inner contexts. It combines a structural analysis with a processual analysis in a structurationist approach (Giddens, 1979), underpinned by a model of human behaviour that views organisations as cultural and political systems (Pettigrew, 1987).

Pettigrew’s contextualist framework may be understood as a generic model for studying organisational change, in the sense that the processual and structural analyses, and the model of human behaviour that complements them, may be informed by any social theory that respects the contextualist principles outlined above. Thus, by drawing on insights available from the early socio-political approaches while attempting to attend to their limitations, a number of researchers have provided interesting contextualist (or, in

deference to the authors of one study, political processual) accounts of IS implementation, as follows.

Walsham (1993) describes several case studies grounded in a contextualist approach that draws upon the social theory of structuration (Giddens, 1979, 1984) to explain action from a cultural/political perspective. In a later study, Walsham and Sahay (1999) draw on contextualism and actor-network theory (Callon, 1986, 1991; Latour, 1987, 1996) to analyse the implementation of geographical information systems in India. Madon (1993) adopts a contextualist approach to studying IS implementation to support rural development planning in India, while Madon and Walsham (1995) complement the broad focus of the earlier work with a structurationist analysis addressing how human agents mobilised interpretive schemes, norms, and access to resources during the project. Knights and Murray (1994) present a political processual account of organisational and technological change in the British financial services industry. In this account, the global and local contexts of change are socially constructed and enacted in a political process of power-knowledge relations. The authors draw on social theory, in particular from the works of Foucault (1980a, 1980b) on the circular relationship between knowledge and power.

Other perspectives adopted within a contextualist framework draw from institutionalist theory (Powell and DiMaggio, 1991) and the sociology of translation (Callon, 1986; Latour, 1987). Avgerou's (2000, 2001) studies of IT innovation in a Mexican oil company and flexible specialisation in the furniture manufacturing sector of Cyprus are examples of the former approach, while McGrath's (2001) study of IS implementation in a UK ambulance service is an example of the latter. So, contextualist approaches in IS research may adopt different social theories as the 'motor' (Pettigrew, 1987) to the analysis to give the discussion a more (or less) critical orientation.

### **Social shaping of technology**

By focusing on issues of conflict and inequality in a historically constituted context of cultural, economic, and socio-political conditions, the social shaping approach draws attention to societal influences on the introduction and use of technology. Early work



(MacKenzie and Wajcman, 1985) drew upon Marxist and radical feminist writings, which present the world in a constant state of crisis owing to inequalities in class and gender respectively, hence it presents technology as an instrument inscribed with capitalist or patriarchal interests. Furthermore, some work reveals the contradictory nature of these interests, such as when Cockburn (1983) describes how men designed aspects of hand typesetting around the use of heavy mechanical equipment – in an effort to exclude female workers – only to find this work beyond their strength when they got older.

Recent work in a social shaping perspective (MacKenzie and Wajcman, 1999) continues the focus on gender relations, but deemphasises, while not abandoning, its challenge to technological determinism. A repositioning is undertaken in an effort to move from a high level of generality to one that examines details of the particular ways technology is socially shaped, and the particular outcomes that result. In this way, the social shaping approach aims to respond to earlier criticism that it neglects the emergent nature of technology innovation and the co-constitutive nature of technology and society. So MacKenzie and Wajcman's (1999) second edition reflects a more diverse interpretation of the technology-society relationship than the earlier volume. Contributions draw from the social construction of technology to address the interpretive flexibility of objects (Kline and Pinch, 1999), from actor-network theory to address the reciprocal relationship between society and technology (Strum and Latour, 1999), and from situated knowledge perspectives to argue against universalistic principles (Suchman, 1999; Haraway, 1999).

Some essays – such as those by Ceruzzi (1999) and Hofmann (1999) – are specifically concerned with information technology. Ceruzzi traces the emergence of personal computing, showing it as the convergence of social forces of a hobbyist computer culture and technical forces involving a series of diverse developments by chip manufacturers who 'did not really understand what to do with their products' (p. 82). Although he does not use the terminology, Ceruzzi tells a story of the convergence of an actor-network, and the extent to which personal computing has become irreversible (Callon, 1991).

Hofmann compares three kinds of word processing software – dedicated systems, early microcomputer systems, and the first graphical interface – to argue that the design of this software is based on an image of the user that shows gender bias. Although this is an interesting account of the evolution of a particular type of information system, it seems oblivious to the historical development of information systems in a wider sense. Many of the design features that Hofmann argues show gender bias – such as several levels of menu in the early designs imposing rigid structure on female secretaries – were pervasive features of most commercial IS applications of the period (late 1970s and early 1980s). An engineering bias in the designs of this period may be argued, but if so, that bias had implications for *all* commercial users, irrespective of gender.

While extending its range to provide more diverse coverage of socio-technical ideas, recent development of the social shaping approach has broadened its scope while diluting its strengths. It starts to blur into the two approaches discussed next, so that it is now more of an umbrella term for a range of approaches rather than a distinctive critical theory in its own right. This development could proceed in a number of different directions, the conditions of possibility for which will become more evident when the next two approaches have been discussed.

### **Social construction of technology**

Social constructivists seek to explain how and why particular technologies arise and are adopted at particular times. They see the implementation and use of technology as a process of reality construction, in which different interpretations of a technology emerge and are negotiated by people within their social contexts. Technologies embody compromises; constraining or enabling effects are the outcome of local interpretive action. Thus, technology innovation is contingent upon the social world in which it takes place; in another world, things might have been otherwise.

Early work on the social construction of technology (SCOT) was guided by three interrelated concepts from the sociology of scientific knowledge – interpretative flexibility, relevant social groups and closure (Bijker et al, 1987). The first refers to the way different social groups attach different meanings to technical artefacts. When

interpretative flexibility is acknowledged, which meanings are accepted and incorporated within the design of technical artefacts (the concept of relevant social groups), and how long interpretative flexibility endures (affecting when closure is seen to happen), then become important issues.

Relevant social groups are emergent, but they are not always easy to identify empirically. For example, the views of a minority group may receive minimal representation, so that a shared meaning is not readily discernible, or powerful groups may take action to exclude the interests of others. So, while technologies embody compromises, they may do so in a way that privileges the interests of some groups over others, depending on the meanings sustained by the social context in which the technologies are developed. Bijker (1995) has introduced the concept of a 'technological frame' to understand the full range of interactions among the members of a relevant social group, and Kline and Pinch (1999) argue that this concept can be used to analyse neglected groups that one might expect on *a priori* grounds. Still, some groups are not necessarily identifiable *a priori*. So, although an amoral stance is not implicit in social constructivism (Bijker, 1993), this approach has done little to address the issue of social exclusion (Winner, 1993; Knights and Murray, 1994; Walsham, 1997), even though it claims to have the mechanisms for doing so.

Closure and stabilisation of technology take place because a particular form of a technical artefact appears to present fewer problems than others, and so it is increasingly accepted as the dominant form of the technology. Stabilising technology does not mean either that multiple forms of a technology cannot exist in parallel (for example, desktop and laptop computers) or that technology is fixed in a particular form so that it is no longer amenable to social shaping. New problems may emerge and interpretative flexibility can reappear (Kline and Pinch, 1999).

So, a current concern of social constructivists is how and in what circumstances the black box of technology may be reopened. This move represents a refinement of social constructivism from its early focus on the design of technology to a position of considering the way technology is shaped not only in its design but also in its use (Grint and Woolgar, 1997). This issue is of particular interest to IS researchers because of its

implications for the way software packages may be subject to further shaping in the contexts where they are implemented and used (Avgerou, 2002). Nevertheless, even these wider concerns sometimes neglect the way that technologies may transform social relations (Winner, 1993), although some studies say more about the reciprocal relationship between technology and society than others (see, for example, Bijker, 1992).

### **Actor-network theory**

One view of actor-network theory might say that it shares the social constructivist concerns with understanding the origins, shaping and stabilisation of technologies, rather than assuming that a technology evolves in a natural and inevitable manner based on its material properties. Others might conclude, with Latour (1999a), that the question of “social construction” never was a pertinent question, and thus does not need to be mentioned. In other words, reflexivity on the part of its major proponents has given rise to early and later statements of actor-network theory.

Pursuing the early statements first, the sociology of translation (Callon, 1986; Latour, 1987) is an established collection of concepts within actor-network theory, which ‘owe more than a little to the writing of Foucault’ (Law, 1986b, p. 18). These ideas address how key players interact to build heterogeneous networks of human and non-human actors, forming alliances and mobilising resources as they strive to convert an idea into reality. Actors interrelate and define one another by bringing into circulation intermediaries, such as technical artefacts, texts, human skills and money (Callon, 1991). Translation refers to both the process and the result of action. It is achieved by displacements that require discourse and the exercise of power, and may or may not achieve the desired outcome. Moreover, networks are unstable, so that the extent to which desired outcomes are achieved depends on the degree to which translations are compatible and integrated (convergence of the network), and on the extent to which translations can withstand challenge and shape future translations (irreversibility of the network).

These are some of the early statements of actor-network theory, and they were made at a time when the agency-structure debate in the social sciences was gathering force. In a controversy that may be argued in terms of subject-object, local-global, social-technical, power-knowledge, human-nonhuman or other possible distinctions, Latour (1999a) suggests that actor-network came to be seen as just another variant. So, actor-network theory has found itself at the centre of these discussions, despite Latour's claims to have overcome them (Latour, 1991), to have bypassed them (Latour, 1999b), and never to have wanted involvement in them at all (Latour, 1999a). He argues for ignoring the agency-structure debate because expressions like power/knowledge (Foucault, 1980c), and by implication structuration (Giddens, 1979, 1984), are modernist settlements, which attempt to replace a dichotomy with a dialectic in the interests of the major players but with no concern for the audience (Latour, 1999b). In other words, modernist discussions about power and knowledge, politics and morality, cannot be resolved using distinctions based on a subject-object dichotomy.

The analytical position of symmetry between humans and non-humans in actor-network theory has been the subject of controversy, with critics finding it intellectually and morally problematic to make no distinction between human action and the behaviour of things (Collins and Yearley, 1992). In other variants of this argument, actor-network analyses have been criticised for adopting a localised focus (Knights and Murray, 1994; Harbers, 1995; Reed, 1997) and an amoral stance (Winner, 1993; Knights and Murray, 1994). First, the approach is seen to subscribe to a flat ontology, neglecting the enduring nature of institutions as a condition for network formation as well as a consequence of it. Second, by ignoring institutional sources of power and inequality, critics argue that actor-network theory has little to say about the systematic exclusion that prevents some social groups from having a voice in technology innovation.

Proponents of actor-network theory have responded to these criticisms. On the symmetry issue, they have argued that they accept the divisions and distinctions, but only when they are 'understood as *effects or outcomes*' (Law, 1999, p. 3, emphasis in the original); that they refuse to consider the distinctions *a priori* (Callon and Latour, 1992). In the local-global debate, they have been ambivalent about their position. Initially, they suggested that micro-level effects may eventually exhibit predictable behaviour and be

punctualised in new networks as single, macro-level nodes (Callon, 1991), as when a global network of British institutions – punctualised actors from previous translations – interacted with a local network during an aircraft design project (Law and Callon, 1992). Later, Latour in particular would eschew the established global-local, macro-micro vocabulary of the social sciences, arguing that its words cannot replace the rich vocabulary of the actor's practice, these actors to include researchers (Latour, 1999a).

Finally, Law (1991a) has argued that, although actor-network theory did not set out to have a moral agenda, it could adopt one, if researchers choose 'to think not only about heroes but also of victims and the differences between their fates' (p. 15). A number of studies have demonstrated this potential (Star, 1991; Boland and Schultze, 1996; Bloomfield et al, 1997; several chapters in Mol and Berg, 1998). Nevertheless, some repair work (Law, 1991a), including the introduction of new concepts within actor-network theory (Latour, 1999a) and the use of complementary concepts from other schools of thought, has been necessary to make this move (Walsham, 1997; Knights, Murray and Willmott, 1997; Hull, 1999).

Some observers have commented on these debates, with a view to clarifying key arguments for the audience (for example, Walsham, 1997). Nevertheless, actor-network theory 'is not a stable body of knowledge that can be drawn on by researchers in an unproblematic way, since its developers themselves have frequently revised or extended elements of it' (Walsham, 2001, p. 46). Such critical reflection is very healthy, but in rejecting the dichotomies and dialectics with which we have become familiar, Latour's (1999a, 1999b) nonmodern way of arguing requires some conceptual reorientation on the part of researchers. Later in this thesis, I explore his claims that discourses informed by concepts of power (Callicles), reason (Socrates), or a Foucauldian settlement between the two, are elitist. Rather than examining a Platonic dialogue, though, I discuss my own analysis of the LAS case, with a contribution to practice as well as research in mind.

### **Technological change – conclusions**

Technological change is the subject of a considerable literature, of which this is a selective review. Of the approaches I have discussed, business and management theory, systems

theory, socio-technical approaches, processual and pluralist theories to a greater or lesser extent fail to recognise that a general consensus on technological change is not always possible. The theory of contextualism is a useful vehicle for studying the change process as historically and socially constituted. However, contextualism is a generic framework for studying organisational change. Therefore it needs a sensitising mechanism to act as the 'motor' to the analysis. Thus far in this review, the most promising theories to provide this mechanism would be informed by ideas from the social shaping of technology, social constructivism, and actor-network theory.

A social shaping approach highlights the broad, and often contradictory, context of political, economic and cultural conditions that shape technologies during their design and use. Social constructivism draws attention to the local and contingent nature of technology innovation, and hence to the way that technologies embody compromises, negotiated by people within their local contexts. Actor-network theory focuses on the mutually constitutive nature of society and technology, and the strategies that key actors employ to enrol and mobilise support for technology innovation. Although some researchers in these traditions stress their differences more than their similarities, they share a number of common concerns. United in their rejection of the view that technology evolves in a natural trajectory based on its functional attributes, these approaches seek to explain the emergence of technology as a product of social interaction.

Nevertheless, some social shaping and social constructivist accounts give little attention to how technology may transform social relations. Moreover, the moral and political agendas of the social shaping approach are sometimes narrowly focused on gender issues, rather than being set in a broader context of power and inequality. Social constructivist and some actor-network accounts may be criticised for neglecting moral and ethical issues. Finally, actor-network theory has moved on perhaps more significantly than the other two approaches, which presents opportunities as well as challenges for those who would adopt this way of arguing and acting. Recalling the declared aim of this research to examine IS implementation in the context of cultural change of an organisation, I turn now to review the literature of organisational culture.

## CONCEPTS OF ORGANISATIONAL CULTURE

Anthropologists have been studying societal cultures for more than a century, but studies of organisational cultures have a much shorter history. Interest in taking a cultural perspective on organisations came to the fore in the late 1970s and early 1980s. Although several studies of organisational cultures pre-date this period (see for example, Clark, 1972; Crozier, 1964; Selznick, 1957), the dawn of the 1980s saw a surge of popular interest in new models of organising and managing, and with it an awakening of managerial interest in corporate culture. Much of the inspiration for the new focus on organisational culture came from Japan. Managers in the United States and Europe attempted to revitalise their operations by adopting the management practices of their successful Japanese counterparts. This section discusses the development of research streams associated with different concepts of organisational culture, focusing on the period since “the rebirth of culture” in the 1980s.

### **Normative and interpretive research on organisational culture**

In a key paper within an issue of *Administrative Science Quarterly* devoted entirely to research on organisational culture, Smircich (1983a) traces the roots of different concepts of culture and discusses their relevance for organisational analysis. Drawing on concepts of culture from anthropology and concepts of organisation from organisation theory, she identifies five different themes that link these concepts in organisation and management research – cross-cultural (or comparative) management, corporate culture, organisational cognition, organisational symbolism, and unconscious processes and organisation. In the first two streams, culture is viewed as a critical variable, something an organisation *has*, and researchers are concerned with establishing its relationship with other variables to provide normative guidance to organisations about how culture may be managed. In the last three streams, culture is a root metaphor for organisation, something an organisation *is*, and researchers see it as an epistemological device with which to frame the study of organisation as a social phenomenon in a broadly interpretive discourse.



### ***Cross-cultural or comparative management***

From a comparative management perspective, culture is an independent variable brought into the organisation by its members. Many comparative management studies see culture as a factor or variable more or less synonymous with country, and they aim to locate similarities and differences among cultures so as to draw implications for organisational effectiveness (Hofstede, 1980, 1991; Ouchi, 1981; Pascale and Athos, 1982; Sekaran, 1986; Hampden-Turner and Trompenaars, 1993). For example, findings from Hofstede's (1980) study of IBM subsidiaries in 70 countries provide a basis for deciding whether a managerial practice that the organisation has adopted in one country is likely to be effective in another. This work is of interest to multinational corporations and any other organisation that needs to establish relationships across national boundaries. However, the research findings are averages only, which at best limits their applicability in specific settings. Indeed, from a critical perspective, it is easy to see how managers could mobilise such research to reinforce dominant discourses.

### ***Corporate culture***

From a corporate cultural perspective, culture is viewed as an internal organisational variable, in much the same way as structure, size, and technology in use were seen as dependent variables in early versions of contingency theory (for example, Woodward, 1965). In this perspective, culture is something produced by an organisation, and researchers are concerned with establishing the relationship between cultural aspects of organisations, such as rituals, and other organisational variables thought to be key to organisational survival, including commitment, absenteeism, and financial performance. Studies of corporate culture, then, address the ways culture can be managed and hence changed in line with management values, to ensure organisational success (for example, Peters and Waterman, 1982; Deal and Kennedy, 1982; Barley, 1983; Wilkins and Ouchi, 1983; Schein, 1985; Barney, 1986; McDonald, 1991; Tushman and O'Reilly, 1996).

Several researchers have challenged the idea that organisational culture can be managed (see, for example, Fitzgerald, 1988). Indeed, notwithstanding the leader-centred perspective

in his 1979 study of how headmasters in British private education use rituals and stories to generate commitment to their schools, Pettigrew suggests that corporate culture is manageable only 'with the greatest difficulty' (1990b, p. 366). In a critical commentary about researching a culture-performance link, Siehl and Martin (1990) raise ethical and practical concerns. First, they suggest that researching such a link may involve studying efforts by top management to indoctrinate staff in a value system that exploits them. Language, physical arrangements, stories, and other cultural forms can be used in subtle ways to control others, and organisational culture research has heightened public awareness of both the potential for their use and the consequences of it. Second, they argue that research that claims to have found a link between organisational culture and financial performance is conceptually limited, methodologically flawed, and, therefore, empirically inconclusive. Included in this research is their own contingency study of a culture-performance link (Martin et al, 1988), in which they argue that a strong and appropriate organisational culture may lead to good performance; in particular, if organisational culture and business strategy are consistent, then organisational success may follow. Nevertheless, research on a culture-effectiveness link continued into the 1990s (Denison, 1990; Kotter and Heskett, 1992; Denison and Mishra, 1995), even if it was somewhat tempered by a consistent lack of supporting evidence for such a position.

Of the three perspectives that view culture as a root metaphor for organisation, a cognitive perspective sees culture as shared knowledge (Goodenough, 1971), a symbolic perspective sees culture as shared meaning (Geertz, 1973), while a structural perspective sees culture as a reflection of the mind's unconscious processes (Levi-Strauss, 1963). The presence of multiple cultures in organisations is acknowledged, and thus the questions that become interesting concern how organisation is achieved, when multiple, often conflicting interests are at work, and what it means to be organised in such an environment.

### ***Organisational cognition***

From a cognitive perspective, culture is a system of learned codes for perceiving and acting, located in the minds of the culture bearers and shared by them to varying

degrees. Smircich and Calas (1987) describe the researcher's aims in a cognitive perspective thus:

to gain an insider's understanding by tapping into the conceptual, ideational system of groups and analyzing the language used to make sense of their worlds. The assumption is that the semantic fields of language contain the natives' worldview and that what people do is related to what they think. This perspective treats organizations communicatively by focusing on language as a route to thought patterns that are maintained through communication (p. 240).

Gregory's (1983) study of the way Silicon Valley technical professionals make sense of their careers, involving an exploration of their native views, is a particularly well-known example of a cognitive perspective in organisational culture research. In general, however, this perspective is prevalent in research in the related areas of organisational learning and sensemaking (Argyris and Schon, 1978, 1996; Weick, 1979, 1995; Argyris, 1990). Ciborra (1999a) has done similar work, adding an IS focus. Drawing on Weick's (1993a, 1993b) research, and on concepts from Heidegger (1962) concerned with the inseparability of thinking and doing, he argues that we need to support impromptu behaviours and activity in organisations, despite the challenges that such improvisation presents to our concepts of decision making, management, and information systems. In a cognitive perspective, then, the researcher's concerns are with the communication rules that guide action, with how people make sense of their situation and with how that sensemaking facilitates or constrains coordinated effort (Smircich and Calas, 1987), rather than with interpreting the pattern of interaction as it manifests itself.

Some studies in a cognitive perspective adopt a central theme of ambiguity. Weick (1990) examines the confusion that complicated decision making one foggy night at Tenerife airport. Language difficulties, inadequate resources at the airport, and a threat for one crew of legal sanctions being imposed by their home airline created an environment in which a collision took place and over 500 people were killed. The ways different individuals construed the events of that night show no clear pattern of interpretation, but rather a collection of diverse and highly individualised experiences of them. Meyerson (1991) examines the "normal" ambiguity that an occupational culture of hospital social workers

routinely lived with. While a few workers seemed to enjoy the freedom such ambiguity allowed them, others disliked it, some just accepted it, and a number fluctuated among their reactions to it. This work demonstrates that ambiguity can pervade our working lives; that it is not a phenomenon confined to exceptional events such as the Tenerife air crash. Like Meyerson, Feldman (1991) also studied an occupational culture – the work of policy analysts in the Department of Energy at Washington, DC. Again, high levels of ambiguity pervaded this work, and policy analysts exhibited a diverse and shifting set of responses to it.

### ***Organisational symbolism***

From a symbolic perspective, culture is a system of shared meanings and symbols, located not in peoples' minds but in the products of mind they share in interaction. In this way, culture is conceived as a pattern of symbolic discourse that needs interpreting, reading, or deciphering. Drawing on the work of Geertz, the pervasive theme is that organisational culture is experienced and understood in interaction, in which meanings and symbols are shared to varying degrees. The literature of organisational symbolism is concerned with the way organisation is created, negotiated, and maintained through such interaction. An early reader (Pondy et al, 1983) took organisational symbolism as its guiding theme. The readings demonstrate how cultural forms, such as symbols, language, and humour can contribute to a sense of organisation [see, for example, Boland and Hoffman (1983) on humour in a machine shop, and Smircich (1983b) on organisations as shared meanings]. Unlike the instrumental treatment of cultural forms in the corporate culture literature, research on organisational symbolism aims to interpret these forms as part of the symbolic dynamics of organisational life (Smircich and Calas, 1987).

Early work on organisational symbolism has been criticised for lacking an emancipatory interest, and thereby leaving itself open to being reclaimed in a technical interest by traditional powerholders (Stablein and Nord, 1985). At the time, even those studies acknowledging that values and meanings are not universally shared, tended to emphasise how conflict was contained (for example, Smircich, 1983b; Martin and Siehl, 1983). Although many organisational theorists who began working in this perspective

shifted to more critical perspectives from the late 1980s onwards, the ideas of organisational symbolism continue to be influential within related disciplines, including information systems.

Indeed, in the minds of many IS researchers, the study of shared symbols and meanings in organisations delineates organisational culture research. Some IS researchers implicitly adopt this position, others state a view of organisational culture as a system of shared meanings, but with little reference to the source of such a concept beyond citation of a standard textbook on organisational behaviour. The implication, then, in much IS research is that a view of culture as shared meanings is a given that we all understand and accept (Kendall and Wickham, 1999). Very often, though, these studies (as discussed later) owe more to the literature of corporate culture than to studies of organisational symbolism, confirming what Stablein and Nord predicted.

### ***Unconscious processes and organisation***

From a structural perspective, culture is an expression of the unconscious infrastructure of the human mind. So, although the appearance and experience of social arrangements in particular cultures may differ, all are thought to be the product of hidden, universal dimensions of the human mind, and therefore all cultures must have some features in common. The researcher's concern is with uncovering these common features (see Smith and Simmons, 1983; Krefting and Frost, 1985; Lucas, 1987). This position differs from the subjectivist orientation of a cognitive perspective, in that the researcher 'needs to penetrate beneath the surface level of appearance to uncover the objective foundations of social arrangements' (Smircich and Calas, 1987, p. 244).

Sharing with the cognitive position a limited adoption in the organisational culture literature *per se*, a structuralist perspective has informed research on organisational theory, addressing, for example, the stakeholders of the organisational mind (Mitroff, 1983), and images and metaphors of organisation (Morgan, 1986; Tsoukas, 1991, 1993). Furthermore, a structuralist perspective has been adopted in research on organisational identity, in combination with insights from cultural linguistics (Fiol, 1991), and to explore the link between organisational identity and organisational

learning (Brown and Starkey, 2000). Brown and Starkey focus on five ego defences adopted by organisations to maintain collective self-esteem and continuity of their existing identity. They argue that organisational learning to promote critical reflection on identity can militate against dysfunctional defence mechanisms blocking organisational change.

Again, some scholars have given this research an IS focus. Drawing on Morgan's (1986) metaphor of organisations as psychic prisons, Wastell (1996) demonstrates how a structured systems development methodology (SSADM) was used as a social defence to contain anxiety during IS development. In a later paper (Wastell, 1999), he argues that transitional objects (entities that provide temporary emotional support) should be used to break down these defensive processes. Kaarst-Brown and Robey (1999) discuss five archetypal images of IT culture held by two organisations they studied, demonstrating how their findings lend support to Martin's (1992) multiperspective research on organisational culture. Finally, Ciborra's (1996) paper, analysing the global technology strategy of Olivetti over a ten-year period, combines insights from cognitive and structuralist perspectives. On the one hand, he draws from Weick to show how managers, rather than enacting a grand plan, engaged in a continuous process of improvisation, or *bricolage* (Levi-Strauss, 1966), to paste together the resources and routines at hand in various combinations, as 'here and now' responses to market pressures. On the other hand, he uses the concept of computer platform as a metaphor to capture the nature of organisational identity in the highly turbulent computer industry. He suggests a platform organisation may be thought of as a 'string', because of the variety of forms it can take and the temporal links between them.

Like Smircich, Allaire and Firsirotu (1984) also present a review of the way theories of culture drawn from anthropology influenced early notions of organisational culture that emerged in the organisation and management literature. Drawing on the work of Keesing (1974), they distinguish sociocultural theories, which view culture as a component of the social system, and ideational theories, which see culture as a system of ideas that is conceptually separate, but interrelated with, the social system. Sociocultural theories see culture as serving the social system by mechanisms, such as myths, rituals and symbols, that place human beings in a better position to cope with

their environments. Ideational theories see culture as a system of ideas and symbols that reflect and contribute to social reality. In the ideational view, the cultural system may develop in harmony or in tension with the social system's structure and formal processes. Discontinuity in the cultural and structural aspects of a social system can lead to instability in the system that may threaten its survival. The sociocultural and ideational theories of culture described by Allaire and Firsirotu may be seen as informing respectively the concepts of culture as an organisational variable and culture as a root metaphor for organisation described by Smircich.

### **Critical and postmodernist developments in organisational culture research**

The above discussion reveals that researchers not only disagree about why they should study culture, but also that there is no general consensus about how culture should be conceptualised. Moreover, from its high point in the 1980s, when interpretive researchers studying organisational culture felt excited and liberated as they challenged mainstream organisational theory in search of new insights (Martin and Frost, 1996), research in this field of inquiry metamorphosed in later years. In the late 1980s, Smircich and Calas argued that the organisational culture literature 'has become dominant (absorbed into the dominant discourse) but dead', and asked 'what of the opposition – is it in vain?' (1987, p. 248). They suggested that a cultured organisational literature – as postmodernist criticism – is how we should understand the way that organisational theorising had been transformed.

So the opposition literature developed, from a largely interpretive discourse, called organisational culture, concerned mainly with what happens within an organisation's boundaries, to a resistance literature with a more critical discourse called, *inter alia*, identity, gender and race, concerned with much broader debates in the world. The more critical discourse recognises that cultural systems may be oppressive, may marginalise certain groups, or may be a product of power relations that lack consensus. This section addresses critical and postmodernist research on organisational culture, adopting a usage of each term broadly in line with Deetz (1996), while deferring until the next chapter a consideration of how both perspectives may be called "critical". Here, then, critical research aims to unmask domination in the hope of transforming social

relations, while postmodernist work deconstructs texts to reveal silences and hidden sources of oppression and thereby to claim a space for lost voices.

Critical studies of organisational culture began to appear in the mid-1980s. For example, Rosen (1985) focuses on tensions between management and staff at the annual breakfast meeting of an advertising agency. He demonstrates how management used the setting of a luxury hotel and the commensality of a fine breakfast as the occasion to deploy rhetoric concerning the agency's benevolence as an employer, minutes before announcing a pay freeze. Rosen's argument is that these moves were attempts to mask apparently unbreachable conflicts of interest between management and staff, in which organisational culture was mobilised as a mechanism for social control.

Young (1989) describes how two different subcultures existed within a group of shop floor machinists which, at a more superficial level, appeared to be a collectivity united around rituals, such as the wearing of roses on St. George's Day. While focusing on the effort these two subcultures put into maintaining their distinctiveness, Young's analysis also addressed conflict arising from class differences between management and staff at the firm. Van Maanen (1991) studied the hierarchy of subcultures that exists among tour guides, operators, ground staff, and food and concession workers at Disneyland, and shows how expression at the "Smile Factory" is stage managed through the hierarchy. Bartunek and Moch (1991) describe the cultural heterogeneity that confronted consultants commissioned to improve productivity and quality of working life in a management-initiated intervention in a medium-sized commercial bakery. Here, the struggle is more complex than a straight contest between management and labour; divisions also reflect the way actors mobilise gender, race and functional specialism. Further work that emphasises the way the interests of women or minority groups are suppressed in organisational cultures dominated by white men includes research by Kanter (1977), Bell (1990) and Cox (1994).

Critical studies of organisational culture show that symbolic relationships and meanings that sustain organisation are not necessarily consensual (Riley, 1983; Lucas, 1987; Knights and Willmott, 1987, 1995; Alvesson, 1993; Deetz, 1996). In these studies conflict and power are the focus of attention, so that the concept of culture (particularly in its interpretive sense as a system of shared values and meanings) can seem incidental



to the argument. Work by Knights and colleagues illustrates this point. In a critical analysis of Pensco's (a pseudonym) culture, Knights and Willmott (1987) emphasise asymmetries of power over interpretive schemes in a structural analysis of organisational culture. More markedly in later work (Knights and Murray, 1994), specific references to Pensco's organisational culture are barely discernible in the discussion of the political process in operation. These analyses adopt the view that organisational culture is a socially constructed aspect of organisations that is medium and outcome of a political process of power-knowledge relations.

Alvesson (1993) provides a detailed discussion of the characteristics that differentiate hermeneutically inspired studies of organisational culture from their critical counterparts. In effect, he argues that the former focus on symbolic manifestations of a culture, such as ceremonies, stories, and other expressive phenomena, which are often not related to the core aspects of organisational life. He calls for a cultural perspective on the labour processes and social practices that are the basis for reproducing the cultural attributes of certain groupings found in organisations, such as professional and social class groups.

Postmodernist studies of organisational culture started to emerge in the late 1980s. While sharing a concern with critical work to challenge modernist instrumental rationality, postmodernist accounts focus on disorder and contradictory interpretations in an attempt to give a voice to marginalised groups (Calas and Smircich, 1987; Linstead and Grafton-Small, 1992; Willmott, 1993). In addressing the way that reality is constructed through language and thought, these researchers use analytic techniques such as deconstruction to reveal the manufactured quality of organisational life (Czarniawska-Joerges, 1992). Some deconstructionists adopt a feminist stance (Martin, 1990; Calas and Smircich, 1991; Mumby and Putnam, 1992), others show how dominant voices create a sense of community by manipulating thought through language (Mills et al, 2001).

Postmodernist work draws from several different theoretical perspectives, so that postmodernism is viewed more appropriately as a discourse than a unified theory (Martin and Frost, 1996). Martin and Frost (1996) outline the benefits that a

postmodernist perspective on organisational culture could bring to the field of organisational analysis. They suggest that it could draw attention to the complex and constructed nature of organisational culture, reveal 'reality' as a series of fictions and illusions through deconstruction, and might encourage wider participation in organisational change initiatives by recognising that truth is 'a matter of credibility' (Alvesson and Berg, 1992).

### **Organisational culture and information systems**

Thus far, this review has focused on the nature and development of organisation culture research without very specific reference to the broad range of practices and symbols in organisations that were addressed by the studies cited. This section narrows the focus to review literature that has applied a cultural perspective to study IS development, management and use in organisations, and also to study high technology corporations and software consultancies as organisational cultures.

Several researchers have advocated the use of an organisational culture perspective for IS research (for example, Scholz, 1990; Hirschheim and Newman, 1991; Walsham, 1991, 1993; Robey and Azevedo, 1994; Avison and Myers, 1995; Dube and Robey 1999). Some argue that we can derive insights from anthropology to study IT and organisational culture (Avison and Myers, 1995; Green and Murphy, 1996). Others draw indirectly on anthropology, taking their immediate cues from cultural concepts and frameworks developed within the field of organisation studies by Martin and Schein amongst others (see, for example, Scholz, 1990; Robey and Azevedo, 1994; Dube and Robey, 1999). Related work has explored symbolism and metaphor in IS development and management (Hirschheim and Newman, 1991; Kendall and Kendall, 1993; Westrup, 1996; Kaarst-Brown and Robey, 1999) and the role of gendered genres in IT cultures (Harvey, 1997). Another group has been influenced by social theories, such as the theory of structuration (Giddens, 1979, 1984) and concepts of power-knowledge relations (Foucault, 1977, 1980c, 1982). Cultural analyses of IS implementation informed by these theories include those by Coombs et al (1992), Walsham (1993, 2001), and Nicholson and Sahay (2001).

Research on IS practices from a cultural perspective has conceptualised organisational culture in a variety of ways. Such concepts include organisational culture as a state that can be got “right” (Morieux and Sutherland, 1988), a system of shared meanings (Romm et al, 1991; Pliskin et al, 1993; Robey and Azevedo, 1994; Whitley, 1999), a mechanism for social control (Kunda, 1992; Grugulis et al, 2000) and a fragmented unity (Parker, 2000) cross-cut by multiple cultures (Gregory, 1983).

These studies display a range of different research perspectives. Since all examine the relationship between information systems and culture and symbolism in organisations, much of the analysis is focused at organisational and organisational actor levels. In the studies that view organisational culture as a system of shared meanings, these levels of analysis tend to predominate, so that the influence of socio-political and economic conditions receives little or no attention. Furthermore, these studies tend to neglect the shifting nature of social relations. For example, the study by Pliskin et al (1993) attributes the unsuccessful implementation of a management information system to a lack of cultural fit between the organisation and the system. Implicit in this analysis is an assumption that culture is a state rather than a process, and that successful implementation will occur when the state of the system “matches” the state of the organisation.

In the study by Morieux and Sutherland (1988), the way an organisation responds to its environment through its IT strategy and organisational culture is the focus of attention. Thus the authors argue that if IT strategy and organisational culture are aligned, then organisational effectiveness is likely to follow. In this way, they attempt to prescribe how organisations can get their responses to the environment “right”, and in so doing they smooth away tensions inherent in the processual, contested and socially constructed nature of IT strategy adoption and organisational culture. So both of the above studies adopt the instrumental treatment of shared meanings evident in the corporate culture literature.

Dube and Robey (1999) adopt a multiperspective view. They undertook a cultural analysis of systems development practices that used Martin’s (1992) three perspectives framework. Thus they developed three views of the same organisation, which highlight

unity, difference and ambiguity, rather than producing a single reconciled view. In this way, they were influenced by the three main streams of literature from which Martin (initially Meyerson and Martin, 1987) derived this framework – namely the literatures of corporate culture, organisational symbolism and organisational cognition. In Dube and Robey's account, as in others that have used the three perspective framework, including Martin's own analysis of OZCO, the fragmentation (or ambiguity) analysis is unconvincing. I want to question why there appears to be so much confusion and contradiction in the organisation when there seems to be no compelling explanation for it. A consideration of the power relationships within the organisation is avoided, perhaps because the authors state very clearly that their analysis attempts to be neither critical nor postmodern.

Other work clearly engages in a critical discourse. Kunda suggests that the management control strategy adopted by the technology company he studied produced 'a total institution of sorts' (1992, p. 224), a form of cultural engineering that 'prescribes not only [employees'] behaviour but runs much deeper, offering elaborate scripts for their cognitive and emotional lives' (1995, p. 229). In this way he suggests that managers sought not to engage their staff in an economic transaction based on pay and reward in exchange for labour, but in a moral one, based on high commitment to and strong identification with company goals, in return for material benefits. In this account I am less inclined to ask whether the engineering facility is a playground or a prison, as Kunda does, but rather to ask how the people who work in this corporation make sense of their lives. How do they reflect on the demands made of them, and how do they understand the relationship between their working and their personal lives? Grugulis et al (2000) draw on Kunda's work to critique the use of "company culture" as a means of normative control by managers in their study of a British software company. Again, I feel prompted to ask a similar question.

Some studies provide an account of organisations as both arenas of sensemaking for individual actors and collectives with links to other organisations and to social, political and economic contexts in which they are situated. Influences of this sort are a particular concern of studies informed by the social theories of Giddens and Foucault. Coombs et al (1992) draw on Foucault's concepts of power and subjectivity to demonstrate how

central government initiatives relating to the introduction of an internal market in the UK National Health Service stimulated tensions between doctors and hospital administrators during development of a resource management system. Nicholson and Sahay (2001) draw on a structurationist analysis (Sahay and Walsham, 1997) of the rules and resources that shape the agency of Indian managers and developers to demonstrate the influence of ethnicity in their study of a British software house using the resources of an Indian outsourcing firm. Walsham (2001) shows how discourses of globalisation and cultural contexts that transcend organisational boundaries are implicated in the adoption and use of particular ICTs in organisations. In earlier work (Walsham, 1993), he describes how changing markets and government policies in particular countries shape, and may be shaped by, the meanings that organisational actors ascribe to information systems. Walsham draws on a range of social theories in his work, but sympathies for Giddens' structurationist arguments and Foucault's concept of power-knowledge relations are underlying themes.

Structurationist arguments are also evident in the case studies analysed by Parker (2000). He suggests that in organisations there is unity and difference – the general and the specific – and that these opposites represent a duality rather than a dualism. Adopting a language based epistemology, he argues that there are 'multiple cross-cutting dialects ... within an organization' (p. 94), and offers a definition of organisational culture as the 'contested local organization of generalities' (p. 188). Gregory raised the issue of cross-cutting cultures 20 years ago, but suggested that the way the terms "culture" and "organisation" are related 'would depend on the theoretical or empirical grounds for a particular study' (1983, p. 374). So the extent to which an author seeks a normative, explanatory or critical analysis influences the way that organisational culture is conceived.

Diversity, then, is clearly evident in the concepts of organisational culture adopted to study the practices of IS development, management and use. Many of these concepts take their roots from traditional anthropology and thus emphasise culture as something that is shared, whether it be knowledge, meaning or consciousness. Avison and Myers (1995), however, remind us of the contemporary anthropological view of culture 'as something which is contested, temporal and emergent' (p. 53). This dynamic view of

culture shares much with the social theories of Giddens and Foucault that have informed a number of the studies discussed above. The work reviewed also reveals the limitations of a concept of organisational culture that fails to look beyond an organisation's boundaries at the way political, economic and societal conditions are implicated in practices in organisations. Finally, studies with a critical orientation remind us that ICTs are often inscribed with Western values that reproduce existing inequities in society (Walsham, 2001), that these technologies may be implicated in surveillance regimes that seek to change working practices (Coombs et al, 1992), and that they may be developed in environments where social control mechanisms are already in place (Grugulis et al, 2000).

### **Organisational culture – conclusions**

Organisational culture is a field of study in which different research traditions have emerged in a public and highly contested manner over the last two decades. The organisational culture 'war games' (Martin and Frost, 1996) have been interpreted as contests where battle lines were drawn in terms of different anthropological themes (Smircich, 1983a) or sociological perspectives (Martin, 1992). Hence the war has been represented in two ways: first, as a struggle between views of culture as either a possession of, or a basic model for, organisation; and second, as a contest among perspectives that emphasise the homogeneous, the differentiated, or the fragmented nature of organisational life. Organisational culture research has also been shown to reflect technical, practical and emancipatory knowledge interests, and hence research programs have been represented as a struggle among epistemological interests (Stablein and Nord, 1985). Martin and Frost (1996) argue for a postmodernist perspective on organisational culture as an alternative to the struggle for intellectual dominance that has pervaded the field so far.

During the 1980s hundreds of cultural studies were conducted and published. While very many had a normative focus, hence attempted to show how organisational culture may be managed to produce organisational effectiveness, some studies addressed contested values and meanings and intergroup conflict in specific organisational contexts. Some of the latter were pluralist in orientation (for example, Martin and Siehl,

1983), while others adopted a critical perspective (for example, Rosen, 1985) that challenged taken for granted assumptions, by presenting alternative readings of dominant managerialist discourses. As postmodernist discourses emerged in the late 1980s, they emphasised confusion, contradiction and ambiguity in organisational life, with the aim of claiming a space for lost voices.

The concept of organisational culture has been adopted in the different ways outlined above to study the practices surrounding IS/IT implementation. While some studies define organisational culture as a homogeneous phenomenon broadly coterminous with an organisation's boundaries (for example, Whitley, 1999), others emphasise its fragmented nature as it is cross-cut by geographic, ethnic, occupational and other cultures (for example, Gregory, 1983; Parker, 2000; Nicholson and Sahay, 2001). This study is sympathetic to a fragmentation view, while acknowledging with others who adopt it that forces for unity exist in any organisation so that coordinated action can take place.

The late 1980s and early 1990s saw some key early contributors on organisational culture change their research positions. Writers such as Smircich and Martin began to question the unity and consensus implicit in their earlier positions, and instead began to focus on issues of fragmentation and conflict suppression associated with postmodernist and some feminist research interests. During the 1990s, the study of organisational culture declined from its high point in the 1980s, but also developed in a number of interesting directions. Thus its decline in popularity as a topic of research interest may be viewed positively. Organisational culture is no longer the latest management fad. Attempts to manipulate organisational culture with a view to improving organisational performance have been discredited (for example, Siehl and Martin, 1990). Although the organisational culture war games have been bitterly contested, particularly in the United States, there is still much to learn from studying organisational cultures. A critical perspective, very broadly defined, constitutes a promising vehicle for such research.

## **Literature review – concluding remarks**

In this chapter, I have reviewed the literatures of technological change and organisational culture and identified a number of possible ways of adopting a critical approach to studying these two phenomena. Drawing from the technological change literature, I argued that a critical approach could be adopted based on an interpretation of the social shaping of technology, construed in the very broad and inclusive sense of MacKenzie and Wajcman's (1999) second edition. The organisational culture literature suggested that both critical and postmodernist perspectives (as they appear to be understood in much organisation and management research) provide interesting ways to challenge the *status quo* in order to reveal hidden sources of power within social relations. Thus a review of two substantial streams of literature has suggested different ways of being critical about IS implementation on the one hand and organisational culture on the other. In the next chapter, I discuss how I made sense of the various options open to me to arrive at the critical perspective adopted in this thesis to explore their interaction.



## CHAPTER 3 Adopting a Critical Framework

### ASPECTS OF CRITICAL THEORY

Some indication of the range of interests addressed by contemporary critical work is given by the instructions to authors (Saren and Brownlie, 1999) prepared for one of the streams in a recent conference on critical management studies. While these instructions were intended to provide guidance for prospective marketing authors, they are indicative of critical research trends in several disciplines, including organisation studies and information systems.

By critical perspectives we mean modes of theorizing and research practices which regard marketing knowledge and its related technologies as socially constructed and enacted; which take those practices to be historically and culturally contingent; and which are understood to shape and be shaped by vested interests and power.

By critical theory we mean any approach drawing inspiration from the substantive critical traditions of, for example, feminism, Marxism, ethnography and symbolism, post-structuralism, hermeneutics, postmodernism and environmentalism. Such perspectives typically take a critical stance towards the possibilities and uses of marketing knowledge, relating it to expressions of power and vested interests.

The last chapter addressed how critical approaches to organisational culture and technological change have drawn on a number of the above traditions. Some of these traditions have research agendas where the marginalised or suppressed groups are identified *a priori*, for example, feminism, Marxism and environmentalism. Others adopt the view that which voices are lost is situational, hence these groups are revealed as part of a study. In this way, two different but not entirely distinct sociological perspectives ground the literature of critical theory. This chapter examines the German and French schools of critical thought as exemplars of each tradition, and shows how research influenced by both schools may make claims to being critical. This domain of critical theory has been described as a French-German schism (Burrell, 1994), a discursive space in which critical and postmodernist voices speak together (Alvesson

and Deetz, 1996), and as indicative of ‘an essential tension in modernity ... between consensus and conflict’ (Flyvbjerg, 1998, p. 185). This tension is highlighted in the works of Habermas and Foucault and was personified in the life-long controversy between them.

### **The German and French schools of critical thought**

Contemporary German critical theory emanates from the Institute of Social Research founded in Frankfurt in 1923. Despite some diversity in the positions adopted by members of the Frankfurt School, German critical theory has certain general characteristics that permeate the writings of its most prominent scholars. These have been summarised by Held (1980, p.15, quoted in Laughlin, 1987, p. 482) as follows:

At a general level it may be said that the founders of critical theory preserved many of the concerns of German idealist thought – concerns, for example, with the nature of reason, truth and beauty – but reformulated the way in which these had been previously understood. They placed history at the centre of their approach to philosophy and society. Yet the issues they addressed went beyond a focus on the past and embraced future possibilities. Following Marx, they were preoccupied, especially in their early work, with the forces which moved (and might be guided to move) society towards rational institutions – institutions which would ensure a true, free and just life. But they were aware of the many obstacles to radical change and sought to analyse and expose these. They were thus concerned both with interpretation and transformation.

So the Frankfurt School sought to develop a historically grounded social theory that could be used to practical effect in real world situations. These scholars were openly critical of the *status quo*, seeing the need to transform society to achieve a “better” life for all. They believed that conscious human action could bring about the required changes, albeit in a situation mediated by structural forces. A substantive criticism of this tradition would rest on the limited emancipatory achievements that have followed in the wake of development of the theoretical position. This is not to suggest that critique of the *status quo* is inappropriate, but rather to argue that the emancipatory enterprise is a product of space and time. Developed in the 1930s, of German provenance, the critical theory of the Frankfurt School sought to free human subjects

from oppressive regimes within societies and within the institutions that make them up. The optimistic, some would say utopian, nature of these narratives and their “totalising” tendencies (Alvesson and Willmott, 1992b) may be understood as a response to a Nazi regime, from which members of the School fled into exile in the United States in the mid-1930s.

Still, it is misleading to talk about the research endeavours of the Frankfurt School as though all of its members shared a common position about how the “critical” project should be pursued. In this sense, it is particularly appropriate to differentiate the approach of Habermas from theoretical positions adopted by other prominent members of the School, including Horkheimer, Adorno and Marcuse. This is not to imply homogeneity among the remaining members, but rather to account for the popularity of a Habermasian perspective in management studies research.

Habermas’ approach is characterised by a concern with linguistic and hermeneutic issues, and therefore with the role of language in societal development, rather than with a critique *per se* of western industrial life, its consumerist logic or instrumental reason (Laughlin, 1987). Unlike his contemporaries in the Frankfurt School, Habermas does not compare society to a predefined ideal state, from which it is judged to fall far short. Rather he tries to define the ideal conditions in which such an evaluation may take place. Finally, Habermas provides considerable detail about the requisite conditions for ideal speech, and in this way his methodological approach is more comprehensive than the generalised critiques of western society provided by his colleagues in the German school.

Laughlin (1987) argues that these features of Habermas’ work provide a promising vehicle for critical accounting research. Similarly, critical research in information systems dating from the same period emphasises the insights provided by a Habermasian perspective (see, for example, Lyytinen and Klein, 1985; Lyytinen and Hirschheim, 1988; Ngwenyama, 1991). Noticeable in these conceptions of what is meant by “critical” is an exclusive identification with the German school.

Prominent thinkers belonging to the French school of critical thought include Foucault, Derrida and Lyotard. Following Nietzsche, these scholars do not share the Frankfurt

School's belief in human endeavour as a history of constant progress towards a better future. Rather members of the French school focus on paradox and indeterminacy, acknowledging the locally contingent nature of human relations and refusing any singular interpretation of them. History is important to them not as the basis for developing a grounded social theory that may be used to transform society, but as a mechanism for understanding the present and discovering our room for manoeuvre from such a position. These scholars, and Foucault in particular, provide a critique of the *status quo* by revealing how we became what we are today, examining the transgressions available and thereby raising the possibility of being otherwise (Foucault, 1984a; Flyvbjerg, 1998; Chan, 2000).

Substantive criticism of the French school rests on its apparent lack of interest in achieving practical outcomes (Laughlin, 1995). Certainly its members are unwilling to specify procedural conditions against which the validity of our communications may be judged. Nor do they adopt *a priori* a political or moral agenda that represents the interests of a particular community. Nevertheless, by exploring the limits of our present situation, these scholars open up the possibilities for action, without prescribing either the method to be used for the investigation or the action to be taken as a result. Marginalised voices of various persuasions have found resonance with analyses that draw on the ideas of French critical theory. The insights provided by this work appear to some readers less suspect than either the normative, and often exclusive, statements found in the concluding paragraphs of some papers espousing a practical interest, or the "totalising tendencies" revealed in theoretical positions claiming an emancipatory interest.

Foucault, Derrida and Lyotard have taken different directions within the French tradition and each has attracted his own particular followers among management and organisation studies researchers, with the works of Foucault becoming especially popular (Calas and Smircich, 1999). Although Foucault shares Habermas' concern with communication, he is opposed to the search for ideal states and the drive towards consensus, believing that such states are fabrications. Or, as other members of the French school would argue, society is a unity that is at the same time divided from itself (Derrida, 1973) and 'consensus is a horizon that is never reached' (Lyotard, 1984, p.

61). Furthermore, Foucault is reluctant to specify methods and techniques, as distinct from concepts, yet the last decade has seen a growing number of researchers draw on his genealogical mode of analysis (see Knights, 1992; Sewell and Wilkinson, 1992; Townley, 1993; Jacques, 1996; McGrath, 2000). In the same period, several researchers have adopted the complex and subtle concepts associated with Derrida's deconstruction approach (see Calas and Smircich, 1991; Kilduff, 1993; Beath and Orlikowski, 1994; Martin and Knopoff, 1997). Thus, it may be argued that the ideas of French critical theory derive their appeal from the alternative insights they can help to shed on human relations and the diverse range of research agendas in which they may be invoked, albeit agendas that are problematic to define *a priori*.

### **The changing nature of “being critical”**

The last section might be read as an attempt to emphasise how specific national heritages influence research agendas, but that was not my intention in writing it. Rather, it was a response to a significant literature in management and organisation studies, and information systems, that sometimes directly, but mostly by implication or absence, tends to reify research positions. Thus research drawing on the German tradition – specifically the works of Habermas – is called critical, while research drawing on the French tradition, including the works of Foucault, is called postmodernist. I referred to German and French schools of thought so that I could call both critical, albeit in different ways. This section explores the rationale for such a claim.

Deetz (1996) argued that contemporary research practices and debates may be understood in terms of four discourses – the normative, the interpretive, the critical and the dialogic (or postmodernist). These discourses are the product of two intersecting dimensions of contrast, the first dimension focusing on how and where research concepts and problem statements arise, and the second focusing on the relation of research practices to dominant social discourses within the community studied. Thus critical and postmodernist discourses are alike in that they challenge ‘mechanisms of order maintenance to reclaim conflicts and tension’ (p. 197), but unlike in that critical scholars produce dissensus in search of a better, more rational, and hence “already known”, world, whereas postmodernists deconstruct dominant discourses to allow multiple “unknown” voices to emerge.

Interestingly, on these dimensions of contrast, Deetz (1996) argues that although ‘not necessarily so, in practice researchers working from the later, more explicitly political and moral writings of Foucault engage in a critical discourse’ (p. 203). This position is in line with views expressed elsewhere, arguing that Foucauldian genealogy should be understood as a critical epistemology (for example, Knights, 1992).

As a mechanism for understanding ‘the same in the different’, Deetz’ conceptual framework is very helpful, hence it meets his declared objective, but as an aid to engaging with ‘the same and the different’ (Jeffcutt, 1993; Burrell, 1994; Parker, 2000), it has more obvious limitations. Like all n-dimensional spaces, the framework tends to divide more than it unites, but it provides a useful starting point for a discussion of work that attempts to span spaces.

Alvesson and Deetz (1996) draw on this framework to extend the discussion of critical theory and postmodernism in organisational studies. They evaluate the contribution of critical studies, as ideological critique, drawing on Marx, or as communicative action, drawing on Habermas. Similarly, they present the themes of postmodernism – emphasising the end of grand narratives, the indecidability of meaning, the crisis of representation, and the problematization of the subject and the author (Calas and Smircich, 1999) – in light of research that has drawn upon them. However, the most interesting aspect of their paper in the current context is its attention to work that spans the critical and postmodernist discursive spaces (as the authors interpret them).

For example, they suggest that Martin works with both critical and postmodernist themes without attempting synthesis in her deconstruction of an organisational story about an employee’s Caesarean operation (1990), and in her analysis of the gendered organisation of exclusion in academic life (1994). In this way, they argue, she shows how local stories connect to grand narratives, and how deconstructionist techniques may be employed as part of a political or moral agenda. Other ways they suggest of working with both discourses involve conducting multiple interpretations of the same phenomenon (cf. McGrath and Smithson, 2001) or making space in texts for voices representing different perspectives to speak together in conversation (Alvesson and Willmott, 1996, chapter 7).

In an increasingly radical departure from separate discursive spaces, Alvesson and Deetz (2000) identify three concerns of the critical researcher – insight arising from hermeneutic understanding, critique produced through genealogy and deconstruction, and transformative redefinition to open up new ways of engaging the social world. They argue:

Critical research may have different emphases; interpretive work aiming for insight may be central, complemented by limited elements of critique and transformative re-definitions. Critique may also dominate, but if so the empirical case study is typically used for more limited, illustrative purposes. Transformative redefinition should not dominate empirical research. Texts dominated by this tend to be Utopian and this quality is not salient in studies with research ambitions (p. 153).

This description shares themes with the conclusions from a recent workshop on critical research in information systems (University of Salford, 2001). Contributors to the workshop, including authors of some of the early critical writings, favoured an inclusive definition of critical research. Indeed, Heinz Klein argued that – in addition to Habermas – Braverman, Bourdieu, Foucault and some postmodernists, for example, Lyotard, might be considered as working in a critical tradition.

The discursive moves described in this section trace a genealogy of the “critical” position through the works of some key researchers in management and organisation studies. Starting from a position of critical theory and postmodernism as different discourses with some similarities, they move through a consideration of how both discourses may be combined in empirical work, to a view of critical research as including both discourses – a series of shifts from either/or to both/and. In this way, then, there are a number of ways of being critical. These include drawing upon the works of scholars in the Frankfurt School, including Habermas, but also engaging in a postmodernist discourse, and specifically, adopting a Foucauldian perspective.

### **Habermas, Foucault and the modernism-postmodernism debate**

In 1988, the journal *Organization Studies* began a very useful series of papers about the modernism-postmodernism debate in organisational analysis. In the first of these papers, Cooper and Burrell (1988) introduce some basic concepts and ways of thinking that

demonstrate the concern in this debate with the nature of discourse and its role in social systems. Significant themes arising from this work address both sameness and difference in modernist and postmodernist discourses, and in particular how these discourses view the nature of organisation and the role of the human agent. Later papers in the series focus specifically on the works of Michel Foucault (Burrell, 1988) and Jurgen Habermas (Burrell, 1994) and their individual contributions to the field of organisational analysis. This section addresses each of these topics in turn.

### ***Overview of the modernism-postmodernism debate***

In the modernist view, the human agent is the centre of reason and understanding, and so organisation is seen as a social tool and an extension of human rationality (Cooper and Burrell, 1988). The authors distinguish between systemic modernism (or instrumental rationality), with its focus on control and performance, and critical modernism (as espoused by Habermas), emphasising the suppressed capabilities of language for communicative rationality. Both views share a belief in a logical, rational world, albeit that systemic modernism engages with this view in a programme of social control, while critical modernism is concerned with liberation of the life-world, and so with uniting society in a universal, rational and consensual discourse.

In a postmodernist view, the fragmented nature of human experience is emphasised. Organisation, then, is less the extension of rational thought and planned action and more a defensive reaction to destabilising forces immanent in social life. In this view, the notion of *difference* – a self-referential form in which terms contain their opposites – is a key concept. For Foucault, the body, whether biological, social or political, is the organ of *difference*, and so his genealogies examine the body in its various forms to reveal the strange in the familiar, the extraordinary in the routine, the active in the reactive. Foucault is concerned with understanding how discourse, as the expression of power, structures a problem. In his rationality of ‘problemizing’, discourse is no longer the neutral means of achieving unity and rational consensus that Habermas would argue, rather discourse imposes order in the way it structures thought through language. So, organisation emerges as a process rather than a tool, and the interesting question



becomes less one of what organisation can help us perform and more one of how we perform organisation.

### ***The works of Jurgen Habermas***

Burrell (1994) argues that Habermas attempts to be both a philosopher and a social scientist and leaves himself open to criticism from both disciplines. Bernstein (1985), on the other hand, describes him as ‘a thinker who at once stands against many of the intellectual currents and self images of our time and speaks to our deepest aspirations and hopes’ (p. 25). These two critiques highlight an essential paradox in Habermas’ position, that in seeking a rational, consensual and more inclusive world, he falls into a gap between philosophy and social science that distances his work from both communities (Burrell, 1994). On the one hand, this distancing occurs because his critics question whether his work is philosophically grounded, while, on the other hand, his *a priori* assumption of a universal desire for rational consensus is, in social scientific terms, speculative until empirically tested.

Three key texts describe Habermas’ hopes for us and the ways he proposed they be enacted (Habermas, 1972, 1979, 1984). In *Knowledge and Human Interests*, Habermas (1972) argues that knowledge serves three different types of human interest. Positive, or scientific, knowledge serves a technical interest, in which the desire is for control; the reflexivity of the subject, who examines his or her own claims to knowledge, is suppressed. Hermeneutic, or interpretive, knowledge incorporates a practical interest, in which the aspiration is mutual understanding as the basis for practical activity; the intersubjective nature of communication is so addressed. Critical knowledge pursues an emancipatory interest, in which the hope is for freedom from socially unnecessary constraints on human potential; a dialectic is proposed between the transcendental and the empirical, in which non-coercive communication becomes possible and can render possible a desired transformation. Habermas pursues an emancipatory interest in his work, and is especially critical of the grand narratives of positive knowledge and the way they have been invoked in the organisation of capitalism in modern society.

In *Communication and the Evolution of Society* (Habermas, 1979), Habermas suggests a way of achieving non-coercive communication in an ‘ideal speech situation’, for which he defines the procedural requirements of communicative action aimed at achieving mutual understanding or rational consensus. He argues:

In action oriented to reaching understanding, validity claims are “always already” implicitly raised. These universal claims ... are set in the general structures of possible communication. In these validity claims communication theory can locate a gentle, but obstinate, a never silent although seldom redeemed claim to reason, a claim that must be recognized de facto whenever and wherever there is to be consensual action (1979, p. 97).

These universal claims address the validity of what is said in four ways: in terms of its comprehensibility; its propositional nature or objective truth; its sincerity or the speaker’s subjective truth; and its normative validity or appropriateness in the context in which it is uttered. Communication is deemed valid if a speaker can redeem these claims when challenged by other participants in the discourse. In this way, Habermas argues, non-coercive communication takes place since, in an ideal speech situation, nothing coerces anyone except “the force of the better argument”. As the name implies, such a situation represents an ideal type. Its value rests in the way it suggests how things might be, or in the possibilities it provides for judging how far a current situation is from a notional ideal (Flyvbjerg, 1998). However, as a concept for exploring how events unfold over time, it lacks the mechanisms needed to analyse the distorters of communication that are present in our everyday, non-ideal communication.

A full account of Habermas’ model of societal evolution is provided in the two volumes of *The Theory of Communicative Action* (Habermas, 1984, 1987). In this work, Habermas defines modern society in terms of three key concepts – life-worlds, systems, and steering media. Life-worlds are the symbolic spaces communicatively formed over time, in which individual actors make sense of their life experiences, secure a feeling of belonging, and develop a concept of personal identity. Systems are the organisational forms that are the functional expressions of these life-worlds, so they may be both complex in structure and diverse in nature. Systems are held together by steering media, such as money, power and law, and hence by the institutions that provide or maintain such mechanisms.

In Habermas' ideal model of social evolution, discursive processes in the life-world guide shifts in the steering media and ultimately in the systems that these steering mechanisms hold together. However, if the steering media get out of hand, as Habermas would claim they have in our modern capitalist society, then they can shift the system in ways that do not reflect life-world concerns. In this way, the steering media start to colonise the life-world and a growing crisis emerges, in which the stability of the life-world is threatened. Habermas argues that we need to remove the distorters of communication by instituting the conditions of ideal speech so that the life-world may regain its influence on the steering media. This argument neglects the power relations operating in the life-world and the constraints there may be to non-coercive communication. A less totalising enterprise may be a more promising approach to dealing with the situation, and such an enterprise would need to develop an understanding of how non-ideal communication takes place – issues with which Habermas is less concerned.

The themes of unity and division at the same time are an appropriate way to frame a discussion of Habermas' work. On the one hand, his desire for consensus and emancipation arrived at in a democratic process, and his method of linking the transcendental and the empirical in a philosophically informed social science (Burrell, 1994), are indicative of the inclusive and participative nature of his approach. On the other hand, his search for an intersubjective position may be set in the context of three great schisms – the theoretical-practical, modernism-postmodernism, and a transformed, but still divided, world. Of these divides, he attempted to bridge the first, he was in constant tension with the second, and he was overtaken by the third, as follows.

With respect to the knowledge-constitutive interests and in particular the attempt to speak to both philosophers and social scientists, Burrell (1994) argues that Habermas ventures into a space where organisation studies must sooner or later go. This argument may also be made for information systems, as another relatively new discipline without the established body of knowledge of some of the more long-standing ones. Critiques of Habermas' work show us some of the challenges we face. With regard to his defence of the modernist project, Burrell argues that Habermas has saliency for organisation theorists, as the debate develops about their role in all twentieth century holocausts. Nevertheless, he questions the way Habermas defends such a project without directly confronting its critics and their

detailed arguments. I would also argue that Habermas' rejection of postmodernism neglects the useful work of organisational theorists who have combined critical modernist and postmodernist discourses, does not sit easily with his desire for democratic participation, and overlooks how much we can learn from those who see things differently. Finally, Burrell argues that Habermas has not noticed how the world has changed, and questions how he 'will handle the unification of Germany and the forces this has unleashed' (1994, p. 16). I suggest that contemporary views of critical research may be understood as a response to our changing world in that they recognise more explicitly than Habermas the obstacles to an emancipatory project.

### ***The works of Michel Foucault***

Burrell (1988) and others, including Dreyfus and Rabinow (1982) and Knights (1992), present a three-fold chronology of Foucault's work into archaeological, genealogical, and ethical periods. Foucault's search for sameness is brought out in the works of his archaeological period (Foucault, 1972, 1973a, 1973b, 1975), which seek to 'uncover those rules which regulate and govern social practices, and which are unknown to [or not easily perceived or penetrated by] the actors involved' (Burrell, 1988, p. 229). In these works, the subject is decentred, as Foucault focuses on the discourse alone and not on whom speaks it. An excavation takes place, in which the aim is to reveal the rules of formation common to such diverse discourses as biology, economics and linguistics; to uncover 'the same in the different'. In this way, archaeology as a method serves genealogy, for it enables Foucault to 'raise the genealogical questions: How are these discourses used? What role do they play in society?' (Dreyfus and Rabinow, 1982, p. xxi).

In his genealogical period, Foucault abandons the search for underlying laws and deep meaning. Things are what they appear to be, and so interest shifts to a concern with discursive practices more so than with the discourse *per se*. Small details, subtle moves and the singularity of surface events are the concerns of the genealogist (Burrell, 1988). In the genealogical method, the aim is to record the superficial, the accidental, and the base motives; the emphasis is on 'the different in the same'. We are all enmeshed in a

field of power ‘even as we sit alone’ (ibid. p. 228). What is interesting is how we act within it.

Bio-power, deriving principally from the army, seeks to control whole populations (Foucault, 1979), and lies at the heart of the formation and growth of institutions, such as hospitals, prisons, asylums, housing estates, universities and schools. Disciplinary power targets individuals, converting each one into a docile body that becomes ‘more obedient as it becomes more useful, and conversely’ (Foucault, 1977, p.138). The body is ‘directly involved in a political field; power relations have an immediate hold upon it; they invest it, mark it, train it, torture it, force it to carry out tasks, to perform ceremonies, to emit signs’ (ibid. p.25). Resistance is inscribed within power relations, but it does not threaten discipline. Rather discipline can increase its hold on the body, when resistance shows it where to direct its next effort (Burrell, 1988).

Drawing together these two strands of Foucault’s work, Burrell argues that we find ‘all organizations are unlike in terms of surface features, but are all alike insofar as one can understand their underlying dynamics’ (1988, p. 232). In this view, organisations are both the same and different at any given moment in time, and so they need to be studied both archaeologically and genealogically. Foucault (1984a) argues for a mode of analysis that is ‘genealogical in its design and archaeological in its method’ (p. 46). In this sense, archaeological does not reflect his early concern with underlying laws or ‘universal structures of all knowledge or of all possible moral action, but will seek to treat the instances of discourse that articulate what we think, say, and do as so many historical events’ (ibid.). Here we see Foucault engaging in some refocusing of his archaeological concept in later work. He also refocused genealogy, as discussed next.

In his ethical period, then, Foucault argues that ‘it is not power, but the subject, which is the general theme of my research’ (1982, p. 209). He claims that his work has been to create a history of the different modes by which human beings are transformed into subjects. Thus, he articulates his work in terms of three modes of objectification of human practice, which address how individuals or organisations ‘are represented and classified through knowledge, divided both internally and from one another through power, and transformed into selfdisciplinary subjects through ethics’ (Knights, 1992, p. 529/30). So, he argues, he

has sought to produce a ‘historical ontology of ourselves’, in relation to truth, in relation to a field of power, and in relation to ethics (Foucault, 1984b, p. 351). He refers to the axes of truth, power and ethics as the three domains of genealogy (ibid.). So, we are led to a genealogical mode of analysis, in which we analyse and reflect upon our limits, while considering both the political, social and economic conditions of formation that underlie certain discourses and the human subjectivity conditions that make these discourses possible (Knights, 1992).

Reed (1997) critiques a Foucauldian perspective, suggesting that many researchers adopting it for organisational analysis subscribe to a ‘flat ontology’ that neglects enduring structures of material, social and political power (or institutions). He argues:

Certain aspects of Foucault’s (1979, 1981, 1990)<sup>1</sup> work have been appropriated to formulate and defend a structural interpretation and analysis of long-term shifts in control regimes where punishment-centred and coercive systems gradually give way to therapeutic modes of self-surveillance (Reed, 1996a). Nevertheless, his writings have largely been exploited and appropriated to legitimate repeated deconstruction of the concept of organization into a miniaturized, decentred and localized discursive or representational practice (1997, p. 26).

As a comment on how Foucault’s work has been exploited, this criticism expresses a valid concern. However, in the next paragraph, Reed criticises one of Foucault’s own works (*The History of Sexuality, Volume 1: An Introduction*), and in particular the concept of bio-power, claiming that such an analysis is ‘bereft of any enduring institutional rationale or structural embodiment’ (1997, p. 27). Yet, bio-power is the force that accounts for the creation and growth of institutions, such as prisons, hospitals and schools (Foucault, 1979).

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<sup>1</sup> The first two works to which Reed refers are *Discipline and Punish* and *The History of Sexuality, Volume 1: An Introduction*, both of which are later editions of the Penguin texts I reference elsewhere. The third work appears to be *Governmentality* in *The Foucault Effect*, although the publication date in the main text of Reed’s paper (as above) differs from the one in Reed’s references.

Reed then cites from Burrell to argue that, in focusing on the dynamics of organisational life, 'Foucauldians' claim:

Institutional and organizational forms *can only* be described and interpreted within their local interactional settings or contexts if we are to gain any appreciation of their inherent [nature] (Reed, 1997, p. 27, my emphasis).

Burrell does no more than argue that a Foucauldian analysis would emphasise the dynamic nature of organisation, which is not the claim to intellectual dominance that Reed alleges. In both cases, nature means:

the complexity, contingency and fragility of organizational forms as transitory manifestations of relationships of dominance-subordination *and* as mere embodiments of an underlying relationship of forces' (Burrell, 1988, p. 231, original emphasis).

So Burrell argues for an investigation of organisations that emphasises how they are both contingent upon local action (a genealogical analysis that would look for the particular), *and* structural embodiments of a set of underlying forces (an archaeological analysis that would look for generalities). A processual interpretation and analysis is stressed, but a structural one is not excluded, anymore than it is in Foucault's own work.

Reed, then, tends to bracket Foucault and all of his followers, and apply the same critique to all, despite considerable variations in the achievements of the individuals concerned. In this way, he makes little distinction between Foucault's detailed historical accounts and, at the other extreme, work not reviewed here that would see every occasion of a security camera in the high street as a disciplinary mechanism designed to turn us into docile bodies (Kendall and Wickham, 1999).

### **The adoption of Habermasian and Foucauldian perspectives in research studies**

This section addresses the ways in which the works of Habermas and Foucault have been adopted by researchers in organisation and management studies. Interest focuses upon research in my own discipline, research within related disciplines where an interesting development of the perspective has occurred, and empirical work carried out in the health sector, as the application area to which this study is addressed.

### *Habermasian perspectives in research work*

Habermas' theories of cognitive interests (1972) and communicative action (1979, 1984, 1987) have provided a theoretical basis for the work of several researchers engaged in critical management research (see, for example, most of the chapters in Alvesson and Willmott, 1992a). Work of specific interest to this study has taken place within the disciplines of information systems and accounting. Within the IS field, this work (for example, Lyytinen, 1992; Hirschheim and Klein, 1994; Ngwenyama and Lee, 1997; Cecez-Kecmanovic, 2001; Janson et al, 2001) is starting to take on an empirical nature. For example, ten years ago, Lyytinen (1992) evaluated the major results to that date of applying a critical perspective – based on the works of Habermas – in IS research. He concluded that the results were modest, and called for more empirical studies, arguing that critical theory in the IS field needs to be made more practical by developing methodologies that recognise and support reflective development practices. In this argument, the possible complementary nature of the work of other critical theorists, including Foucault and Giddens, was acknowledged.

Hirschheim and Klein (1994) responded to the call, arguing that IS development methodologies only partially embrace emancipatory principles. They presented a theoretical argument for ETHICS (Effective Technical and Human Implementation of Computer Systems) as the most likely candidate to be extended or “reformulated” to achieve emancipatory ideals more comprehensively. They suggested that key features of the ETHICS methodology, such as its focus on participation, quality of working life, and ethical concerns, institutionalise the four conditions of rational discourse (or ideal speech situations) and that these features contribute to its emancipatory potential. By strengthening these features and moving them centre-stage, the authors claimed to develop a generic approach, applicable to other methodologies, in which organisations using the reformulated versions might make incremental progress advancing emancipation, while at the same time confronting limited resources and the presence of power and authority. Nevertheless, the development of critical methodologies in the IS field has so far failed to materialise.

Ngwenyama and Lee (1997) conducted an empirical investigation of an episode of managerial use of electronic mail. Their aim was to contribute to development of a



successor theory for information richness to inform the work of IS staff who design and manage information technology to support managerial communication. They derived and then applied a new definition of communication richness, and a social action framework, based on Habermas' theory of communicative action, arguing that a critical systems theory perspective highlighted relevant concerns in this context that would have escaped detection in either a positivist or an interpretive approach. Since this conclusion might be expected given the different interests served in each case, an interesting development of it would have been some comment by the authors on the implications of the new definition for designers and users of managerial communication systems.

Cecez-Kecmanovic (2001) used Habermas' theory of communicative action in a field study of the use of computer-mediated communication in a consultative process within a university. She shows how funding cuts by Government (the steering media) shifted the system (the university) in ways that ignored life-world concerns. In this way, the outcome was a colonisation of the life-world of staff by a process of systems rationalisation. She argues that the absence of rules and norms of conduct and argumentation in the electronic space (in other words, absence of the conditions of ideal speech) enabled distorted communication and deception of participants to the discourse by the President of the university. Yet the academic and general staff seemed to accept this "deception" rather easily. One is left wondering why the life-world seemed so powerless to act when it became clear that the President was not redeeming his validity claims. This kind of liminal exploration of transgressions available is one to which a Foucauldian perspective might be addressed.

Within the accounting field, development of a critical framework for empirical work has been a key area of activity for a number of researchers (for example, Laughlin, 1987; Arrington and Puxty, 1991; Power and Laughlin, 1992; Broadbent and Laughlin, 1994; Laughlin, 1995). In this field, Laughlin has been a key figure advocating a Habermasian perspective. Some of his work has been discussed already, but an interesting study in the health sector (Broadbent et al, 1991) in which he participated is addressed next.

Broadbent et al adapt Habermas' model of societal development to build an evaluatory framework to assess the NHS reforms of 1989, which established an internal market in the

UK health service. Having considered the mechanisms used by the UK government (the steering media) to steer the NHS (the system), the authors conclude that government is engaged in an attempt to colonise the life-world of the NHS, and that the process by which this is being attempted is becoming progressively more coercive. In addition to its health sector focus, an interesting aspect of this paper is the not insignificant amount of work the researchers engaged in to operationalise Habermas' model of societal development for use in an empirical context. Of note is the way they attempted to formulate, following Habermas, rules for judging whether the steering media had colonising potential or actuality. In a health sector study in New Zealand, Myers and Young (1997) draw on Broadbent et al's (1991) work to argue that information systems can be steering mechanisms, hence they also may have colonising tendencies.

Forester (1992) examines a fragment of conversation from a city planning staff meeting, drawing on Habermas' (1984, 1987) theory of communicative action. He questions the interpretation of Habermas' theory as 'predominantly ... metatheoretical, having little to do with empirical cases and having less to say about what we might explore in such cases' (p. 63). Yet Forester's claim that his analysis suggests 'dimensions of power to assess more closely' (p. 63) exposes Habermas' lack of engagement with this issue (Mingers, 1992).

Knights and Willmott (1987) address this concern by drawing on Habermas' theory of cognitive interests (1972), complemented with insights from structuration theory (Giddens, 1984), in a critical cultural examination of the format and content of a two-day management meeting. They claim that studies of culture are concerned with how 'organization is rendered subjectively meaningful (or meaningless) to those whose lives are touched by it ... [yet] analysts have generally failed to expose the relations of power that underlie various management and labor practices' (Knights and Willmott, 1987, p. 42). Knights and Willmott argue for a critical perspective in studies of culture that focuses on the inherent conflict and contradiction in social relations, with the aim that such scrutiny may reveal the presence of oppression to others. Thus, they adopt Giddens' concept of the asymmetries of power encapsulated in structuration theory to give their work a critical intent, in which 'the strategic and ideological character of organizational culture' (p. 59) is revealed.

### *Foucauldian perspectives in research work*

Foucault's concepts of disciplinary power and the nature of the power-knowledge-discourse relationship (1977, 1979, 1980a, 1980b) have informed several studies of IS development and management (Orlikowski, 1991; Knights and Murray, 1994; Brigham and Corbett, 1997; Knights, Murray and Willmott, 1997; Doolin, 1998). Although some of these studies focus on disciplinary power and subjectivity (for example, Orlikowski, 1991; Brigham and Corbett, 1997), and hence on the individualising effects of power, others address the application of Foucault's concepts in a multidimensional context. For example, Knights and Murray (1994) apply Foucault's concept of power-knowledge relations to investigate the political process in which IS development and organisational change took place in a UK life insurance company. In this study, the authors investigate the conditions of possibility of such a process, focusing on socio-political and economic (or global) conditions, as well as organisational and individual subjectivity conditions, which both enable and constrain the action that takes place. Similar concerns are evident in Knights, Murray and Willmott (1997) who focus on the activities of a company set up to promote and develop an interorganisational network for electronic trading in the UK life insurance industry following changes in the market resulting from deregulation.

In a health sector setting, a study by Coombs et al (1992), discussed earlier in a cultural context, adopts a Foucauldian perspective to demonstrate how development of an internal market in the UK stimulated tensions between doctors and hospital administrators during development of an information system to support these reforms. A study by Doolin (1998) focuses on how information technology may act as a disciplinary technology. He argues for use of a Foucauldian perspective in IS research so that we engage in critical reflection on the role that information technologies play in maintaining social order and power relations in organisations. The argument is illustrated by reference to the deployment of casemix information systems in hospitals, in which the costs of clinical activity can be monitored on an individual basis. Doolin attempts no more than to outline the potential of a Foucauldian perspective in this paper, but he points to detailed studies that demonstrate this potential to support his argument.

A Foucauldian perspective has also informed a number of different discourses in organisation studies research (for example, Deetz, 1992; Townley, 1993; Ball and Wilson, 2000). Townley (1993) argues that human resource management may be understood as a discourse and set of practices that attempt to reduce the indeterminacy involved in the employment contract. She shows that aspects of human resource management, such as recruitment, appraisal and remuneration, are disciplinary practices that classify individuals and order the labour process. A Foucauldian perspective is sufficiently detailed 'to allow for the "micropolitics" of power to be addressed and, by providing examples of how the concern with "knowing" labor as a "population" can percolate down to its effects on the individual, allows for highly individualized practices to be related to an intelligible whole' (ibid. p. 541). In this way, she demonstrates, without using these words, how the concerns of bio-power and disciplinary power become fused together in the employment contract.

Ball and Wilson (2000) also reveal the fusion of individual and institutional discourses in their Foucauldian analysis of computer-based performance monitoring in two UK call centres. They reference a later, but unchanged, version of the Burrell passage I highlighted earlier in my discussion of Reed's (1997) critique of 'Foucauldians'. They suggest that Burrell (1998) follows Foucault in arguing that organisations may be seen simultaneously as 'transitory manifestations of dominance-subordination *and* as mere embodiments of an underlying relationship of forces' (p. 24, original emphasis), but that examples of such an analysis are rare. In this way, they lend support to the view that Foucault is often narrowly interpreted in research as concerned only with disciplinary power and subjectivity, rather than with recognising also 'the political and economic contextualization of organization' (Ball and Wilson, 2000, p. 543).

Ball and Wilson argue that their research addresses both of the above concerns, while demonstrating that 'it is possible to reveal the intertwining of individual and institutional discourses purely by examining technologies, practices and subjectivities in local organizational sites' (ibid. p. 539). In arguing that *it is possible* to gain access to both discourses in this way, they avoid Reed's (1997) critique that those who adopt a Foucauldian perspective believe '[i]nstitutional and organizational forms *can only* be described and interpreted within their local interactional settings or contexts' (p. 27, my

emphasis). Interestingly, though, their study challenges Reed's key arguments about 'Foucauldians' without citing his paper directly.

Deetz' (1992) analysis of disciplinary power in modern corporations examines how institutions are implicated in the identity construction of individuals with a stake in them. Moreover, Deetz addresses the weaknesses of a Habermasian perspective when applied to the same task. He argues that while '[i]deological critique can be useful to define [procedural conditions] (see Habermas, 1984) ... the politics of identity and knowledge construction requires a more complete understanding of discursive and non-discursive practices aided by the investigation of disciplinary power' (p. 43).

### **Critical theory – conclusions**

In recent years critical research has become more broadly defined, in particular to embrace work emanating from both the German and French schools of thought. Habermas and Foucault are exemplars of these positions and each has attracted a substantial following in information systems and organisation studies research. A few researchers have considered the similarities in motivation and complementary effects of both perspectives, rather than just stressing their differences, for example, Flyvbjerg (1998).

Overall, the work of Habermas, and his theory of communicative action (1984, 1987) in particular, has value as a means of providing normative guidance suggestive of how things might be, and as an evaluatory model that establishes the extent to which communication is distorted (Flyvbjerg, 1998). However, as a means of *questioning* how things got to be the way they are so that we may understand the limits of our present position, it has weaknesses when compared with Foucauldian theory.

Foucault (1977, 1979) presents detailed historical accounts of how we arrived at our present and reveals forms of asymmetry and domination in discursive practices. He attends to the way enduring structural embodiments of power shape and are shaped by action, and argues that power is not an essentially repressive force (cf. Zuboff, 1988) but rather a capacity to act that all subjects share to varying degrees. Foucault's genealogical method of analysis, in the three modes described earlier, can attend to

sameness and difference in organisations, and hence to unifying as well as dividing practices.

Foucault's 'contextualism' involves bottom-up thinking as regards both the process and content of political action (Flyvbjerg, 1998). In such an approach researchers may overlook institutions and structural issues, but that neglect is not an inherent feature of a Foucauldian perspective. Rather, Foucault's position is often narrowly interpreted in research, as being concerned only with disciplinary power and its individualising effects. Writers neglect Foucault's concern with bio-power, as a normalising and regulatory force operating on whole populations, and his careful work on how the techniques of bio-power and disciplinary power become fused together (for example, Foucault, 1979). Foucault's double bottom-up thinking has earned him a description as non-action oriented (Laughlin, 1995), but research does not need to demonstrate emancipatory effects to be critical. It may explore the limits of a current situation (Foucault, 1984a), and from this liminal position it may reveal the possibilities for being otherwise without trying to guide our ways of enacting them.

### **The point of departure**

My conclusions from a review of the organisational culture literature suggested that both critical and postmodernist perspectives provide possible ways of achieving the understanding and critique sought in this research. Adopting the arguments of this chapter that a postmodernist perspective is just another way to be critical, a Foucauldian perspective is a way of pursuing these aims. Some researchers might argue that concepts of power and concepts of culture prompt us to focus on different things in our fieldwork. This thesis suggests that to conceptualise organisational culture outside relations of power is at best utopian (as Habermas' critics would argue), is in practice a fabrication (Foucault, 1979), and is at worst disingenuous. Pushing this argument to its limits, we may ask if organisational culture is just the acceptable face we give to the patterns of the manifestations of power-knowledge relations in an organisation.

Smircich (1983a) raised this point in a more limited context 20 years ago when she suggested that we may 'question the extent to which the term corporate culture refers to

anything more than an ideology cultivated by management for the purpose of control and legitimation of activity' (p. 346). Certainly, organisational culture as a social control mechanism mobilised by management is now an established theme in organisation and management research (see, for example, studies by Rosen, 1985; Kunda, 1992; Grugulis et al, 2000, discussed earlier). Still, it is not just managers who mobilise culture in this way. Power is a relational concept, and this view is central to a Foucauldian perspective.

My conclusions from a review of the technological change literature suggested that contextualist approaches informed by an appropriate social theory may guide research work to achieve the varying degrees of insight, critique and transformative redefinition that are the concerns of a critical researcher (Alvesson and Deetz, 2000). Such a theory would need to address the broad, and often contradictory, context of political, economic and cultural conditions that shape technologies during their design and use, and the local, contingent and negotiated nature of technology innovation. A Foucauldian perspective, in its concerns with the fusion of bio-power and disciplinary power, can address these concerns. Furthermore, a Foucauldian perspective respects the structurationist principles implicit within a contextualist approach (Pettigrew, 1987).

Although Foucault's work refers to disciplinary mechanisms and technologies in a broad sense, concepts from actor-network theory are helpful to examining the type of heterogeneous networks of circulating entities and the movements in them (Latour, 1999a) that occur during IS implementation. Such concepts may be used in a complementary discourse to a Foucauldian perspective, as major proponents of an actor-network approach have acknowledged by citing Foucault's influence on their own theoretical positions (for example, papers by Law, Latour and Callon in Law, 1986a; also Law, 1991b; Law, 1999). So concepts from actor-network theory form part of the theoretical framework adopted to guide this research.

## **THE FULL CONTEXTUALIST MODEL**

Pettigrew (1987) argues that a full contextualist model has four elements – a clearly delineated set of levels of analysis, a description of the processes under examination, a

model of human behaviour and a linkage mechanism between process and context. The scope and focus of a particular study determine the first two elements, and they will be described in detail in the next chapter. The social theory adopted provides the last two elements, and this study draws primarily from the social theories of Foucault on power and subjectivity (1977, 1979, 1980a). The remainder of this chapter describes how particular concepts were adopted to develop a contextualist model for a critical study of the interaction between organisational culture and IS implementation.

### **Organisational culture as a regime of truth – a model of human behaviour**

Foucault links power and knowledge through discourse. Power by means of discourse produces knowledge and knowledge drawn upon in discourse may reconfigure existing power relations. Foucault refers to this circular relationship as a *regime of truth*, so that:

Each society has its regime of truth, its “general politics” of truth: that is, the types of discourse which it accepts and makes function as true; the mechanisms and instances which enable one to distinguish true and false statements, the means by which each is sanctioned; the techniques and procedures accorded value in the acquisition of truth; the states of those who are charged with saying what counts as true (1980a, p. 131).

In this context, truth is not a fundamental, universally accepted, scientific truth but rather should be understood as knowledge that is deemed to be true by a given community. Interpretations of this knowledge emerge in social discourse and enable and constrain the courses of action available to members of the community. Action (conceived as the exercise of power) may reproduce or change the domain of knowledge, which, in turn, may reconfigure the power relations.

In this way, discourse is not just concerned with what we speak, but also with whom speaks it and how it is enacted. So a regime of truth concept focuses on discursive and non-discursive practices in which knowledge and power are central concerns. Discourse has three elements – a community in which the discourse emerges, institutions with knowledge and authority which delimit the discourse, and grids of intelligibility which enable particular practices to be related to each other in a specific type of discourse.



A regime of truth concept of organisational culture embodies themes from a generic definition of an organisational culture (Martin, 1992) as revealed in the patterns of interaction between content themes in an organisation and how they are enacted in formal and informal practices and cultural forms. The ‘types of discourse which it accepts and makes function as true’ may be thought of as content themes, which may be deliberately articulated, like corporate objectives, or may be tacit, deeply-held assumptions. The ‘mechanisms and instances which enable one to distinguish true and false statements’ are reflected in operating procedures and the formal and informal working practices that are a response to them. The ‘techniques and procedures accorded value in the acquisition of truth’ may be said to manifest themselves in cultural forms, such as rituals, stories, jargon, humour, and physical arrangements, which symbolise their value. The normalising aspects of a regime of truth and the relations of power can be seen in Foucault’s references to ‘the means by which each [discourse] is sanctioned’ and to ‘the states of those who are charged with saying what counts as true’. So a regimes of truth concept captures the normative and symbolic enactment of organisational culture and conceives that enactment in terms of ‘relations of power and domination that are both a condition and consequence of the existence of culture and symbols in organization’ (Knights and Willmott, 1987, p. 41).

The study of discourse (as medium and outcome of power) is a way of surfacing the implicit assumptions of cultural members. Viewing power as enacted through discourse, ‘disrupting these everyday discourses, pointing out ruptures, absences and breaks, thereby revealing contradictions in the symbolic order’ may open up the possibilities for cultural change (Martin, 1992, p. 160). In this perspective, a dominant regime of truth may be challenged by an emerging one as different discourses become a focus of attention for the community, or within an existing regime there may be subjugated knowledges that emerge at certain times. So, *regimes* of truth exist within a community such as an organisation, although which regime is dominant changes over time. In this way, organisational culture as regimes of truth may be said to provide a model of human behaviour, which can be used to question the *status quo* and surface taken for granted assumptions as a means of opening up the possibilities for action.

### ***On making a discourse function as true***

Although power is exercised with specific aims and objectives in mind, the outcomes are unpredictable and may be unintentional, because of the network of force relations in which each actor is involved. A specific change intervention may be achieved when the different interests involved in conflicting regimes are stabilised, albeit temporarily, to create some space for movement. In this way, points can be reached where a dominant discourse emerges around a change intervention and becomes, for a time, either the accepted basis for organising or, at the very least, a way of arguing and acting that is not effectively undermined. The four moments of translation (Callon, 1986), discussed later, may be used to describe the process in which such stability may be accomplished.

An emerging discourse is the product of institutional framing and local enactment, and therefore an examination of local and broader rationalities is key to understanding the way such a discourse gains acceptance and is made to function as true. Continued disruption of existing discourses by an emerging one can establish a new regime of truth. Alternatively, an emerging discourse can be undermined and subjugated or overcome.

### **Power-knowledge relations – a linkage mechanism between process and context**

Power-knowledge relations constitute a linkage mechanism between process and context that allows movement between a loose coupling of forms of organising and technological developments in the broader environment to an increasingly tighter coupling of the individual and technology in a specific change effort. These moves may be understood as circular movements between poles of bio-power and disciplinary power through a number of intermediate positions in which regulative methods and disciplinary techniques are fused (Foucault, 1977).

Bio-power is focused on the human body as ‘the body imbued with the mechanics of life and serving as the basis of the biological processes’ (Foucault, 1979, p. 139). In this sense it is concerned with human life and bodies in general, in terms of how they are supervised and regulated. Issues such as ‘propagation, births and mortality, the level of health, life

expectancy and longevity, with all the conditions that can cause these to vary' (ibid.) are the concerns of bio-power. It is focused on specifying and controlling a whole population and therefore should be understood as having a global dimension.

Disciplinary power is 'centered on the body as a machine' (ibid.) and hence on its functioning and performance within an institutional setting. It is a supervisory mechanism targeted at groups and individuals, which seeks to render them docile by the calculated and meticulous control of time and space. Disciplinary power targets the body by addressing issues such as 'its disciplining, the optimization of its capabilities, the extortion of its forces, the parallel increase of its usefulness and its docility, its integration into systems of efficient and economic controls' (ibid.). It is an individualising mechanism for subjugating bodies in a local context.

The techniques of bio-power and disciplinary power are not in opposition. Rather their evolution constituted 'two poles of development linked together by a whole intermediary cluster of relations' (ibid.). Among these linkage mechanisms, Foucault focuses on the deployment of sexuality as one of the most important arrangements in which bio-power was joined with disciplinary power. The deployment of ICTs in organisations constitutes another form in which concerns to specify and discipline bodies may be fused together.

### ***The sociology of translation***

In focusing on the implementation of information systems, specifically the formation, maintenance and transformation of heterogeneous networks in which technological change is accomplished, this research draws upon the sociology of translation (Callon, 1986). Acknowledging the Foucauldian concepts that inform the sociology of translation, Callon argues that power relationships should be understood as describing the way in which actors are 'defined, associated and simultaneously obliged to remain faithful to their alliances' (1986, p. 224). Key to this process is a system of association in which actors are linked together through identities defined for them, which they may negotiate. Such concepts make a useful contribution to an analysis which aims to reveal the dynamics of IS implementation in organisations.

Central to the use of actor-network theory is the notion of translation, and some further explanation of that concept is relevant here, by reference to the four moments of translation. These four moments involve defining a problem in terms of a proposed solution (problematization), arousing interest in the problem (interessement), consolidating alliances around a negotiated solution (enrolment), and then mobilising allies, or their representatives, for implementation (mobilisation). Translation is achieved by displacements that require discourse and the exercise of power. If successful, it directs actors towards the view that the proposed solution is the only way to solve the problem. If unsuccessful, it diverts actors away from such an obligatory passage point.

During problematization a key actor identifies a group of other actors whose identities are defined in such a way that they will traverse the obligatory point of passage. Problematization is hypothetical until the proposed roles and relationships have been tested. During interessement the actor who has proposed the solution attempts to stabilise the identities of the other actors, who may submit or decline. Various interessement devices are used to link actors to the proposed solution and weaken their links with actors who would see the problem otherwise. If successful, interessement confirms the problematization and helps to corner the entities to be enrolled.

Enrolment is a negotiated process in which stratagems and trials of strength accompany the interessements and enable them to succeed. Some actors may be enrolled without discussion, others may need to be seduced, persuaded or forced. 'To speak for others is to first silence those in whose name we speak' (Callon, 1986, p. 216). Mobilisation involves the displacement of actors and their subsequent reassembly at a certain place at a particular time. This is done by designating representatives for the actors, who displace the actors themselves, and speak for them. These representatives are translated through a series of displacements that enable a few individuals to speak for all. If successful, mobilisation results in a constraining network of relationships, but this may be challenged at any time. The key question here is 'are those who speak representative?' The delegates can be betrayed by those that they were thought to represent.

## **THE RESEARCH QUESTION**

Having presented the framework that will guide this study, and leaving open the possibility of drawing upon further concepts as the need arises, I now need to clarify certain aspects of the question that this research set out to address. The question is:

How is IS implementation accomplished when cultural change of an organisation is attempted, and what does this accomplishment mean for those who are touched by it?

In this context, the term IS implementation is used in a very broad sense. This adoption covers not just the stage when an information system is designed, written and installed, but includes any part of the process in which an organisation may consider the technology options available to it, develop and install an information system, and subsequently use and evaluate that system.

In this study there is a clear agenda for cultural change, and its proponents view the adoption of certain types of information technologies as a mechanism for achieving desired outcomes. The agenda arises from the UK government and is communicated to ambulance services through directives from the Department of Health. Within it, working practices for staff would change and information systems are deeply implicated in the proposed transformations. So, in this study, the attempts at cultural change are managerially framed efforts to disrupt the constituting discourses for a community so that the basis of truth is altered. Implicit in the research question, then, is a concern with exploring how information systems come to be accepted when they are implicated in such disruption.

This research examines how actors perceive the potential of ICTs, how they try to shape them during implementation and use – either to reconfigure or reinforce existing discourses – and the organisational and social consequences of such an effort. It explores the way actors' interests are aligned and stabilised in a social process in which knowledge is structured in discourse, and the extent to which such achievements are subject to challenge and transformation. So, this study addresses how existing regimes of truth shape the adoption and use of information technology in organisations, and how those regimes may be transformed in the process.

By questioning the way such shaping and transformation is accomplished, the limits of the present situation (Foucault, 1984a) are revealed, and then the possibilities for how it may be otherwise can be explored. In the sense in which I have just referred to limits and possibilities, I am engaging with Foucault's concept of *conditions of possibility* – those conditions that make certain courses of action feasible while constraining or ruling out others. Such conditions are socially constructed. In this way, then, the second part of the research question, asking what the accomplishment means for those touched by it, is asking what conditions of possibility result from it. My references elsewhere to organisational and social consequences should also be construed in this sense.

## **CHAPTER 4    Research Methodology and Setting**

In the last chapter, I argued for adopting a critical perspective in this research. In that argument, the philosophical assumptions that inform my position were implied without being explicitly discussed. In this chapter, I make those assumptions explicit and describe the data collection and analysis methods I used to enact them. I show how a philosophical standpoint more than a specific research question informed my approach initially, and how and why that approach was modified in the research setting. In essence, I suggest that the detailed research question emerged during the study, rather than being articulated at the outset. Finally, I describe the research setting. This description is no more than an overview of the case, outlining the main events in the history of the LAS and providing some information about the nature and organisation of its work, the way its performance is judged, and how it has attempted to computerise relative to ambulance sector norms. This narrative is subjected to detailed analysis in the chapters that follow.

### **MY RESEARCH PHILOSOPHY**

Summarising Orlikowski and Baroudi (1991, drawing on Chua, 1986), the assumptions underlying a critical research philosophy may be understood in terms of beliefs about physical and social reality, the notion of knowledge, and the relationship between theory and practice (or knowledge and the empirical world), as presented in Table 4.1. In discussing how I subscribe to these assumptions, I make reference to Klein and Myers (1999) seven principles for conducting and evaluating interpretive field research based on case studies and ethnographies. These principles – of the hermeneutic circle, contextualisation, interaction between researchers and subjects, abstraction and generalisation, dialogic reasoning, multiple interpretations, and suspicion – are useful here as a way of indicating how I conducted the research, rather than because at this stage I lay claims to my contribution. Although Klein and Myers focus on interpretive rather than critical research, how a researcher emphasises certain principles may indicate the combination of insight and critique they wish to provide, in particular, how they enact the principles of suspicion, contextualisation, dialogic reasoning, and

interaction between researchers and subjects. I aimed for insight as a basis from which to offer some critique, but I deemphasised emancipatory intent, since, as I indicated in the previous chapter, I am suspicious of such narratives (Alvesson and Deetz, 2000).

**Table 4.1. Beliefs underlying a critical research philosophy**

<b>Beliefs about</b>	<b>Explanation</b>
<i>Physical and social reality:</i>	
Ontology	A dialectical relationship between elements and the totality shaped by historical and contextual conditions.
Human rationality	People can act to change their material and social circumstances, but their capacity to enact change is constrained.
Social relations	Social relations are constantly undergoing change. Contradictions inherent in existing social relations lead to inequalities and conflicts, from which new social forms emerge.
<i>Knowledge:</i>	
Epistemology	Knowledge is grounded in social and historical practices, so conclusive evidence cannot be collected and interpreted to prove or disprove a theory.
Methodology	Commitment to a processual view suggests that studies would be longitudinal, in particular long-term historical studies and ethnographies.
<i>The relationship between theory and practice:</i>	
	The role of the researcher is to bring to consciousness the restrictive conditions of the <i>status quo</i> , thereby initiating change in the social relations and practices. ‘A theoretical framework also leads us beyond what is, beyond verification, to what could be’ (Burawoy, 1985, p.18).



### **Beliefs about physical and social reality**

I believe that reality is not just socially constructed among the actors engaged in a discourse at a particular time and place, but is also historically and culturally constituted by economic, political and societal systems of which these actors are an element. In this way, I subscribe to the fundamental principle of the hermeneutic circle between the totality and the parts, and the principle of contextualisation of field research. I believe that people can act to change their material and social conditions and to realise their unfulfilled potential, but that their capacity to act is constrained by existing socio-political and economic conditions that they may not always be able to perceive or penetrate. In this way, I acknowledge the principle of suspicion of participants' narratives, and in the next section, when I discuss my beliefs about knowledge, I show how I addressed it. Moreover, social relations are constantly undergoing change, although this change is often incremental and continuous, rather than discrete and discontinuous. Contradictions in social relations may privilege some voices over others and give rise to conflict, in which social relations may be transformed.

### **Beliefs about knowledge**

The *regimes of truth* framework that I adopted in this study is a way of abstracting the beliefs I discuss above, and how it does so was the subject of the last chapter. In this research, I “test” the limits of such a framework, not to prove or disprove it in a conclusive sense, but to establish its usefulness, and to extend it, as findings from the research setting suggest. In this way, I use the theory to illuminate the data, and the data to extend the theory. Thus my adoption of specific theoretical concepts engages the principle of abstraction and generalisation. Moreover, I aim to make the historical intellectual basis of the research as transparent as possible, discussing the theoretical concepts that guided me initially, and how and why I was prompted to introduce further concepts as I learned more in the field. Thus the principle of dialogic reasoning is evident in this research. Furthermore, I examine contradictory and conflicting interpretations of IS implementation efforts at the LAS arising from comments made by different study participants, my observations of their working practices, and how these

efforts were described in public inquiry reports. In this way, I engage the principle of multiple interpretations.

I chose a longitudinal case study as my preferred vehicle for conducting and presenting this research. This choice seemed appropriate in view of my commitment to taking a processual approach, and my view that changes are constantly occurring so that I would need continued and long-term access to the field site to understand how social relations were shifting. Indeed, I suggest that the time I spent in the field, the extent of participant observation in which I engaged, and the detailed documentary records upon which I draw are sufficient to argue that this research is a combination of historical and empirical ethnographies (Vaughan, 1996; Klein and Myers, 1999). I discuss the basis of this claim in later sections of this chapter. I also describe how participants in the study caused me to reflect upon and modify my initial theoretical perspective and my research methods. In this way, I engaged with the principle of interaction between researcher and subjects. Moreover, as an ethnography that is critical in the ways described above, I enacted the principle of suspicion, of participants' narratives and of my own assumptions.

### **Relationship between theory and practice**

I believe that my role as a researcher is to reveal the contradiction and conflict I observe in social practices in a way that may generate debate and initiate change. Moreover, I believe that such critical reflection may change me, as researcher, as well as the community in which I conduct my research. I do not claim that my research should be able to demonstrate emancipatory effects, simply that I should be able to show that participants thought it was useful to have me around; that they thought discussions with me helped to clarify their own ideas. Several study participants told me that they believed I had this role, and they acted to facilitate it, as I discuss in the section on data collection. One manager, with whom I had regular discussions after project meetings, said to me:

Maybe we should have someone around all the time, going to these meetings and causing people to think about what they are doing.

Notwithstanding what I have just said, in the conclusions to this study I offer some suggestions about how things might be, but my overall aim is to stimulate discussion from which new ways of conceiving information technology and ourselves may emerge.

## **APPROACH TO DATA COLLECTION**

This research project took place in two phases. I undertook the first between April and August 1998, following a presentation by the IT director of the LAS to the Project Management Specialist Group of the British Computer Society (BCS). Initially, I conducted a short study, comprising 5 unstructured interviews with the IT director and two managers of operations, and an afternoon of observation in the LAS control room. This work addressed the IS implementation effort that had taken place at the LAS following the collapse of the LASCAD system, specifically the introduction of a system called CTAK (Call Taking). This study was a preparatory one, which established my credentials as a researcher. I was interested to explore the events that the IT director described in his presentation, to discover how the LAS had negotiated the aftermath of October 1992, and to examine the BCS discourse that principles of best practice had been key to these transformation efforts (Computer Bulletin, 1997).

The second phase was a longitudinal study conducted between February 2000 and February 2001, which followed the progress of IS projects and associated organisational changes taking place at the LAS at that time. A particular focus was the implementation of a packaged application for prioritising emergency calls, hereinafter referred to as PDS (Priority Dispatch System), which I followed from the time when a manual system for prioritising calls had just been installed through to formal closure of the project by the LAS. Concurrently, I followed the progress of the POS (printers on stations) project, in which mobilisation instructions were dispatched electronically to vehicle crews waiting on ambulance stations. The 2000/01 phase was the major fieldwork effort for this doctoral research and, in addition to following current developments, it involved substantial data gathering and analysis to reconstruct the history of organisational change at the LAS since the early 1980s. In this way, ideas and conclusions from my initial study of the CTAK project were substantially revised and extended, as I incorporated findings about prior and later efforts (specifically the LASCAD, PDS and POS projects) and considered

possibilities for the future. After that empirical work finished, I made periodic visits to the LAS to discuss planned developments, the progress of recent developments, and my research findings. In this way, I was able to obtain some feedback from study participants about my findings prior to submitting this thesis.

### **Techniques used**

My empirical work involved the use of unstructured interviews; observation of daily operations, project meetings and training sessions; document review; and informal meetings and discussion. Initially, interviews and document review were the primary methods used. These methods enabled me to develop a historical and cultural context for the events I was to observe later on, and to identify particular developments on which I wished to focus during later work. From July 2000, I used observation and informal discussion as my primary methods, once my presence at the LAS seemed to be more taken-for-granted. Some of these observations were planned and formally agreed, like attending meetings and training sessions, riding out with vehicle crews, and sitting with various members of staff in the control room. Others were quite unplanned and initially just presented themselves, like talking to staff during their breaks or as I met them in and around LAS headquarters. Although I realised the benefits of the less formal methods for getting a sense of what life is like in the community, initially I did not set out to employ them. Rather, as LAS staff became less formal in the way they interacted with me, so I modified my research methods.

The methods adopted in the later phases of the study seemed to follow naturally after I spent a weekend with a group of 30-40 LAS staff at the Ambex conference – the UK national conference for ambulance services – in Harrogate. At the conference, many of the issues that claim the attention of all staff in the ambulance services were discussed, formally in the seminars and informally during the breaks and over dinner. In the informal discussions, I gained some insights into how members of the LAS staff perceive these issues. Engaging in informal discussions was also facilitated by the opportunity, when I visited LAS headquarters, to spend some time in an office occupied by three managers whose work supports front line operations. Here, I participated in conversations and *ad hoc* meetings that arose as these managers went about their work. I did not tape or disk

record such meetings, although I took notes during them and/or wrote some reflections shortly afterwards. They provided an opportunity for participants, including myself, to reflect, comment, or try out ideas about the way that change in working practices was being accomplished.

I conducted 43 unstructured interviews of 60-150 minutes duration – 5 in the initial study and 38 in the later one. These meetings involved staff from different hierarchical levels and functional groups, as indicated in Table 4.2.

**Table 4.2. Summary of interviews conducted**

<b>Participants involved</b>	<b>Number of interviews</b>
Directors (excluding IT director)	5
IT director and IT development staff	8
IT project support	3
Control room support (Training, development, and management)	15
Vehicle crew support (Standards development and operational management)	6
Quality assurance unit	3
Other participants (Operational development, management information)	3
<b>Total</b>	<b>43</b>

I engaged in further data collection efforts as a participant observer as follows:

- 21 project progress meetings (c. 30 hours)
- 10 user group meetings (c. 12 hours)
- 6 staff training sessions (c. 25 hours)
- 9 periods of observation in the LAS control room (c. 50 hours)
- 25 hours “riding out” with ambulance crews as they attend emergency calls.

I conducted additional observations of day to day operations around these activities, in 80 days attendance at the LAS during the period February 2000 to February 2001 and during 4 periodic visits thereafter. In general, I used an interviewing approach with staff who support front line operations, but who do not usually work either in the control room or at emergency scenes, for example, board directors and senior managers, members of the staff training unit, IT specialists, and quality assurance advisors. I used observation with front line staff, speaking with them while they did their work, and as circumstances within the control room and while attending emergency incidents around the capital permitted these conversations. Interviews were recorded and transcribed later, whereas I took notes during meetings and periods of observation. In the latter cases, I felt that a recorder might inhibit the discussion, and also, in the context of an ambulance control room or the back of an ambulance, it was impractical and an intrusion that some patients might not welcome.

I began all meetings with staff by providing some information about my research interests and myself. In interviews I encouraged participants to adopt a free format to describing their experiences of IS implementation and organisational change at the LAS, and during observations I asked staff to describe and comment on what they were doing, as operational circumstances permitted. So the issues I raised with study participants were influenced by what they said and did as well as by impressions I had gained in the field by the time I met them. On the second point, I selected several study participants because I had learned that they had specific roles in particular IS implementation efforts. My role started as one of participant-observer, but as time went on I was asked to comment on situations by a number of staff during my meetings with them. In this way, I moved along a continuum of research positions from “independent observer” to “action researcher” (Walsham and Sahay, 1999).

My review of paper and electronic documents supported the above activities in several ways. I accessed the web sites of the LAS, other UK ambulance services, and the Department of Health to help construct a picture of the institutional context for UK ambulance services. I obtained copies of service plans, annual reports, promotional literature, and media coverage of LAS activities to contribute to my understanding of how the service was responding to government initiatives in a wider sense than just in

terms of the projects on which I was focusing. Copies of internal communication videos focusing on recent developments gave me some insights into how managers communicated with staff about the changes taking place, in particular with vehicle crews who are located away from headquarters in 70 ambulance stations around London. I drew upon several documentation sources relating to the projects of particular interest to this study, including procedure manuals, project plans, service and technology strategies, meeting minutes, project evaluation reports, staff surveys, memoranda, and management information system reports. Finally, I drew upon the public inquiry reports into the collapse of the LASCAD system and the death of Nasima Begum (Page et al, 1993; Wells, 1995) and reports of a House of Commons Select Committee on Health (1995, 1996) into the performance of the LAS.

The LAS has “official” and “unofficial” web sites. The latter contains several pages on humour, an important feature of LAS life and a way of dealing with the requirements of the job. At times this humour can be quite infectious, as I discovered one day while sitting in the control room with an ambulance allocator. She had spent about an hour giving me a running commentary on her work, interspersed with funny remarks (in a Victoria Wood style) about some of the free text comments on the call details she was receiving – for example, the vehicle crew safety implications of responding to a patient who is ‘seeing lions and tigers’. At one point, she discovered she had two tickets for the psychiatric patient, but the age differed by six years. Caught up in the humour of the past hour, it was an entirely reflex action on my part to say that ‘the patient has aged six years while waiting for an ambulance’, and I apologised immediately, hardly able to believe I had made such a potentially provocative remark. She just smiled and said ruefully ‘it’s true though, isn’t it?’

My aim was to build a contextually sensitive (Pettigrew, 1987, 1990a) account, which considered the institutional framing, the grids of intelligibility and the local memories (Foucault, 1980a) that have shaped and been shaped by discursive practices at the LAS over the last 20 years. These sensitising concepts provided ‘a general sense of reference and guidance in approaching empirical instances’ (Blumer, 1954, p. 7). In this way, the Foucauldian concept of a knowledge-power relationship at the heart of a regime of truth framework informed the data collection, but I did not approach the task with

preconceived notions about what the specific ways of arguing and acting at the LAS might be. Rather I focused on what institutions, such as the Department of Health and the NHS Executive, declared about patient care and good performance and set out to discover how the LAS responded to these directives. In this way, I examined government publications, public inquiry reports, and strategy documents relating to the work of the LAS with a view to exploring the local discursive practices in which they were enacted. I speculated in advance that local memories of October 1992 would play a part in what I was to observe, but I did not approach the research setting with specific theories in mind as to what form local practices might take.

### **APPROACH TO DATA ANALYSIS**

A significant part of this research is a historical ethnography (Vaughan, 1996) – not a brief historical reconstruction of past change efforts to set the scene for a discussion of current ones, but a detailed examination of the negotiations in which these change efforts were accomplished. My fieldwork comprised less than 100 days in the last 20 years, and all of them were recently. Although participating as an observer in current efforts gave me an opportunity to ‘test’ ideas I had about previous efforts – in other words, to establish whether they were useful – I had to rely on documents and participants’ memories to establish a great deal of what I have come to say. The documents are written more or less chronologically. Moreover, in interviews, study participants tended to present a chronology of events. Several participants had been with the LAS for more than 10 years, some had given evidence to public inquiries, so they were able to give detailed accounts of past events – some of which had been intense experiences for them – and also to compare them with current developments. These observations are key to explaining the approach I adopted during data analysis and how the theoretical framework that guided this study informed the analysis task and was extended during it.



## **Techniques used**

Initially, then, the data analysis techniques I used were based on proceeding chronologically (Vaughan, 1996) rather than on analysing and coding the data to bring out key themes. In this approach, I tried to identify key moments or turning points and those involved in them, and then I compared what they said and did. My rationale for adopting this approach was not initially guided by Vaughan's historical ethnography. In the main, it was intuitive – it made sense to me – but in part it was influenced by concepts from the sociology of translation (Callon, 1986).

On this basis, I searched interview transcripts, my field notes, and documentary records, highlighting key moments and the discourses that took place about them. In Vaughan's (1996) adoption of this method, she examined these moments 'decision by decision, event by event' (p. 461), searching to see if a case of organisational misconduct had occurred. In my analysis, I was concerned with how these moments had influenced the course of IS implementation at the LAS in the longer term. Compared with Vaughan, I had a less substantial documentary record upon which to draw, but I had the opportunity to observe in the field whether my ideas were useful.

I suggest that there are occasions when coding the data and aggregating statements from interviews by topic is not a useful way to proceed. It 'would extract parts of each interview from its whole ... the whole stream of actions was absolutely essential context for understanding insider definitions of the situation' (ibid.). Moreover, the roles participants had were important, or, in Callon's (1986) terms, the identities proposed for them and how these challenged their perceptions of themselves. For those I call the institutional actors – for example, representatives of government or the regional health authority – I examined their official reports, but for the subjects of the modernisation efforts I had detailed narratives from my meetings with them, for I let them speak, often at length. So, I explored different actors' perceptions of important moments and what these revealed about their ways of arguing and acting about work. A summary of these results is given in Appendix A.

## **Modifying the theory**

In my analysis of key moments, contradictory and conflicting interpretations of them were evident. Yet some stability had been achieved in the past so that CTAK could be installed and was achieved again during my fieldwork so that the PDS system could be introduced, so I examined how this stability had been achieved. Moreover, the different pictures I got of the LAS in 1998 and 2000 suggested that earlier moments had been more unstable than they had at first appeared. Then, by asking different questions (as in the analysis chapters of this thesis) and by drawing on my observations in the field setting, I began to introduce some themes. In this way, my field ethnography complemented my historical one. For example, different actors' interpretations of key moments highlighted their diverse views on responding to and caring for patients, performing well, and the role of information technology in supporting their work. I began to see degrees of improvisation and anxiety in their ways of arguing and acting. These themes then informed further data collection efforts, and in this way the study remained open to influences from the field data that suggested that initial theories be modified (Walsham, 1995). In particular, as I observed different practices in responding to emergency calls, I probed participants' ways of making sense of the situation, and when I noted different degrees of comfort during project meetings, training sessions or when using the system, I asked participants to explain how they had been feeling.

These questions prompted cognitive and emotional responses, in which several members of staff recalled similar experiences on past projects, notably in 1992. In this way, I did not highlight themes in my data analysis at an early stage. Indeed, it was as we approached the implementation date for the PDS system that I observed anxiety and improvised practices, and then I began to question what discipline meant in this environment and whether we could think about it in a purely cognitive way. At this stage, then, I reconsidered past efforts in light of what I learnt from current ones. I introduced concepts about emotion and improvisation in organisations, and ultimately I extended the theory that had guided me at the start of this research.

I approached the data analysis with an interpretive stance (Orlikowski and Baroudi, 1991; Walsham, 1993), reflecting my aim to identify multiple actors' interpretations of

IS implementation and related organisational change at the LAS. Moreover, such an initial stance reflected the view that we need to understand in order to be critical. My analysis focused on the discourses of participants in the change programme, examining the statements that were articulated, those that were accepted, and the practices in which such acceptance took place. I aimed to form a view of what constituted the basis of truth for this community – the discourses accepted by the regimes of truth (Foucault, 1980a) – during periods in its history. Based on this understanding, I arrived at a more critical discourse that provides insight and some critical commentary (Alvesson and Deetz, 2000) into IS-related cultural change efforts.

## **OVERVIEW OF THE CASE**

The LAS is one of the largest ambulance services in the world. It provides an accident and emergency (A&E) service for London's 14 district health authorities and a non-emergency patient transport service (PTS) for 30 of London's 50 NHS trusts. The LAS serves a geographical area of over 620 square miles and a resident population of nearly 7 million, although the daytime population is considerably greater. Within the area covered by the LAS there are 4 airports, including Heathrow, and 17 sports stadia, including Twickenham.

The LAS was founded in 1930 and enlarged to take in other services in 1965 when the Greater London Council was established. It was managed by South (West) Thames Regional Health Authority on behalf of the NHS from 1974 until 1996, when the LAS became a self-managed trust (Page et al, 1993; LAS, 1996). During 1990, a LAS board was established. This allowed the management relationship with the regional health authority to operate at arm's length so that, prior to becoming an NHS trust, the LAS had some independence of action exercised through its own board (Hougham, 1996). This board was disbanded early in 1993 following publication of the inquiry report (Page et al, 1993) into the LASCAD project. That project, the events leading up to it, and how IS implementations have been accomplished at the LAS since 1992 are the focus of this study.

Ambulance services may be understood as organisations providing pre-hospital patient care, where patients are any who, while located within the area covered by the service, either request an ambulance or have one requested on their behalf. Emergency calls for

an ambulance cannot be refused, even if patients do not appear to have serious or life-threatening conditions. So, over the last 20 years, environmental changes such as increased levels of care within the community, and societal attitudes such as heightened public expectations influenced by initiatives like the Patient's Charter (Department of Health, 1996), have put additional pressures on ambulance services. Fuelled by these changes and others, including the take-up of mobile telephones (which increase the likelihood of multiple calls being received for the same incident), call volumes have risen by over 50% in 10 years. Telephone advice initiatives, such as NHS Direct (Department of Health, 1997), have thus far done little to contain the rise in numbers of calls to the ambulance services. Currently, the LAS receives over 1 million emergency calls each year – about 1 in 4 of all calls made to the ambulance services in England and Wales.

The LAS employs nearly 3,400 staff and owns about 450 emergency response vehicles. Over 80% of the service's staff work in A&E operations, the group whose IS implementation efforts are the focus of this study. Members of the A&E group include over 2,000 vehicle crew staff responding to emergency calls from 70 ambulance stations around London, about 300 control room staff taking calls at headquarters and allocating them to vehicle crews, and smaller operational support units concerned with staff training and service development. Some vehicle crew staff are trained paramedics, currently about 35% of the full complement. Control room staff either accept and verify call details (call takers), allocate vehicle crews to calls (allocators), notify crews that they have been allocated (telephone dispatchers and radio operators), or perform a monitoring or supervisory function. Control room staff and their operational support services, such as training and staff development, comprise Central Ambulance Control (CAC) based at LAS headquarters at Waterloo. Operational support services for vehicle crews are usually based on ambulance stations together with the staff they support. The operational support services for the different arms of the A&E directorate are distinct from the non-operational (or administrative) support functions of the LAS, which are directorates in their own right, including human resources, finance, and information technology.

## **Ambulance performance standards**

Key measures of performance for UK ambulance services are defined in nationally-recognised standards for ambulance response times. Prior to a government-initiated review of ambulance performance standards in the UK (Chapman, 1996), these performance measures, then called ORCON (Operational Research Consultancy) standards, required that:

- call taking to mobilisation of a response vehicle should take no longer than 3 minutes, and
- 50% of emergency calls should receive a response within 8 minutes (ie. the crew should be at the scene within that time), and
- 95% of emergency calls should receive a response either within 14 minutes in urban areas or within 19 minutes in rural areas.

The first standard is subsumed within the other two. Hence the term ORCON standards, as it related to emergency calls, usually referred to the 8-minute and 14/19-minute response requirements (House of Commons Select Committee on Health, 1995). Only the 14/19-minute requirement was incorporated in the Patient's Charter (Department of Health, 1996). ORCON standards emphasised speed of response in a regime that treated all calls with equal priority. The 1996 review identified as a key requirement substantially reducing premature deaths from coronary heart disease, and hence modifying ORCON standards. Without deemphasising speed of response, the new standards require that emergency calls are prioritised according to the clinical needs of patients and that vehicles are dispatched based on the priority assigned to each call. In line with these recommendations, since 31 March 2001, ambulance services have been expected to meet the new ambulance performance standards of responding to:

- 75% of category A (the highest priority) calls with an appropriate (ambulance or fast response car or bike) resource within 8 minutes, and
- 95% of category B and category C (the lower priorities) calls with an ambulance resource within 14 minutes in urban areas or within 19 minutes in rural areas.

In category A cases where a fast response vehicle (one that is strategically positioned so that it can respond quickly) is dispatched, it must be backed up by an ambulance unless the control room decides that such a response is not required. That ambulance must be on the scene within 14/19 minutes of call receipt in 95% of cases. By 2003, government targets require that ambulance services respond to 90% of category A calls within 8 minutes (Chapman, 1996; Department of Health, 1999). Both the 8-minute and the 14/19-minute standards are included in *Your Guide to the NHS* (Department of Health, 2001), the current replacement for the Patient's Charter.

Although these standards have been relaxed for the LAS in view of the acute nature of social problems, assaults on staff, and traffic congestion in London, the service was required to achieve full compliance with the March 2001 targets by December 2002. In the new environment, institutions such as the Department of Health, and ultimately the UK government, seek to replace the ORCON discourse, that all calls have equal priority, with a discourse of "dispatching by priority" or "responding to patients based on clinical need". In this way, institutions frame the discourse that is enacted at the LAS, and employ the ambulance performance standards as mechanisms to compare the performance of one service with another.

### **Computerisation within the LAS and other ambulance services**

Ambulance services have increasingly adopted information technology in their drive to enhance performance and improve the quality of service they provide (Ambex, 2000). During the 1980s and early to mid-1990s, performance to ORCON standards became a focus of attention, particularly when the requirements of the internal market in the NHS started to emerge in 1989. In line with these standards, information systems addressed speed of response assuming all calls had equal priority. Design approaches varied in the degree of automation attempted, and the extent to which developers aimed to inscribe models of human behaviour within the information system. During this period, these developments took the form of implementing computer aided dispatch (CAD) systems that addressed some or all of the following processes to varying degrees of automation:

- *call taking and gazetteer*: accepting and verifying incident details including location
- *vehicle location mapping*: tracking the location of emergency vehicles
- *resource allocation*: determining which vehicle to send to a call
- *resource mobilisation*: communicating details of the incident to the appropriate resource
- *ambulance resource management*: positioning of suitably equipped and staffed vehicles to minimise response times
- *provision of management information*: enabling performance assessment and medium and long term resource management and planning.

Specific implementations of these functions would involve the use of an automated vehicle location system (AVLS), mobile data terminals, and caller line identification (CLI), depending on the degree of automation and sophistication required. These technologies will be explained as the case unfolds. The LASCAD project (1990-92) attempted to provide full automation of all of the above processes. It was part of an ambitious programme of reform undertaken by the board appointed in 1990 in an effort to improve the performance of the service, which at that time was the UK's worst performing ambulance service against ORCON standards (House of Commons Select Committee, 1995). In 1992, no ambulance service in the country had attempted to install such a sophisticated CAD system (Page et al, 1993). The LASCAD system was implemented in the early hours of 26 October. By mid-morning, there were serious problems; within 36 hours the LAS had reverted to semi-manual operations; and on 4 November 1992, the system collapsed and full manual operations were resumed.

CAD systems were not designed with the intention of providing support for clinical decision making, but rather were concerned with taking and responding to emergency calls more quickly, based on up-to-date information about the position and status of suitable resources. In this sense they preserved the individuality, and hence variability, of clinical decision making vested in those that used them. However, by incorporating monitoring mechanisms, in particular tracking the locations and status of resources, they challenged the task orientation of vehicle crews, who previously had relative freedom to manage the cycle time involved from receiving an emergency call to notifying availability to attend another incident. Typically this cycle may be from 50-80

minutes, and includes the times to get to the incident, to assess the patient at the scene, to convey the patient to hospital, to comply with hospital procedures regarding handover of the patient, and to notify availability following handover at the hospital. Both ORCON standards and the new ambulance performance standards address the first element in this cycle only.

The review of ambulance performance standards in 1996 identified a requirement to respond to patients according to their clinical need, and hence to prioritise emergency calls. Thus the move, in the late 1990s, to the new standards changed the basis on which emergency responses are provided. At this time, ambulance services modified their CAD systems to incorporate call prioritisation, or priority dispatch. Two packaged priority dispatch systems have dominated the UK ambulance services market and the LAS has purchased one of them, which I refer to by the pseudonym PDS. This system was installed at the LAS in November 2000. It functions by being embedded within an existing CAD system, enabling a clinical priority to be determined and assigned to each emergency call.

Around the LASCAD and PDS implementations, a number of other technological and organisational developments have taken place at the LAS. These developments will be described as the case unfolds since they are an essential part of the story, but significant amongst these efforts and the events giving rise to or resulting from them are the following. Between 1992 and 1995, the LAS was the subject of three major public inquiries following the failure of the LASCAD system (Page et al, 1993), the death of Nasima Begum (Wells, 1995) and concerns about service performance (House of Commons Select Committee, 1995). In early 1996 the LAS opened a new control room, installed a new computer system called CTAK (Call Taking) in a partial automation strategy, and was awarded NHS trust status. In May 1997, its control room and computer system received a British Computer Society IS Management Excellence award (LAS, 1996; Times, 1997). Since 1997, significant restructuring has taken place at the LAS, both in the drive to improve its performance, and with the aim of responding to government plans for modernising the NHS. In November 2000, a trial was completed involving the use of printers on five ambulance stations to receive dispatch instructions from the LAS control room, and, following the trial, printers were installed on the remaining 65 stations early in 2001.



So, some aspects of the A&E operations of the LAS now have automated support, other areas which the LASCAD project sought to automate, including most of the resource management processes, continue to be manual activities. Response times against ORCON (and, more recently, the new ambulance performance) standards have fluctuated over the last 10 years, and institutional scrutiny of the LAS, while less universal than in 1992, is perhaps ever more intense. In March 2001, the LAS met one of its targets against the new ambulance performance standards for the first time (LAS, 2001), but its performance figures still lag those of other UK ambulance services. How we may understand these accomplishments is the subject of the next three chapters.

## **CHAPTER 5 The Rise of an Internal Market**

In this analysis chapter and the two that follow, I use the regimes of truth framework outlined earlier to examine the history of IS-related cultural change efforts at the LAS over 20 years. These efforts had different rationales for change, but each may be construed as an attempt to subscribe to an institutionally framed view that the LAS needs to improve its performance. The institutional framing arises from forces such as government imperatives, sectoral and social conditions, and media influences, and so I set my account within a context of change within the health service sector and society more generally. In the regimes of truth framework, I conceive the culture of the LAS as the way it negotiates and organises around a number of cross-cutting discourses such that institutionally framed views are shaped by local knowledge during enactment.

In these analyses, I present accounts of three periods (up to 1992, 1992-96/97, 1997/98 onwards) by first examining the discourses that were circulating at the time, and so how relevant regimes of truth were constituted during the period in question. I then focus on specific IS implementation efforts that took place within each discursive context, adopting the sociology of translation to give a further dimension to the socio-technical processes in which each effort was accomplished. At the end of the first two analysis chapters, I review what we learn from the IS implementation efforts examined thus far and what questions still seem to be unanswered. These reviews are incremental in the sense that they build to a discussion and evaluation of four LAS projects from which interpretive generalisations are sought. Crucially, though, the way I present them shows the questioning I engaged in at various points during this research.

### **CHALLENGING A PUBLIC SERVICE MODEL OF ORGANISING**

The rest of this chapter addresses the period in the history of the LAS that forms the backdrop to the IS implementation and organisational change efforts that are the focus of this study. It addresses the operational arrangements that were in place during the 1980s, prior to the introduction of NHS trusts, and the changes that were made at the LAS in the early 1990s, when a more market-driven orientation inspired by government was espoused

as the new standard for the health service. The LASCAD project is the focus of attention, since it was a major part of the reform programme attempted at the LAS during this period.

### **The established command and control regime**

During the 1980s the LAS was managed by South West Thames regional health authority on behalf of the NHS, and therefore investment in, development of, and ultimate accountability for the performance of the service rested with the regional health authority. At this time, the expertise of managers within the LAS lay in their knowledge of ambulance service operations rather than accounting-based practices. The vast majority of staff belonged to a trade union, and union officials were active and influential figures within the LAS. Little organisational development took place at the LAS during this period. Although the performance of the service was subject to ORCON standards, the spreadsheet systems being developed at the LAS to monitor performance against these standards were limited and piecemeal, so few, if any, accurate evaluations could be made. Each year, the regional health authority agreed funding for the operations of the LAS without detailed, reliable assessments of either service performance or resource utilisation.

At this time, the LAS was set up like most other ambulance services. It was led by a chief ambulance officer, and had a hierarchical, bureaucratic structure with many intermediate levels of management. The service had a ‘very military’ culture, to the extent that ‘even the titles that we used for people at that time were very military-based, and the hierarchical structure was very similar to most armed services’. Protocols and procedures were key aspects affecting how work was carried out, and these together with the militaristic orientation, were thought to provide a ‘very strong discipline’. First name terms were used by invitation only, and all of the senior managers within the service were uniformed officers. ‘You didn’t salute one another or anything quite as drastic as that, but ... it was quite close, quite close to that’ (manager, CAC [Central Ambulance Control] development).

Popular images of what is understood by a “military culture” might suggest protocols and procedures, uniforms, equipment, and human actors linked together in a disciplinary regime, with the intention that concerted action may be taken in a contest or

struggle that has life and death outcomes. Interpreted like this, the designation “military” is as appropriate for the LAS of the 1980s as it is for the armed services. Indeed, historically, ambulance services have been based on military lines of command, since many ambulance officers were ex-military personnel (Preston and Hutchison, 2001). Within the ambulance services, such regimes have been referred to as “command and control” regimes, indicating the military discipline without evoking a connection with armaments. The discourses that formed the basis of truth for the command and control regime that existed at the LAS during this period, and those of a regime that emerged to challenge them in the early 1990s, are explored next. From my field data, I identified three key interrelated themes concerned with organisational members’ attitudes about the nature of work, what constitutes good performance, and the role of information technology.

### ***The basis of truth within the command and control regime***

Knowledge was structured in protocols and procedures, in the sense that these provided an outline framework of the steps to be followed in a given situation. However, the competent enactment of knowledge was seen as requiring experience and human judgement that could be acquired only by repeated exposure to operational situations. In this sense protocols and procedures were adapted, albeit unofficially at times, to suit the specific circumstances of each incident as assessed by those who were dealing with it. In ambulance service operations, where decisions can affect life and death outcomes, human judgement was seen as the final arbiter in deciding how to respond to patients. Expertise in the clinical, rather than the administrative, aspects of procedures was particularly highly valued and was reflected in the award of paramedic status to those members of ambulance crews who gained the necessary expertise. Considerations of operating within budget and performing to ORCON standards were not high profile issues in the service at this time, where the acquisition and use of operational knowledge in the interests of patient care were the focus of attention.

Good performance was generally denoted by rank markings worn on the uniforms. Uniforms designated difference as well as authority. In the former case, uniforms differentiated members of the service from members of the public they serve, all of

whom are potentially patients in their care. Hence the idea of custody of the public symbolised by a uniform. In the latter case, rank markings on the uniform denoted authority both within the service and at the scene of an incident. The character of the rank markings denoted the level of authority and hence the scope of command of the officer wearing them. Rank was an indicator of operational knowledge and experience, the acquisition and competent use of which was a necessary prerequisite for command. Uniforms also had to provide physical protection for the wearer in hazardous working conditions, and be adaptable to seasonal variations.

Equipment was vital to carrying out the job. It included vehicles, kit bags containing medical equipment and drugs, and communications mechanisms such as radios and telephones. Equipment was useful where it supported the execution of work, but it was a tool in the hands of humans that relied on their knowledge and judgement to achieve its effects. Equipment should provide the best possible environment for staff and patients, and thus should enhance both crew safety and patient care. The role of information technology in this regime was enacted in line with attitudes to equipment. Thus technology that supported the execution of work was seen as helpful, but where it was used to provide a surveillance mechanism or model human decision making, it would be resisted. Thus automation of administrative aspects of working practices, such as form filling, would be welcomed, but attempts to inscribe operational knowledge within a computer system as the basis for managerial control or clinical decision making, at best, would be considered risky and, at worst, would be sabotaged.

During the 1980s, most staff who joined the service spent several years working out of ambulance stations before moving into the control room. Opportunities for control room work were limited for two main reasons. First, the number of staff employed in the control room was about 15% of the number of staff employed “on the road”, and second, control room work usually carried officer rank and so prior experience of ambulance service work was a necessary prerequisite for the job. Control assistants, who worked in the control room but did not hold officer rank, had very low status within the service, which was reflected in the way they were referred to as ‘civilians’ by both vehicle crews and officers (control room member). The control assistants were frequently bypassed when vehicle crews communicated with the control room, and so,

for the most part, they were employed on taking emergency calls from the public, since this was perceived as low status work that required little prior experience of the job. While some officers had developed negotiating skills as trade union representatives, in general rank denoted authority. A “command and control” regime pervaded the service, in which an implicit assumption was that the former implied the latter.

The quality of care that the patient received between calling for an ambulance and arriving at hospital was seen as a function of the knowledge and experience of both the control room staff who mobilised resources to the call and the ambulance crew that attended the incident. The acquisition and use of such knowledge were accorded high value by staff, who took pride in the quality of care they provided to patients. Although the seriousness of each patient’s condition was assessed informally by both staff in the control room and the ambulance crew dispatched to the call, *officially* all calls had equal priority (as embodied in ORCON standards). So, in general, ambulances were dispatched to calls in the order in which the calls were received (operational staff interviews).

### **The national strike of 1989/90**

At the end of 1989, a bitter national dispute about pay and working conditions took place within the ambulance services. Although this dispute was countrywide, it was particularly pronounced in London, where the cost of living is higher and the social problems dealt with by emergency services are greater than elsewhere in the UK. Many staff at the LAS went on strike or operated a policy of withholding goodwill; LAS headquarters at Waterloo was picketed; and “Green Goddesses” were seen on the streets of London as the police and the army dealt with emergency incidents normally handled by the LAS (Guardian, 1989). There was considerable public support for this strike, demonstrated by the monies collected by LAS staff, who took up pitches at a number of key sites around London, including several main line railway stations. The extent of the public contributions is evidenced by the comment of one member of staff who claims that some people earned more money while on strike than they did when working normally.

Although staff and senior management of the service were clearly divided about issues relating to the strike, a further divide was created between ambulance crews and control room staff. At that time, almost all staff in Central Ambulance Control (CAC) at Waterloo were on management pay scales, under Whitley Council conditions, whereas ambulance crews, who made up about 70% of the workforce of the LAS, were not. Thus most control room staff enjoyed a significantly better benefits package than their colleagues “on the road”. Consequently, the majority of staff at LAS headquarters came into work during the strike, despite pickets outside the building, while many crews on ambulance stations took strike action. Control room staff and vehicle crew staff who did not wish to strike felt intimidated by their colleagues (operational staff interviews). At LAS headquarters, control room staff were regularly jostled by pickets and were accompanied onto the premises each day by senior managers, and occasionally by the police, while some crew staff who were against strike action took extended sick leave.

Although at times there were crews waiting on stations to receive emergency calls, senior managers enforced a policy in which control room staff were instructed to pass all calls directly to Scotland Yard rather than to ambulance stations (Daily Telegraph, 1989). This alienated staff in the control room, who were asked to bypass their colleagues, and met with a response from crews in which they bypassed the control room, by advertising the telephone numbers of their stations outside the premises so that members of the public could contact them directly. Eventually British Telecom was asked to switch calls directly to Scotland Yard so that they did not come into the LAS at all, and then ‘it was a bit like a ghost town in the control room’ (control room member).

This acrimonious dispute lasted several months. Early in 1990, when a pay award was agreed and the dispute ended, conflict existed among staff and between staff and managers about the nature of work and the ways it should be rewarded. Many of the staff who had taken strike action felt that colleagues who did not strike should not receive the award (control staff member). Further resentment existed amongst staff concerning the manner of collection and the subsequent distribution of the strike fund (crew staff member). Working relationships between staff suffered, while the relationship remaining after the strike between LAS staff and management was one based on mistrust (operational manager).

In this environment, attitudes hardened within the command and control regime, but in different ways, reflecting those affiliations to which members of the community felt a strong allegiance. In this way, some members of staff subscribed to trades' union discourses, which were very critical of LAS management and its perceived lack of appreciation for and investment in staff. Others felt a strong affiliation with particular functional groupings, whether as a member of the control room or the road-based staff, and whether as an officer, who would command, or as a technician, who would use various medical techniques and equipment in the course of dealing with emergency incidents. Many staff subscribed to both trades' union discourses and task specialist discourses, in some cases because they feared the consequences of not doing so.

So, divisions inherent in the hierarchical structure of the LAS became more pronounced at this time. Subjugated rationalities or knowledges (Foucault, 1980a) began to surface, disrupting the dominant militaristic discipline that had previously held the command and control regime together. Nevertheless, the emerging communities shared many of the concerns of the original regime, including the importance of patient care and the value of context-specific, operational knowledge, variously interpreted and enacted. In this situation, organisational reform based on a universalistic, management-driven, efficiency rationality would be fiercely opposed (operational manager interviews), but from a number of points of resistance and using a range of techniques, reflecting the different concerns that would be challenged by such a regime.

### **The beginnings of a professional management regime**

A professional management regime should be understood in this context as one in which knowledge, skills, and experience transcend organisational and sectoral boundaries. In this sense, professional standards of best practice and human actors are linked together in a control regime intended to achieve efficiency and effectiveness of operations, where "value for money" is a central concern. Some popular truths or knowledges that shape action within a regime of this kind that began to emerge at the LAS in 1990 are explored next.



### ***The basis of truth within a professional management regime***

Professional standards of best practice in the generic sense referred to above are evident in the fields of accountancy, law, human resource management, and information technology, amongst others. Practitioners in these fields often show more allegiance to the professional standards of their own discipline than to operational considerations within a given market sector. Indeed, such practitioners often work in many different market sectors throughout their careers. Issues of best practice of primary concern to this study may be found in concepts relating to the role of a manager, the efficient and effective use of resources, and the adoption of methods or techniques for IS development and management. These best practice issues may, then, be understood as how professional managers understand good performance, the nature of work, and what should be accomplished with information technology.

Contemporary ideas about the role of a manager emphasise the need for human and organisational skills over detailed operational knowledge. The fragmented and *ad hoc* nature of the work makes it a task that is not readily documented in protocols and procedures. The idea that being in charge is the same as being in control is rejected, in favour of a philosophy in which managers use their social and political skills to achieve outcomes. Dress codes vary across contexts, but managers' dress bears no distinguishing marks that differentiates it from the dress of those they manage or those they serve. Ideas concerned with the efficient and effective use of resources draw on principles of best practice such as budgetary control, performance assessment, cost justification, benefits evaluation, and risk management. Although all of these principles would be found in a management accounting regime many are shared with IT professionals, not least because as IT evolved and its adoption increased IT departments in organisations frequently were, and in some cases still are, managed within a finance directorate.

Methods or techniques for IS development and management address standardised practices for executing, coordinating, and controlling computerisation projects. Although which methods attract support changes over time, the late 1980s and early 1990s were a period of methodologies for systems development and project

management. In the UK, the SSADM methodology was adopted as a national standard for systems development in the public sector, supported by the PRINCE methodology for project management. Systems development methodologies such as SSADM comprise a series of stages, a set of methods or techniques, and an underlying philosophy for accomplishing systems development tasks. Theoretically at least, the methodology may be tailored to suit the needs of individual projects, although in practice such tailoring may jeopardise the technical integrity of the approach by undermining the underlying philosophy on which it is based. Issues of best practice addressed by systems development methodologies include the specification of requirements, evaluation of business and technical options, and project review. Project management methodologies such as PRINCE are more generally perceived as frameworks, since they identify areas of concern without specifying the specialist techniques involved to address them. Issues of best practice identified by such frameworks include quality assurance, change control, configuration management, and the management of risk.

The following paragraphs demonstrate how a professional management regime shaped by the above truths came into conflict with the command and control regime at the LAS during implementation of the organisational reform programme and the LASCAD system between 1990 and 1992. In this discussion, the community that enacted the professional management discourses is seen as constituted by the LAS board appointed in 1990 and the various IT specialists who worked on the LASCAD project. Again I explore themes concerning the nature of work, what constitutes good performance, and the role of information technology.

### **The command and control and professional management regimes in interaction**

The creation in 1990 of an “arm’s length” board for the LAS was in line with guidance from the Department of Health that regional health authorities (RHAs) should ‘shed services which were not considered part of the RHA’s core function’ (Page et al, 1993, p. 74). This board was to be responsible for the day to day management of the service, reporting to South West Thames regional health authority, which retained ‘the statutory obligation of accountability’ (ibid.). The newly-appointed board included a chair, chief

executive, and directors of operations, human resources, and finance. The new chief executive was a prime mover in this attempt to prepare the LAS for a reorganisation of the NHS into a system of self-governing trusts. In the proposed arrangements, ambulance services, hospitals, and community units would negotiate their contractual responsibilities with health authorities in purchaser/provider relationships within an internal market (Department of Health, 1989).

And along came John Wilby with his much different ideas on how organisations should be set up, and there was nothing wrong with his ideas, provided you prepared people for them and helped them to cope with the changes. But to have them come into things and encourage first names, to encourage people to come out of their uniforms when they were in senior manager positions, to be so different ... it seemed very americanised ... it was a big cultural change to the London Ambulance Service (manager, CAC development)

The new senior management team undertook a radical programme of organisational and technological change within the LAS in a period of just two years. This move acknowledged a failure by management during the 1980s either 'to modernise the service in line with other services, or to advance the organisation to meet the changing requirements of society in general and the NHS in particular' (Page et al, 1993, p. 64). The new work regime instituted by the chief executive was described as:

And the new John Wilby was "we don't want officers anymore, which are under Whitley Council conditions, and protected and all that, we are the new NHS, and the new NHS is management". So he brought the new management style to the ambulance service.

We were all managers now ... the idea was that the duty manager stood behind the sectors and managed it. So for the first time you've got control assistants not only operating the radio, god forbid, but also allocating vehicles, and the duty managers was meant to stand over and watch them and run the sector that way (sector team member)

Over the next few years, there followed a number of management changes, which had the effect of creating a 'fear of failure' culture (Financial Times, 1993).

When he came in, he actually flattened out the management structure to such a degree that we weren't very well able to manage or equipped to manage, so a lot of things were able to go wrong. And also at that time, a lot of fear was brought into the organisation, so that, you know, you could see things were going wrong, but you might be too scared of what it meant to your job to say anything about it ... there were quite a few instances of wrong people in jobs, as well as the flattened-out structure and the general sort of disillusionment, so the, you know, the atmosphere was ripe for problems (manager, CAC development)

The duty managers never did stand back – they allocated, that's all they did. 'Cause that never worked, about standing back, 'cause so many things went wrong that, in the end, you just had to get in there and do it (sector team member)

The management restructuring exercise took place early in 1991, the 'effect of which was to reduce the number of senior and middle management posts in the LAS by 53 out of a total of 268' (Page et al, 1993, p. 65). The outcomes of this restructuring were keenly felt in the control room where previously the majority of staff had held management rank. A number of staff moved to other jobs in the service or decided to take early retirement during this period. 'Somewhere like 800 years of experience walked out of that room at the end of 1991' (manager, CAC). This left the control room severely depleted, not only in terms of the numbers of staff it employed, but more crucially, in the extent of the knowledge and experience that circulated within the workforce that remained.

The introduction of new uniforms and vehicles met with opposition from staff, who perceived the changes as measures introduced by senior managers with little consultation. On the other hand, in the aftermath of the strike, trades' unions were not keen for their members to contribute to parts of the reform programme, hindering a process of wider consultation. Rank markings, previously denoted by epaulettes attached to the shirts, were no longer worn, in line with a management philosophy that staff should gain respect from others by the way they do their jobs, and not by virtue of the rank they wear on their shoulders (manager, CAC development). 'When we arrived on scene, other emergency services used to ask us when the flight was taking off' (operational manager) expresses a reaction to the new dress code highlighting similarities between it and the one adopted by British Airways at the time.

The symbolic and emotional significance to LAS staff of their rank markings, their uniforms, and, to crew staff, their vehicles may be compared with the importance academics would attach to their publication records and their degree qualifications. Thus the importance of these issues in cultural terms is significant. A program of change that challenged so fundamentally cultural members' images of themselves was very likely to meet with a degree of resistance that would have far-reaching consequences.

and some of these old officers wouldn't take their epaulettes off, and he [John Wilby] came in and made them one day ... he said it to [the control room manager - CRM], "get rid of those epaulettes off of those people" ... And my old ADAO [an officer grade] ... he'd been a cartwheel [jargon for the rank marking] for all these years, and [the CRM] had to go up to him, and she said to him "will you take your epaulettes off?" and he said "no", and she had to do it for him – she took them off, off him (control staff member)

The themes of patient care and crew safety, which at times seem at odds with one another, will appear several times in this telling of the story. The new vehicles introduced in the early 1990s, which lacked a communicating door between front and rear, challenged existing interpretations of these themes, since the new design hindered communication between the driver and the attendant while the patient was being conveyed to hospital. The new work ethos, emphasising commercial practices over established operational procedures, attempted to revise the basis on which patient care was provided. Arguably patient care and crew safety are rhetorical devices employed by cultural members, which are the articulated forms of more deep-seated concerns about what the future may bring and their capabilities to cope with it. This is not to deny the significance attached to both patient care and crew safety in their own rights, but rather to suggest that they are, perhaps, most strongly invoked when "fear of failure" grips the LAS. Certainly, as John Wilby's experience shows, when crisis strikes the service those who are found to have subsumed these issues within a more commercial rhetoric may expect a harsh judgement from government, the media, and the public at large.

He sort of tried to revolutionise in a very short space of time and part of that revolution was the computerisation, and he said very early on after his appointment that he would have computerisation in within the year. ... So you could see that there were going to be

pitfalls along the way, but with very little opportunity to do anything about it because John Wilby had made his promise and there was nothing that was going to stop him (manager, CAC)

The above initiatives were an attempt by the new board and John Wilby in particular to move the service away from a “militaristic culture” to one with a more commercial orientation. Best practice ideas concerning the role of management, the skills required for the job, and the major areas of attention for managers – on issues of cost control, the efficient and effective use of resources, and performance assessment – were central themes. These initiatives have been described as moves on the part of a chief executive who had ‘brilliant ideas ... but they were too sudden ... for the organisation to cope with’ (manager, CAC development). They were deeply resented by most staff, who while undermining them, for example by wearing their rank markings, tended not, in a climate of mistrust and uncertainty, to confront them more aggressively. Nevertheless, growing frustration among vehicle crews and the loss of expertise from the control room were to have a telling effect on the LASCAD implementation, in which an attempt was made to deploy information technology to improve the performance of the LAS. Moreover, the strike of 1989-90, the programme of reform that followed it, and the LASCAD implementation are crucial elements in explaining how IS implementation and organisational change have taken place at the LAS since then.

## **THE LASCAD PROJECT**

### **The emergence of the LASCAD discourse**

The LASCAD project had its origins within a managerialist discourse of the early 1980s that the command and control functions of the LAS needed to be computerised to create greater efficiency in call taking and resource mobilisation. At that time, South West Thames regional health authority, which managed the LAS on behalf of the NHS, had few detailed statistics on which to base its funding allocations to the LAS each year. Nevertheless, a dominant discourse within the health sector was that when compared with other ambulance services the LAS was lagging behind in terms of both reputation and performance against ORCON standards. As an organisation subject to public scrutiny,

reputation and performance are key indicators of satisfaction so that these issues were also of concern to operational staff (members of the command and control regime) at the LAS, although many did not embrace computerisation as the way to resolving them. Rather, operational staff (and in particular vehicle crews) felt that improvements in working conditions, resources and staff development were the way to enhance the service offered – a view that culminated in the strike of 1989-90.

### ***Linking a performance discourse with technology***

The first attempt to computerise the command and control functions of the LAS, which was ongoing during the 1980s, suffered from a lack of professional management expertise within the service, since at that time the only middle and senior managers at the LAS were ambulance officers with an operational focus. In this way, management of the relationship with the external system supplier was neglected, so that the system development process was protracted and poorly coordinated (team member, management information department).

In 1990, appointment by the regional health authority of a LAS board may be seen as the beginning of an attempt to problematize a techno-managerial rationality (Avgerou, 2001); in other words, to link a management-driven efficiency rationality with technology as the way to improve organisational performance. In this effort, a team of senior professional managers was put in place at the LAS to oversee the organisational reform programme in which the development of a CAD system was a central concern. In autumn 1990, the first attempt at computerisation was abandoned in favour of a more far-reaching, fully automated, innovative system, which was seen by LAS management as the key to meeting ORCON standards. This change marked the beginning of an effort to create an obligatory passage point (OPP) in the LASCAD system, and thus to enact a discourse that the LASCAD system was the way to improve the performance of the LAS. To understand the ambitious nature of LASCAD, it is appropriate to consider the type of system it was intended to replace.

### *The existing manual system*

The system used prior to October 1992 was based on pen and paper with a conveyor belt for transporting information around the control room. It was adopted again between November 1992 and January 1996, but with human runners to replace the conveyor belt, which had been removed during the LASCAD implementation. When a call was received, the call taker would note details on a pre-printed form – AS1 for emergency calls, AS2 for urgent transfers between doctors’ surgeries and hospitals, and AS3 for hospital to hospital transfers. S/he would then use a map book to find the exact location of the incident and note the map reference coordinates on the form. When the call was complete, the call taker would drop the form onto a conveyor belt that would transport it to a central point within the control room.

At the central point, the forms would be examined by another member of staff who would decide which resource allocator should deal with dispatching the ambulance, based on a division of London into three sectors, North East, North West, and South. At this point an attempt was made to identify duplicated calls – in other words, to recognise situations where multiple calls were received for the same incident, as might happen with a traffic accident. This procedure, designed to ensure that multiple resources were not unintentionally sent to the same incident, relied on the memory and judgement of the member of staff concerned.

When the relevant allocator received the form, s/he would consult status and location details about resources maintained in an activation box, or tray, and radioed into the control room by vehicle crews. Tags showing the call sign, or identifier, for each resource marked slots in the tray. A tag facing forwards indicated that the crew was on duty; if facing backwards, the resource was unstaffed. Where resources were staffed, an empty slot in the tray indicated that the crew was “on station”; a slot containing an AS1, AS2 or AS3 facing forwards indicated a crew en route to an incident; a slot with a form facing backwards indicated a crew returning to station. Other forms used in the tray indicated, for example, a vehicle breakdown.



After identifying a suitable resource to attend the incident, the allocator noted the resource identifier on the pre-printed form. S/he then passed the form to either a telephone dispatcher who would mobilise a crew “on station”, or a radio operator who would mobilise a crew that was returning to station. ORCON standards required that the entire process from receipt of the call to mobilisation of the resource should take no longer than 3 minutes. After contacting the crew, the dispatcher or radio operator would return the form to the allocator who would place it in the appropriate slot in the activation tray. This form would be updated with further key details relating to the incident (for example, police called to scene) as they became available. The form would be removed from the activation tray for filing when the crew notified their availability to attend the next incident. A small percentage of the forms were analysed each month to produce management information reports.

### ***Institutional framing of the LASCAD discourse***

Previous accounts of the LASCAD project have argued that actions taken by the new senior management team flouted the ideas and conventions popularly associated with best practice. They demonstrate a managerial and/or technical failure (Page et al, 1993; Beynon-Davies, 1995; Hougham, 1996), in which human concerns were neglected (Wastell and Newman, 1996). While these accounts raise important issues, their presentation of an essentially flawed implementation of best practice seems only to provide a partial explanation of what happened. Certainly, the scope and timeframe for the LASCAD project seemed to ignore the experience of other services (which had taken a stepwise approach to automation) and the poor industrial relations climate following the strike of 1989-90. Moreover, the decision to opt for a bespoke development (when other services had adopted packaged solutions), the composition of the procurement team (in which the only IT member was a contract analyst), and the adherence (in the face of suppliers’ concerns and widely varying quotations) to a seemingly institutionalised project budget of no more than £1.5 million all suggest that best practice concerns were subjugated – but to what? If we discard as rather naïve the view that such experienced managers were simply incompetent, we may ask to what extent best practice concerns shaped their actions, and what other rationalities were at work.

An indication of the broader influences shaping action in this context was provided earlier, when I discussed the government-sponsored initiatives at the heart of a reform programme for the NHS introduced in the late 1980s (Department of Health, 1989) and ongoing for the foreseeable future. That discussion addressed the efforts in the early 1990s to introduce market-driven practices into the NHS, albeit in a system of internal competition. Although such commercial practices share the “value for money”, administrative efficiency concerns of a professional management regime, nevertheless there are contradictions. The free market ideology at the heart of government thinking at the time reflected a more fickle, consumer-driven, economic rationality when compared with the relatively stable, self-regulated, commercial interests of the disciplines described by a professional management regime.

This argument suggests two things. First, why the best practice concerns that would normally shape a professional management regime, at times received only lip service within the regime put in place at the LAS in 1990. Second, why the discourses enacted by that regime seemed to be in conflict with one another, so that whose interests were being served was unclear. In effect, the discursive practices of the LAS board were those of a much broader regime that sought not only operational efficiency at the LAS, but a complete reestablishment of the basis of ambulance service operations within the context of a market-driven NHS and associated reform of established collectives. In this way, the notions of commercial best practice enshrined in particular professional disciplines were colonised by the tenets of a more totalising, consumer-oriented, public relations discipline propagated by the so-called political “spin-doctors”.

In this case, then, the roles of the regional health authority, the NHS, and the UK government of the period in establishing the LASCAD discourse cannot be overlooked. The early 1990s saw the run-up to a General Election, an economic recession, and a period of reform in the health service. The Conservative government had low ratings in the opinion polls and would have benefited from a success story. The implementation of LASCAD, originally scheduled for 8 January 1992, would have been both fitting and timely. Government-sponsored reform of the health service placed a statutory responsibility on regional health authorities to operate within cash limits, which created political pressure on overspending authorities (including South West Thames) to reduce costs. In this way,

socio-political and economic conditions fuelled, if not coerced, the LASCAD development. In such a climate, it is not hard to imagine how a system that promised significant improvements in ambulance service performance would have gained support, and also how the lowest tender that could meet the requirement and the timescale came to be accepted. That tender (in the form of a proposal from a consortium consisting of Apricot, a small software house called Systems Options, and Datatrak), how it came to be accepted by the LAS board, and what happened afterwards are the subject of the next section.

Summarising so far though, the LASCAD project was an attempt to enact a techno-managerial rationality, but one that was framed by, in conflict with, and often subjugated to a socio-economic rationality of the free market, the pursuit of individualism, and the reform of collectives that would see things otherwise. At this stage, it is worth noting that conflict and contradiction were evident within the LASCAD discourse even before the responses of the command and control regime are taken into account.

### **On making the discourse function as true**

The emergence of the LASCAD discourse gave rise to a new rationality or knowledge within the LAS. The enactment of this knowledge disrupted accepted discourses within the service fracturing further a command and control regime still smarting from the recent strike, and allowing substantive subjugated rationalities to emerge, thereby reconfiguring the existing network of relations. This subsection examines the micro-practices in which such a transformation occurred.

### ***Arousing interest in the LASCAD discourse***

The proposal presented by the Apricot consortium may be seen as a document that gave substance to an organising vision (Swanson and Ramiller, 1997) of operational efficiency enabled by technology held by the LAS chief executive. In this way, John Wilby was able to problematize the need for the service to improve its performance. Nevertheless, such problematizing was hypothetical until accepted by those actors needed to make it function as true, including the LAS board, LAS operational staff, and in the event the lead contractor

for the LASCAD project. In a move to gain such support, the chief executive and others enacted a discourse of acceptance around the Apricot/Systems Options proposal.

The procurement team contributed to this discourse in acts of commission and omission. Their Recommendation to Purchase stated that the proposal met all system requirements (and the required delivery date) at a cost of less than £1 million, and omitted to mention knowledge that did not support their recommendation, specifically an adverse reference regarding the timeliness of work done by Systems Options. Nevertheless, team members informed Systems Options during the procurement process that the first attempt at the project failed in part because the supplier did not understand the requirement (Page et al, 1993). So, the procurement team had shown a concern for best practice, by alerting Systems Options to the complexity of the system before the latter finalised its quotation.

Action by the chief executive reinforced the discourse of acceptance. At the board meeting (where the recommendation to opt for the Systems Options solution was endorsed), a tender evaluation report prepared by one of his former colleagues from the Scottish Ambulance Service was not available. The chief executive informed board members that the review endorsed the procurement team's recommendation, and they agreed to award the contract to Systems Options before having sight of the review report. Although minutes of the meeting show no discussion of the decision to opt for a bespoke system, board members claim that this matter and the variance in suppliers' quotations were discussed at length, albeit without knowledge of the adverse reference about Systems Options (Page et al, 1993, pp. 26/27).

Finally, Apricot contributed to this discourse by not revealing until one week before the decisive board meeting that it expected Systems Options to be lead contractor – a role that the latter was less well equipped (in terms of size and resources) to undertake than Apricot. Nevertheless, board members focused on the issue of Systems Options as prime contractor and requested production of a full design specification to give them confidence that Systems Options had understood the requirement (Page et al, 1993). So Apricot was enrolled to the network in negotiations that allowed it to divest its project management responsibilities. Systems Options, on the other hand, was enrolled by a short term assignment which provided the small software house with an opportunity to learn more

about the task in hand, whilst diverting its concerns about taking on the responsibilities of lead contractor.

It seems, then, that timescale, cost, and agreeing to meet the full specification were the major criteria against which prospective suppliers were evaluated, although the checklist criteria presented to the Page inquiry team shows the first two items ranked 6<sup>th</sup> and 7<sup>th</sup> in order of importance. Moreover, it seems ‘that no specific weighting was given to the extent of supplier experience in Command and Control systems’ (Page et al, 1993, p. 23). Nevertheless, some consideration of how Systems Options might demonstrate that they had the necessary expertise is evident in the negotiations that took place.

If we hold to the view that best practice guidelines should be adapted to their context of use, we could make the following argument. We could say that the procurement team and the board decided that some suppliers were over-quoting in an attempt to make a substantial profit. Moreover, that the procurement team viewed references as subjective judgements rather than objective realities, and that the team and the board believed London was a special case needing a different type of system from other ambulance services. Furthermore, we could argue that the enactment of best practice at the LAS endeavoured to make the best use of available resources, including involving in the procurement process those staff who had worked on the first attempt at computerisation. We could so argue, but if we did, surely we would ask how the procurement team and the board could decide that developing a system for a special case would take less time and less money than attending to a standard one.

I suggest that an answer to this question lies in the way that significant others outside the LAS influenced the extent to which cost and timescale became significant criteria during the evaluation process. In other words, that the adaptations made to best practice guidelines were interessement devices employed to facilitate the necessary enrolments by key players acting under institutional pressures. In this way, then, the fundamental issue here is not how local practices contributed to the events of October and November 1992 – as terms of reference for the Page inquiry would have it – but rather why such practices took the form they did.

Before examining this issue further, I discuss some additional interactions among LAS managers concerning monitoring and review of the LASCAD project. Members of the operational staff were passive contributors to the LASCAD discourse at this stage – that is to say, for the most part they maintained a distance from the LASCAD development until attempts were made to parallel run the system in the live environment. Their reasons for this lack of engagement included not being invited to participate, fear of being “shot as messenger” by their managers, and allegiance – sometimes under peer group pressure – to the discourses of the trades’ unions and/or their functional groupings.

Once the Apricot/Systems Options proposal was accepted and development of the LASCAD system began in earnest, further action was necessary to maintain the stability of the LASCAD discourse, even among managers, in the face of a stream of missed deadlines. The newly-appointed systems manager of the LAS (who was not directly involved with the project) undertook two additional reviews of progress. The first review, in November 1991, recommended adhering to the original implementation date of 8 January 1992, despite problems causing delays. In the event, only a decision was made in January – to implement the call taking subsystem at first, and to introduce the resource management subsystem when it became available. The second review took place in March 1992, as the board had requested four months earlier. It raised a number of concerns about work still to be done, but the report was not submitted to the board. Instead it was used as input to the chief executive’s progress report of 1 April to the regional general manager. Despite an alert to significant problems and major outstanding tasks, the board and the regional health authority accepted, by default, negative assurance from the chief executive that ‘there is no evidence to suggest that the full system software, when commissioned, will not prove reliable’ (Page et al, 1993, p. 35). It is difficult to resist the conclusion that even John Wilby was wavering at this stage, and that those who chose to remain on the sidelines following his negative assurance about a critical system were already working on their own damage limitation strategies.

Despite expressing a range of different, often very critical, commentaries about his actions, LAS staff who experienced the LASCAD implementation argued to me that ‘John Wilby was under political [meaning government-induced] pressure’. Moreover, the Page inquiry team argued that:

*faced with concerted pressure from* its managing RHA [regional health authority], MPs, the public, health service consumers and the media over improving performance times, it is by no means certain that the Service would have been allowed to adopt a more measured approach to introducing changes, particularly with CAD (Page et al, 1993, p. 67, my emphasis).

While LAS staff members would not have been privy to the exchanges that took place between John Wilby and his managers, we might expect that the authors of the Page report would have attempted to open this particular black box. Yet, far from addressing the nature of these broader pressures and how those involved in the procurement process and the system implementation were constrained by them, the authors are at pains to point out how the regional health authority took no part in what happened. Did it not agree, even mandate, the funds available? Did it not sanction the implementation date and the overall goals of the system? Did it exercise its power in isolation from the NHS Executive and government ministers to whom it is responsible? Might we not expect that the regional general manager (RGM) would have found John Wilby's negative assurance unacceptable in this context and have intervened in the affairs of the LAS? Rather, it seems the 'RGM believed it *important not to interfere*, having got the Board established "at arm's length"' (ibid. p. 74, my emphasis). The arm was thus a long one, attached to a body that disappeared from the scene leaving a "lightning conductor" in place as a delegate for its interests (Latour, 1999b).

Vaughan (1996) argues that the combination of a "can do" culture of production and conformance with the protocols of flight readiness reviews (FRRs) at NASA (National Aeronautics and Space Administration) prevented engineers' concerns from reaching senior level decision makers on the eve of the *Challenger* launch. Although certain members of the LAS board, and John Wilby in particular, undoubtedly adopted a "can do" approach, the structural secrecy of NASA FRRs did not apply in this case. Rather, it is clear from a number of sources that government ministers were alerted, and that the RHA had sectional considerations at stake. Indeed, in 1995 a House of Commons Select Committee investigating the performance of the LAS argued:

The Page inquiry team was established, and had its terms of reference set, by the RHA which was responsible for overseeing the LAS at the time of the computer crash, and

which therefore had a vested interest in securing a report that did not focus on its own failings (1995, p. xxi).

The Committee goes on to highlight underinvestment in the LAS as one of the key failings. At much the same time, a member of the Page inquiry team observed (British Computer Society, 1995) that ‘Bottomley was warned’ about a crisis situation at the LAS six weeks before LASCAD was implemented – a warning she chose in writing to disregard (Guardian, 1992; Independent, 1992).

Perhaps, then, it is overly simplistic to suggest, in Callon’s (1986) terms, that John Wilby was the key actor in this context, problematizing the need and seeking to enrol support for operational efficiency at the LAS. Rather, he was caught at the intersection of two powerful networks – one a community of health service institutions and government ministers infused with the concerns of bio-power, the other a *sui generis* command and control regime – a delegate for each community in the other, but without the allegiance of either one.

### ***Trying to enrol the command and control regime***

Now, I turn to how stability of the network was subject to further challenge when the discourse began to circulate more widely and attempts were made to enrol the members of the command and control regime within the LAS. This regime included all members of A&E operations – control room staff, vehicle crews, and the operational support staff who would train their colleagues to use the new system. The story of what happened is told first in the words of three people who experienced it. At the current time, these members of staff have a total of over 60 years’ experience of working for the LAS. Their experience covers work in the control room, on the road, and within CAC development departments, in both technician and officer roles. Their accounts are interwoven in a way that tries to preserve their major themes, whilst maintaining some continuity in the description of events.

These tellings of the story capture the messages I received when discussing the LASCAD implementation with many other members of the operational staff involved with it. However, I captured these three accounts on tape, whereas I heard the others during conversations with staff as they did their work, hence the latter are less detailed and



frequently were interrupted as emergency calls came through. The story covers the period from partial implementation of the LASCAD system in early 1992 up to the system collapse. During this period, the narrators undertook roles as ambulance allocator, radio operator (or dispatcher), trainer, and manager. The call taking subsystem was implemented first, followed by the more problematic introduction of the subsystem for allocating and mobilising resources across the three sectors into which London was divided at the time. The latter subsystem was introduced one sector at a time and operated in parallel running mode until the “go live” date on 26 October. Staff training was ongoing during this period.

### *Training*

... and all the time we were trying to prepare the training the system was changing ... you couldn't keep up, *you just could not keep up*, people were learning it on the hoof ... things were changing almost minute by minute, certainly hour by hour and, most definitely, day by day, and no one ever knew.

all we'd be saying [during training] was “right, well, on the day it will do this and on the day it will do that”.

### *Change control*

... there was no change control ... corners had been cut everywhere.

... you just said to him [software developer] “well, it would be nice if it done this or it done that”, and he just did it, there and then ... but it did so many things ... that it was difficult to remember what it did do, to be honest.

### *Uncovering the design loopholes*

... you'd have vehicles, like you'd have a call in SW1 and it would say Hornchurch was the nearest vehicle, which was like 30 miles away, 'cause the vehicle had been brought down to go to the fitters at the headquarters downstairs and Datatrak still worked. So it would show that vehicle up downstairs as being the nearest vehicle although it was in the workshops. Oh, it was horrendous!

but you could change the status of a vehicle yourself, manually. So you could have a vehicle that was 'red', which you couldn't use, but you could change it if you wanted it to 'green', which meant if ... you took a call in this area ... then you could send it, but it might not even be manned. It might just be an empty ambulance on a station. So there was no structure to [nothing said]. But, if you'd assigned it and sent it and it hadn't gone mobile within so many seconds, this bloody thing started spewing out exception messages, because if the wheels hadn't turned within 10 seconds it would spew out all these exceptions for it. And because there was so many of them, this paper was constantly pouring, and this thing was going "kuh, kuh, kuh" across the printer – constantly. The noise it made!

It was so difficult to keep track of, quite apart from the fact that West Ham ambulance station apparently got obliterated ... including all of its vehicles ... It never appeared on AVLS, and neither did any of the J2 vehicles for some considerable time. ... West Ham was apparently a victim of thermo-nuclear attack.

Mapping system also had some problems. Ponders End 1 [identifier for a crewed vehicle] went into the Lea Valley reservoir and stayed there for 3 weeks – we couldn't get it out.

The major problem was the exceptions, because of crews not pressing buttons or because you'd given a call to a vehicle that the system decided wasn't there ...and that's what ... as I understand it, ultimately crashed the computer completely. So while we running in tandem on [sector], we used to knock them off ... there was a certain way you were supposed to do that ... but that was often impossible because you'd given it to a vehicle it didn't believe existed. So you used to have to con the computer, and we found ways to do that.

### *Increasing workload*

Workload doubled on the sector ... because you were running the two systems in tandem. The radio operator's job was just horrific, you were talking and writing up on all the tickets, and you were having to update this entire computer system as well, and it was such hard work.

... it increased staffing on the desk because a role became exception rectifying.

## *Confusion*

really what they wanted to do was they wanted to get rid of managers as well, and what they wanted to do was have managers that really did stand back and didn't allocate because what they wanted was the call taker to allocate. So as you took the call, it would pin-point it on the map. And the map would tell you where your nearest vehicle was, and it would say "do you want to send it?", because it was meant to have status updating – and exception reporting – which would tell you where your nearest vehicle was and when it was available. But we still had duty managers allocating, and sometimes you had call takers saying "oh yeah, I'll send an ambulance on that". The duty manager on the sector didn't know whether he'd sent something on it, somebody else had sent it, or just as he thought "yeah, I'll send that vehicle 'cause it's 'green'", the call taker up here would send it and it would go 'red'. So it was a real ...

and the duty manager would have so many screens in front of him ... that you could quite easily lose track of what was happening.

You could, you could unassign calls and you could link up calls together, so you could have like 4 or 5 calls in Oxford Street, and say "yes, they're all the same call" and link them all together. But if you wasn't, if you didn't make sure that each call was the same – I mean, Oxford Street was so long, it's not uncommon to have 2 or 3 emergency calls happening in Oxford Street at the same time – you would tie up a call with another one and you wouldn't send an ambulance on it. But you just kept getting ETAs and things and you'd say "oh Christ, yeah, that's not the same call", so you could unlink it from the calls ... and that went, that went on for ages, working like that.

## *Vehicle crew reactions*

[vehicle crews] were very anti it and there was all sorts of mayhem going on with regards to trying not to use those data transmission terminals, especially after we had implemented it ... there was a lot of interference with aerials and all sorts ... they were pretty determined to scupper it.

they worked out very early on that all they had to do was give you slightly duff information and then you wouldn't have an up-to-date system anyway, and what the system did then was to give you lots of exception reports, and we were just inundated

by exception reports ... all of these things were just coming up by the screenload, pages and pages and pages of them.

then some, some operational staff tried to sabotage it, so they'd stick screwdrivers in the aerials and whatever.

### *Conflict*

but because they [the crews] still weren't playing ball and pressing [the buttons], you didn't know what [ambulance] was going on what [call] really.

and, of course, all this was happening [changes affecting vehicle crews] when we were trying to introduce the CAD system, so again there's big conflict between management and vehicle crew staff. And we was getting abused by vehicle crew staff – “you don't bloody well know what you're doing” – and sometimes you'd sent 2 or 3 vehicles to the same call, and sometimes you hadn't even sent a vehicle to a call, because you didn't know whether you'd done it or not.

[When the director of operations on the new LAS board suggested] “Well as long as it proposes a vehicle that's within 14 minutes' running time, just send that. It doesn't matter whether it's the actually nearest, as long as it's within the 14 minutes” ... we all went utterly ballistic and ignored it, obviously, but those sort of things were going on through that period.

### *Trying to stay in control*

We did get on top of it for a while, we was starting to manage, as long as the person that was in charge of the resourcing side knew what vehicles you had; but crews were also swapping vehicles, they weren't staying on the same vehicle. So you'd allocate a call sign to a vehicle and then they'd come back and they'd swapped vehicles and they wouldn't tell you. But we still had our paper tickets, as a sort of a standby. So we were still using our activation files and still using the radio, but we was – it was more and more embarrassing – because we was calling vehicles up and saying “can you tell me what call you're going to?” or “can you confirm you are going on call such and such?”, 'cause things would change so quickly in front of you.

### *Taking away the paper*

And because John Wilby was so insistent on there being no paper in Control – but we was desperate to hang on to this because it was our means of knowing what we were sending vehicles on, or what vehicles we had. And one day he just, he just walked into Control and he said “get rid of that bloody paper”, and he just grabbed hold of the box and walked, walked away with it ... and left those people with just no backup at all.

it worked quite well on a small scale, more things started to go wrong when we brought in another division, and more still when we brought in the last division, and then to take away paper as well ... if you've been used to paper, it's like taking a child's comforter away – it doesn't matter whether they need it or not, they feel happier with it.

and not least of the worries was about the printers themselves because we'd lose calls, they wouldn't print out, and for those who were relying more on the paper side of things than the screen, they didn't react to something they didn't get ... so we were losing calls.

### *The collapse*

But because we were sending so many vehicles on duplicate calls or not knowing what vehicles we were sending, we were getting more and more ETAs coming in. People kept ringing in “where's the ambulance, where's the ambulance?” “Shit, I thought I'd sent the ambulance”. “No, you haven't sent the ambulance”. And all these calls – the screen was, the screens were just filling up and filling up with calls and you couldn't keep on top of what you'd sent to what.

And the Datatrak was just, like, didn't know – well, I suppose it did, but it just knew what it knew. And this thing over here [the exception manning printer] was just spewing. *It was just pumping out!* I think at one stage it was just going so much it was shaking, because this thing was going backwards and forwards, backwards and forwards, constantly – the exception, exception manning or exception rectifying or what; it didn't rectify anything, but [nothing said].

And we were – I went off duty, I remember – you know, the system was slowing up or screens kept locking up, and then some people would take it on paper

because the screen had locked up, and some people would take it on the computer, and some people wanted to assign vehicles and you're saying "stop assigning vehicles, only the sector, the sector desk can assign the vehicles". And then some people would just play with the map, just to look at vehicles going round, up and down roads and [nothing said].

But it got to the stage where so many people were doing so many different things that it was starting to get slower and slower and slower, by which time I'd gone off duty – I was on late turns, and I'd gone off on duty. And you just went home and had a drink. The first thing you did when you got through the front door was have a stiff drink, and try and unwind. And it would take hours to unwind. Sometimes I didn't go to bed until about 3 o'clock in the morning [late turn finished at 11pm] because I just couldn't. Your brain was just, like, shattered – it really was.

And then, of course, obviously, everything had happened overnight because that's when it, that's when it, it crashed, eventually. (2am, I recalled, as he continued). It slowed dow... – well, I think it was about that time, because I, I remember waking up when the news was on. And that's when they said about, you know, "the London Ambulance Service has crashed" and "it's chaos, people aren't getting ambulances and people are dying and being killed and [nothing said]".

And then the next thing you saw on the news was that John Wilby had resigned – as the chief executive of the London Ambulance Service. (To which your reaction was, I asked). Oh, everybody was just, like, elated. It was like a whole burden, a whole weight, had been lifted off your shoulders, 'cause everyone in the Control had just gone back to the old paper system, just taking calls on paper, sending them to the sector. Crews were working – with the Control – and everyone was just [nothing said].

But that morning of the crash, I mean when people were just, just coming on and off duty in tears – people that came off duty were just like in floods of tears – it was awful, it really was. It was like it was a nightmare – *an absolute nightmare*. But it was different going on duty, 'cause you knew you was going in, you was going to work the old system – all the scr..., everything had been turned off. Your allocation box was there, people were taking calls on, on paper, and sector control..., or duty managers, were allocating the vehicles, you had a radio operator sitting there. Uuum – *things were much, much different*. [The narrator paused for several seconds].

Uh, where are we up to? (1992, I said). I think we might have to pause for a moment – for the time being.

### ***Responding to the new identities***

Once parallel running of the LASCAD system got underway, the stand-off was no longer sustainable between the command and control regime, on the one hand, and the network of institutional, managerial and technological interests comprising the LASCAD regime on the other. Control room and road-based staff and their trainers were then seduced, persuaded, or forced to engage with the LASCAD discourse, and, until cutover to the new system, to do so alongside their enactment of the familiar discourses of the existing operational regime.

These members of staff were required to enact new identities within the LASCAD regime. Call takers (referred to above as control assistants) would not only take details of emergency incidents from callers, but also – within certain parameters decided by senior managers and under the control of the system – would allocate ambulances to the calls they received. This move would be possible since the current resource distribution profile, rather than being held in ambulance allocators' activation boxes, would be maintained by the LASCAD system. On 26 and 27 October the parameter in force was that the nearest resource was less than 11 minutes away from the scene (Page et al, 1993, p. 51). Ambulance allocators (referred to above as duty managers or sector controllers) would make the more complex resource allocation decisions, and would no longer sit on the sectors maintaining resource utilisation details, but would stand back behind their sector teams and manage by walking about.

Radio operators' workload would reduce since voice communications with vehicle crews on the road would take place in exceptional circumstances only, replaced by mobile data terminals in vehicles for passing instructions. Similarly, telephone dispatchers would experience a reduced workload, since vehicle crews on station would receive their instructions via printers installed on station premises. Vehicle crews would adopt new methods of working, including accepting text instructions from the control room in place of voice communications, and pressing status buttons in their vehicles to tell control room

staff what they were doing – for example, on scene, en route to hospital, available. In effect, vehicle crews would subscribe to a regime that used information technology to regulate and monitor their activities, making their actions transparent to their control room colleagues.

However, continuing problems with the system, changes made “on the fly” (Page et al, 1993, p. 30), and an increased workload for staff during parallel running hindered the process of enrolling support from a reluctant, and sometimes militant, workforce. Design loopholes were uncovered, confusion and conflict broke out among staff, but thus were opportunities revealed to vent frustration, by subverting the operation of the system. Attempts at intercession by force, such as taking away an allocator’s activation box, strengthened allegiances within a growing anti-LASCAD regime.

### ***Attempting the mobilisation***

The participants’ narrative reveals a stream of negotiations and trials of strength among LAS staff, their managers, and the LASCAD system. Finally, managers addressed what they could see as the points of resistance; they rearranged the control room layout on 26 October as the system went live pan-London – a move from the parallel running mode of operation in three sector teams (or divisions). In the control room, at least, managers had blocked the ways out of using the system, but they had enrolled no more than a hostage to fortune, for they had also blocked the escape routes that control room staff might have used to address the problems that occurred. The control room layout was reconfigured, the familiar team structures were disbanded, the activation boxes were removed, and the new identities were enforced. Control room staff could not find a way to manage as the less visible points of resistance came into play – vehicle crews on the road and the system itself – and so the vision became ‘a nightmare’.

### ***Partial surrender of a performance through technology discourse***

Once the LASCAD discourse began to circulate widely, the institutional and managerial interests that had led to its emergence sustained and reinforced it in acts of commission and omission until system implementation on 26 October. Then, the contradictions and



conflict within an unaligned network could no longer be contained. John Wilby's earlier announcement to the press that he would have computerisation in within a year had maintained the LASCAD project in the media spotlight, so that the events of the two days received extensive news coverage. Semi-manual operations were resumed in the afternoon of 27 October. The chief executive resigned the same day and was immediately replaced by his successor, who had been placed on standby in advance (Channel Four Television, 1996). Allegations that up to 20 patients had died while waiting for ambulances led the regional health authority to announce a public inquiry within days of implementation.

In semi-manual mode, use of the call taking subsystem continued for several more days, as did mobilisation of resources direct to station printers or mobile data terminals, but the manual systems for tracking and allocating resources were reinstated. Meanwhile, a small programming bug was at work filling memory in the file server, so that ultimately the system locked up completely a little after 2am on 4 November. Attempts to restart the system failed, at which point a full withdrawal of the system occurred and the manual operations that characterised the established operational regime were resumed. This withdrawal involved a partial surrender of the LASCAD discourse, in which the performance element and the technology element were uncoupled. The institutionally framed view that the LAS needed to improve its performance remained intact, but the discourse that this could be achieved via the LASCAD project had been overturned.

## **REVIEWING THE LASCAD PROJECT**

### **The emergence of subjugated knowledges**

The identities proposed for LAS staff within the LASCAD regime were rejected by vehicle crews and members of the control room, but in ways that fractured the tenuous truce achieved among conflicting groups following the strike. For example, the decision to activate aerials and mobile data terminals on vehicles, replacing voice communication between control room staff and vehicle crews, deprived the latter of their capacity to "negotiate" their availability for work. Such negotiations involved, for example, crews taking unofficial break time between dealing with incidents before "calling up available", or suggesting to dispatchers that they could not be the nearest resource to an emergency

scene, say, because they were near the end of their shift and wanted to get home promptly. Although some of these negotiations were less successful than others, while their conditions of possibility existed vehicle crews felt they retained a capacity to articulate their value to the service.

The use of vehicle tracking and digital communication within the LASCAD system no longer sustained these conditions – actions that altered the balance of power between control room staff and vehicle crews. This step would have been a high risk measure at any time, but in a climate of poor industrial relations, it was very likely to meet with overt opposition, not least because subverting the automated instructions was very easy – for example, by swapping vehicles, reporting status incorrectly, or sabotaging aerials. The chaos caused by having less than 100% accurate information in the system became apparent on 26 and 27 October 1992.

Moreover, conflict among different groups of staff in the control room also began to reemerge, notably between call takers and sector staff. The duty managers, who allocated the ambulances on their sectors, were unwilling to give up their allocation boxes (or activation trays). On the one hand, there were deficiencies in the automated version of this system, which did not inspire their confidence. On the other hand, the automated version would no longer be a resource of sector staff alone, under the supervision of their duty manager; rather it would be accessible also by call takers – the least operationally experienced and lowest status members of the control room. However, the call taking group also contained some of the youngest members of the control room – some staff who grew up during the personal computer boom of the 1980s and already had a familiarity with information technology and a desire to experiment with it. In this way, the LASCAD system provided opportunities for call takers to demonstrate a new skill, albeit one that was not highly valued by the service at the time. Indeed, the call taking subsystem of LASCAD was the first element implemented and the last to be withdrawn, and then with some reluctance on the part of those concerned (manager, CAC), and only in the face of a complete system collapse on 4 November 1992.

If we hold to the view expressed elsewhere (Introna, 1997) that the LASCAD project was an attempt to introduce a disciplinary technology so as to improve performance against

ORCON standards in a way that outflanked resistance mobilised by the trades' unions, we may ask "was the project on target?" To what extent were ORCON standards a useful measure of quality of service? What truth did they purport to tell, and what rationalities did they fail to capture? We have examined two of the elements of discourse – the role of institutions and the community in which the discourse emerged – but what of the grids of intelligibility that linked these two together in a specific discourse, what Foucault (1980a) calls the *dispositifs*?

In the early 1990s, ORCON standards laid down that all emergency calls to the ambulance services had equal priority. Officially, then, a patient in cardiac arrest (who was immediately life-threatened) received the same response as a patient with a minor injury. In the former case, clinical evidence suggests that 8 minutes is the maximum response time available to prevent premature death, in the latter case experience suggests that an *emergency* response may not be required at all. This argument becomes all the more acute in the context of ambulance services being used by hoax callers, by patients without a GP, or by those with social problems of a non-emergency nature, for example, mental health problems or alcoholism.

In London social problems, crime, and traffic congestion are demonstrably greater than elsewhere in the UK. Similarly, the effects of these issues – inappropriate use of the ambulance service, dangerous working conditions for vehicle crews, and difficulties in navigating traffic at speed – are more pronounced in London. In the early 1990s, some LAS staff were employing unofficial ways of responding to emergency calls – ways designed to tackle these local problems. Vehicle crews and control room staff were already using tacit knowledge not inscribed within the LASCAD system to make clinical judgements about how to prioritise emergency incidents (operational staff meetings). So a subjugated knowledge – a local knowledge and an organising logic – was already starting to emerge.

At the time of the LASCAD project, London's special circumstances had not been acknowledged officially, although a number of stakeholders in the LASCAD project seemed to be aware of them. Arguably, LAS managers recognised them by rejecting packaged solutions used by other services. They then found themselves entrapped in a

situation where institutional pressures, poor performance, and underfunding locked them into a failing course of action. Thus, operational staff resistance to LASCAD may be understood as giving an important message about the requirements of their jobs – that a CAD system was only ever a partial answer for London – a message that became increasingly true for CAD systems installed elsewhere. Call prioritisation, or priority dispatch, is now a government-sponsored initiative, compulsory for all UK ambulance services. How a subjugated regime emerged from below to become a dominant one in the broader context is explored in later chapters.

So, following the strike of 1989-90 and the two-year period of organisational reform that followed in its wake, the command and control regime at the LAS had become fragmented along a number of dimensions. Significant among the divides that emerged at this time were those between vehicle crews and control room staff, and between call takers and sector staff within the control room. Nevertheless, fragmentations of the operational regime were organised along more than purely hierarchical and task specialist lines. Rather, these divides were cross-cut by other key discourses relating to the need for, and manner of, prioritising emergency calls; the opportunities for using information technology at the LAS; and the role of the trades' unions in the work of the service. Moreover, there remained some dominant discourses around which the operational regime was united, in particular, those which expressed concern for patient care and vehicle crew safety. This contemporaneous unity and division and how it changed over time are key themes of this research.

### **On letting the subjects speak**

We might conclude from this analysis that the LASCAD project was undermined for two main reasons. First, that the system was an attempt to impose information technology as a disciplinary technology (Knights and Murray, 1994; Doolin, 1998), and that in a climate of poor industrial relations this move was strongly resisted, in particular, by vehicle crews. Indeed, other authors have presented a micro-political account of LASCAD where multiple, conflicting rationalities are the essence of the story (Introna, 1997; Silva and Backhouse, 1997). Second, we could broaden the above argument to pay greater attention to the contradiction and conflict between the government's agenda of free markets and

trades' union disempowerment and the less totalising operational efficiency concerns of a professional best practice regime. We could then argue that a political agenda and a managerial agenda combined to give rise to a program of underinvestment in the LAS, with the result that a disastrous IS implementation effort undermined any support for IT innovation in this context.

Again, I suggest that this explanation is a partial one. Notwithstanding some elaboration of and challenges to past accounts of the LASCAD project, the above explanation like its predecessors is a largely cognitive one, with little to say about the intertwining of rationality and emotion so evident in the participants' narrative of the system implementation. In this way, a regimes of truth framework seems to need some further exploitation or extension when used to address what Foucault did not – when you let the subjects speak. The emotional dimension of IS implementation and organisational change at the LAS becomes increasingly important as we go on from here, and I will address it again in later chapters, when the subjects have told more of the story of the last 20 years. For now, I simply want to draw the reader's attention to the significance of the activation trays and the paper forms they hold, and to the ways that staff tried to work around the LASCAD system, particularly during the 36 hours of live running.

## **CHAPTER 6 The Route to NHS Trust Status**

In this chapter, I analyse the main initiatives in which the LAS sought to recover from the events of October 1992 and establish itself as an organisation capable of managing its own affairs. I examine the changing nature of the discourses accepted by the command and control and professional management regimes at the LAS, noting how these changes were influenced by increasing activity at sectoral and national levels to establish an internal market in the UK NHS. Moreover, I describe how moves were made away from introducing a new CAD system to implementing an alternative computer system with much reduced scope. Again, the sociology of translation is used to give a further dimension to an analysis of the processes in which this work was accomplished.

### **HOW REGIMES OF TRUTH WERE CONSTITUTED FOLLOWING LASCAD**

When the LASCAD system collapsed, the vision of total automation for London's ambulance service was destroyed. Attempts to stabilise the LASCAD discourse had been hindered because operational staff were not enrolled to the new methods of working; these efforts were made more difficult by the aggressive timescale and the industrial relations climate; and the discourse had inherent contradictions, arising from conflict between managerial and political agendas. So operational staff attempted to reestablish a discourse that a manual mode of operations was an appropriate way to respond to emergency calls. However, deep divisions surfaced both within and outside the LAS on how to improve performance. In this way, the discourses that had sustained the command and control regime throughout the 1980s had been disrupted sufficiently to create some space for movement in which a negotiated settlement between conflicting regimes eventually became possible.

#### **The command and control regime – united and divided at the same time**

In late 1992, staff in the control room were torn between a desire to 'get back to the way that we were [in other words, to manual operations]', and a recognition that this 'was by no means ideal because the Control was set up for computerisation' (manager, CAC).

Reverting to full manual operations was seen as problematic because conveyor belts, used to transport call details from call takers to ambulance allocators, had been removed when LASCAD was implemented. So, in recognition of the enduring need to improve response times, control room staff made a short-lived attempt to continue using the call taking subsystem of LASCAD:

What we wanted to do was to keep the call taking on screen, that's the one bit of it that no one really wanted to let go of, because that was actually quite good, apart from the difficulties there were about the calls printing out ... we did try for a little while ... but there were too many risks involved in it, so we went completely back to handwriting calls, having to ferry them about the room because we weren't set up in a way that you could get them to [the allocators], we actually had to employ people to run the calls (manager, CAC)

The impact of handwriting calls is reflected in this user comment:

.... that was a real time-consuming part of the call taking. Whereas you had had a call that was being taken on the screen, that someone else could look at while it was being taken and do something with it, you were back to writing on a ticket, and you've got to wait until the person has finished writing the ticket, got right to the end of the call, before it can be ferried across to where the decision is made about which ambulance goes.

The above extracts indicate the beginnings of an operational staff discourse about performance improvement in which computerisation had a central role. Call takers were key actors in this discourse. They constitute the first point of contact within the LAS for those requesting an ambulance and, as such, they are subject to pressures from colleagues further down the chain as well as from members of the public to deal with calls quickly. Nevertheless, printing errors – in which call details were 'lost' – were sufficient grounds to persuade them to stop using a subsystem of LASCAD that was making their work easier.

The effect of abandoning online call taking was keenly felt when the emergency telephone system was replaced during 1994 and wall displays were introduced into the control room. These displays show the number of calls waiting to get into the system, the percentage of calls connected within 5 seconds in the previous 30 minutes (a service

performance measure), and the number of call takers currently available. They replaced a less sophisticated system in which call takers could only estimate the number of calls waiting, by watching the speed of a flashing light on their control panels. The displays, visible to everyone in the room, intensify the pressure to deal with calls quickly.

Following the return to full manual operations, tensions surfaced among LAS operational staff about the feasibility of designing a CAD system for London. The fact that demand for ambulance services in London is demonstrably greater in scale than elsewhere in the UK caused many staff to believe 'that systems that might be adequate for other services would not be adequate for the LAS' (Page et al, 1993, p. 20). The range of perspectives is reflected in the following comments by operational staff:

there hasn't been a computer system built that could deal with our demand

there isn't one out there you can buy and I don't believe there's one that you can design that will be able to do it for us

well, all right, maybe, maybe it could, but I'm going to reserve judgement

and then there were those who were 'more used to computers and more trusting that something would happen that was good for us' (manager, CAC).

Such conflicting discourses were not new to the LAS, nor were they readily resolved in the aftermath of LASCAD. Commenting on staff relationships, and between control room staff and vehicle crews in particular, the Wells (1995) review states that 'parts of the LAS see themselves as separate or isolated and competing with other parts of the organisation' (p. 16). Moreover, mixed feelings existed even within the groups of control room staff and vehicle crews (operational staff meetings). A full CAD system would challenge the task orientation of vehicle crews, who were used to significant autonomy about how they responded to emergency incidents. However, the full system would also challenge the task orientation of sector staff in the control room, who derive a strong sense of identity from their knowledge of London's street map, their ability to manage resources intuitively using a paper system, and the small team environment in which they work. So, while the discourse accepted by the command and control regime overall was that the technology was faulty, and hence too risky to use, some members of staff had more deep-seated



reasons for subscribing to this view. These reasons included loss of status or power (to monitor or control certain work processes), cultural assumptions (concerning personal identity and self-esteem), and fear of failing to cope with the demands of the new environment. In this way, then, the command and control regime should be seen as fragmented and united at the same time.

### **The Page report**

The inquiry report (Page et al, 1993) into the LASCAD collapse marked the beginning of an effort to shape a space for movement starting to appear within the discourses of the command and control regime. The inquiry team argued for a programme of investment in the LAS and a slower pace of change, whilst acknowledging a need for service improvements. The senior management team should make a major investment ‘in the workforce ... the fleet and the estate’ (p. 64). An IT director should be recruited who would ‘have overall responsibility for all IT and communications planning and implementation’ (p. 63), including delivery of a new CAD system. This system would be the outcome of ‘a complex multi-supplier, systems integration project’ (p. 63), which ‘will take perhaps four years to develop and implement fully’ (p. 7) and should have ‘total ownership by management and staff, both within CAC and the ambulance crews’ (p. 8). Staff should be consulted by management and see other evidence of managers’ ‘commitment to, and appreciation of’ them (p. 9). External bodies, including community health councils, potential successor health authorities, other ambulance services, the media, and the public should find that LAS management adopts ‘an open approach to regular meetings ... with the genuine intention of addressing issues raised’ (p. 10).

The Page report was cited to me many times when operational staff articulated their concerns about the LASCAD development. Although it presents a programming error as the “technical” reason for abandoning the system completely, the inquiry team did not perceive technical deficiencies as the major issue. Probing its recommendations more closely, indications of the regime of truth operating within the new management team at the LAS begin to emerge. The suggestion is that LASCAD failed because staff perceptions about technologically-assisted organisational change had not been

addressed, and so staff ownership of the new methods of working was very lacking. The new management regime, which included Don Page from the inquiry team, subscribed to the view that managers need to use their social and political skills to achieve outcomes.

### **The discursive practices of the new management regime**

In the months following publication of the Page report, the LAS board was disbanded, the regional health authority assumed direct responsibility for the LAS, the service was restructured into four operating divisions, and a new senior management team was recruited. The new management arrangements became fully effective in April 1994, when the Thames health authorities were reorganised into two regions, North Thames and South Thames, with the latter taking on responsibility for the LAS.

Initially, the new senior management team focused on developing a strategy to tackle underinvestment in the organisational and technical infrastructures of the LAS. Its business plan (LAS, 1993; 1994a) included provision for additional staff recruitment, increased paramedic training, greater consultation with staff, purchase of replacement vehicles, and clearance of the backlog of complaints. The technology strategy (LAS, 1994b) addressed rewiring the headquarters building and replacing the emergency telephone system. The regional health authority made an additional £14.8 million funding available to the LAS to enable these plans, conditional on improved performance against ORCON standards. So the new managers slowed the pace of change when compared with the period 1990-1992, but increasingly during 1994 it became clear that the required service improvements would not be achieved.

### **The discourses of the external lobby**

External groups, including government bodies, community health councils, other ambulance services, the media and the public engaged in a range of discourses reflecting perspectives critical of the LAS. These actors subscribed to the view that the LAS was not moving quickly enough to implement the recommendations in the Page report. Indeed, some were very sceptical that the LAS in its then current form was capable of

implementing them (minutes of evidence to House of Commons Select Committee on Health, 1995). The external lobby voiced criticism in several ways, from calling for better performance by the LAS to suggesting that the service be broken up and amalgamated with other authorities (board director interview). Their interests also may be seen as wide-ranging, from a desire to see the LAS achieve its performance targets to a desire to see the disempowerment of such a militant body once and for all.

While the LAS was taken back under the direct control of South Thames regional health authority, other ambulance services were applying for NHS trust status. By spring 1994 a majority had achieved this goal, while those that were still directly managed had well advanced plans to gain independence. Ambulance service applicants for trust status had to show that they were organisationally sound, financially secure, and able to provide a quality service, in which performance to ORCON standards supported as appropriate by a CAD system was a key measure (board director interview).

### **Opening up the space for movement between regimes**

#### ***The death of Nasima Begum***

In June 1994 the media spotlight fell again upon the LAS. Against a backdrop of the declared intention of a House of Commons Select Committee to conduct an autumn inquiry into LAS performance, Nasima Begum, an eleven year old schoolgirl, died of complications from an existing kidney condition following a 53-minute wait for an ambulance. Efforts to create a workable control room structure to support manual operations had proved unsuccessful, in an environment that was becoming increasingly unsuitable not only because conveyor belts had been removed but also because noise and overcrowding intensified as staff numbers increased and call volumes rose. The futility of this approach was brought sharply home to staff with the death of Nasima Begum, which forced a rejection of accepted methods of working and crystallised the need for change:

.... and just when we thought we were getting on top of things, we discovered we were not really; there are some pretty awful things possible that could go wrong and did go wrong (manager, CAC)

When tapes of the five telephone calls made by the Begum family to the control room were made public, they were widely criticised for the insensitive approach of control room operators and the inadequate information they provided regarding possible wait times. An internal LAS inquiry resulted in disciplinary action against one operator and retraining for other staff.

### ***The “London effect”***

In the discursive practices of operational staff, the impact of the “London effect”, the belief that ‘we’re different, we’re special’ (operational staff meetings), is crucial. Comments earlier in this section highlight the rhetoric they used to describe the “London effect”, and the ways they were unable to enact it using either a completely manual system or an implementation, however selective, of LASCAD. This suggests that the task for LAS management of enrolling staff support for a new computer system required an approach that preserved the rhetoric whilst providing an alternative method of enactment. The death of Nasima Begum opened up further a space in which such an accomplishment could take place. In particular, staff in the control room started to move towards the belief that adding more people was not, of itself, a legitimate option for dealing with London’s special problems. Nevertheless, the route to computerisation was slow and winding, with some intense negotiations about what should be automated and how it should be accomplished.

### ***Government intervention following the death***

In October 1994, the Secretary of State announced a public inquiry into the death of Nasima Begum, headed by William Wells, chairman of South Thames regional health authority. The Wells inquiry into the events leading to the death was to run alongside a Select Committee inquiry into the future of the LAS. Findings of the Wells inquiry were published first in January 1995. Whilst acknowledging an unusually high demand on 19 June 1994, Wells found ‘continuing management weakness, lack of sufficient staff training, well above average absence for sickness and other reasons, inappropriate staff distribution and shift changeover times and virtually a complete lack of modern

technology' (report foreword). A number of recommendations were made to address these weaknesses and additional funding was agreed to enable them. The review team expressed its commitment to taking the LAS 'to a financial position where it can secure a significant improvement in performance standards and become a viable applicant for NHS trust status' (Wells, 1995, p. 27).

Criticism of the LAS reemerged in June (House of Commons Select Committee, 1995). While endorsing the Wells recommendation that the LAS seek trust status, the Committee was concerned that 'it may not be practicable to achieve this by April 1996' (p. lxvi). It criticised the management of the LAS at a number of levels, and also the Page report and ORCON standards. It claimed that the 'recent history of the LAS has provided an object lesson in how not to manage a public service' (p. xxi).

Contrasting the style of John Wilby with the styles of those who preceded and followed him:

One was ... tough, assertive and insensitive ... The other was ... passivity and reluctance to take hard decisions ... The former led to industrial relations and operational disaster. The latter has perpetuated the fundamental problems of the service, and therefore its massive under-performance (p. xxi).

Commenting on the Page report, it called it the 'biggest missed opportunity over the past 10 years' (p. xxi) and continued:

The terms of reference ... were extremely narrow ... concentrated almost exclusively on the procurement and operation of the CAD system ... thus led to the production of a report which explained the catastrophe of autumn 1992 largely in terms of the faulty execution of a computer contract ... [and] dealt only superficially with the more general failings of the LAS ... [which] were those of ineffective management, under-investment, industrial relations problems, a complete inability to target resources to match demand, and an ensuing attitude of negativity at all levels. That attitude, a deep-seated 'can't do' approach, has even now not altogether been dissipated (p. xxi).

Commenting on the management of the service:

The fact that these problems, including the fundamental ones of rostering and management information, remained substantially untackled two and a half years after the computer crash, is an indictment of the management of the LAS, of the RHA, and of the NHS Executive and the Ministers who were responsible for overseeing that management. The delay in grasping the nettle of necessary change ... may well have led to lives being lost. It is difficult to resist the conclusion that the computer crash and the spectacular collapse of Mr Wilby's reform programme, led to a complete failure of nerve on the part of those who were responsible for the LAS, and that it took the public outrage generated by Nasima Begum's death to push those concerned into finally taking action (pp. xxi and xxii).

On the issue of procuring a new computer system, the Select Committee urged the LAS to 'consider very seriously the possibility of purchasing an "off the shelf" CAD system' (p. 1). Whilst critical of the proposed five-year timeframe to introduce a new computer system, their comment was substantially moderated by the following:

We support the efforts that are now being made to improve the technical infrastructure of the LAS ... We wish Mr Tighe and his team well in the task before them, which as he himself has put it is that of transforming "the worst equipped and worst performer of all the UK services" into "the leader in its service to the public" (p. xlvi).

ORCON standards, the Committee argued, were flawed because of the undue prominence given to the 14/19-minute standard (for which there is no clinical argument) at the expense of the 8-minute one (which is clinically supported). They also questioned the distinction between urban and rural response times.

Commenting on the report, Tom Sackville, junior minister for health, said:

At a time when general morale is improving, and relationships between management and staff are probably better than ever, it is unhelpful to shake the confidence of staff and the public by dwelling on past problems (Department of Health, 1995).

### **The moves towards NHS trust status**

Following publication of the Wells report, work on its recommendations commenced at the LAS. These changes addressed what Wells identified as inadequate staff distribution

and a lack of modern technology, and the Select Committee referred to as fundamental problems of rostering and management information.

Developments affecting vehicle crews included the introduction of new shift rosters, a redistribution of staff among stations, and the institution of standby arrangements (in which crews wait in their vehicles for emergency calls). These changes aimed to ensure adequate cover when shifts were changing over, to provide a better alignment between staff location and patient demand, and to improve response times. They were introduced in May 1995, after lengthy and at times acrimonious discussions between LAS managers and trades' union representatives (House of Commons Select Committee on Health, 1995). Crew response times were modelled to highlight the existing problems to the 2,000 operational staff. A one-off payment was made to staff whose work location changed, while other measures adopted to enrol support for the changes included updates to vehicles, changes to uniforms, and provision of appropriate protective footwear (board director interview).

In CAC, manual operations continued during 1995, but some restructuring took place to relieve issues with ambulance allocation. The number of sectors into which London is divided for control room purposes was increased from five to seven, reducing the number of vehicles that individual allocators had to manage. Control superintendent – a “trouble-shooter” role – was introduced so that problem situations could be identified and dealt with quickly (LAS, 1995).

Work on creation of a sound technical infrastructure continued during 1995. This approach was criticised by some members of staff and external observers, both of whom felt that a new CAD system was necessary to achieve the required service improvements. During 1995, new radio masts and aerials were installed to support the increased number of sectors in the control room, hand portable radios were introduced for vehicle crews, the non-emergency telephone system was replaced, and a new ambulance control room was built.

Work began in April 1995 on the in-house development of a call taking system for the control room. The technological change enacted at this time took place in a discrete and self-supporting area that was analysed and dealt with in isolation from other influences.

The call taking system and this approach to it, called the Golden Circle, will be discussed in the next section. Broadly speaking, though, the idea was to exert control over the area where a change was proposed by drawing a golden circle around it, and working within that circle to achieve change while resisting the effects of external influences. The belief was that the diverse interests represented in the 1992 implementation, including vehicle crews, government, purchasers, the media, and others interfered with the smooth running of the project. So the approach taken this time curtailed that involvement. Although external bodies were not allowed to interfere with the nature or manner of delivery of the change, contact was maintained with the regional health authority via weekly project progress meetings with its chairman, which lasted until the service achieved trust status. The LAS also had frequent ministerial visits to monitor operations. Indeed, the number of reputations that, according to the Select Committee, stood to be lost if the LAS failed to achieve trust status made sure that those deemed to be responsible took an interest.

The new system, called CTAK (Call Taking), was due for implementation by September 1995 (Wells, 1995), when the LAS applied for NHS trust status. In the event, CTAK was introduced during January and February 1996, as the decision to grant independence was announced. So the LAS became a NHS trust on 1 April 1996 – the last ambulance service in England to do so – and it has continued to operate in that way since. A mandatory requirement on organisations achieving trust status is that the job of chief executive is advertised nationally. As a consequence, Martin Gorham, who became chief executive following the collapse of LASCAD, lost his job to Michael Honey, a former chief executive of Gloucestershire County Council. Gorham, who had been criticised by the Select Committee for ‘passivity and reluctance to take hard decisions’ (1995, p. xxi), was expected by many staff to retain his post (Channel Four Television, 1996):

I was under the same impression as everyone else – it was just a formality, he was going for his interview, and we all assumed he was going to be confirmed in the position (control room commander)



Everything was going smoothly, technology was improving, we were getting the best of everything coming in, and to suddenly leave like that was a disappointment and personally I feel gutted (telephone dispatcher)

I think a lot must have gone on behind the scenes that we don't know about (radio operator)

I was very, very personally upset that Martin didn't get the job ... I thought that the team he had put together ... had come on such enormous leaps and bounds, which has been illustrated by the performance of the service, particularly in the last six months ... and the thing that probably galled me more than anything was that having performed and done the business for the service, and taken it to the brink of being the best ambulance service in the country, I wasn't sure what else the bloke could have done to have delivered and to have retained the job that I know he wanted (executive director, Personnel and Control)

Following the introduction of CTAK, LAS performance against ORCON standards rose progressively for several months. By the last quarter of 1996, performance against the 8-minute standard had risen to 36% from an average of 16% during 1995, while performance against the 14-minute standard had risen to 91% from an average of 74% during 1995 (House of Commons Select Committee on Health, 1996). Thus, the four years to December 1996 were a period of moderate change within the LAS, in which the organisational and technological developments that took place were deemed a necessary and sufficient condition for the LAS to be awarded NHS trust status.

## **THE CTAK PROJECT**

### **The Wells report as a problematization**

Wells, in his joint role as chairman of the regional health authority and chairman of the public inquiry into the death of Nasima Begum, initiated a discourse that became, for a time, the accepted basis for action at the LAS. In this dual role, Wells had authority to propose change, access to resources to facilitate change, and an interest in the outcome that induced his commitment to its success, and he drew upon these sources of power to establish and gain acceptance for a trust status discourse. He used public outrage following

the death of Nasima Begum to force LAS management and staff to speed up the pace of change and to persuade the government to make additional funding of £15 million available to enable this process. By couching his recommendations in terms of trust status, which few observers would contradict as a desirable objective for the LAS however unattainable they thought it might be, he was able to create the impression of unity of purpose in pursuit of a common beneficial goal. Finally, by publishing his findings in January 1995, five months before the Select Committee, he was able to set the scene for change on a decisive but largely positive note, whilst indicating weaknesses in the LAS that the Select Committee would criticise.

Recommendations made by Wells strengthened and extended those in the Page report. He addressed the need to match resources to demand (by changing shift rosters and crew distribution patterns), to improve internal and external communications, to maintain staff training and vehicle modernisation programmes, to develop a CAD system, and to have a national review of ORCON standards. By setting ‘a tight timetable for the implementation of its recommendations’ (report foreword) and by identifying numerous intermediate deliverables and review points, the Wells report focused attention in the LAS on restoring public confidence. In so doing, Wells neutralised criticism from the external lobby and defined an OPP in trust status as the way to improving the performance of the LAS.

In this way, Wells identified not only a crucial goal for the LAS, but within an established internal market in the UK NHS, arguably the only possible goal if the LAS was to continue as an organisational entity in its own right. In recommending a trust status goal, and by fixing a date for its attainment, he presented a solution to the need for service improvements and also addressed the issue of how the LAS would be managed when the regional health authorities were abolished in April 1996. If the LAS had not become an NHS trust, special arrangements would need to have been made to manage it, such as breaking it up and amalgamating the constituent parts with other authorities (board director interview). By raising an issue about the future management of the LAS, Wells was able to gain acceptance for his proposal because other options, seemingly available to accomplish the task, were very unattractive to members of the service. How substantial these options were can be no more than a matter for speculation, but in light of the industrial relations history of the LAS, it seems reasonable to suggest that they might have presented as many

problems as they did attractions for any who undertook them. Thus Wells presented a problematization that was difficult to contradict, to the extent that the Select Committee also endorsed a trust status goal for the LAS, although they were concerned about an April 1996 implementation date.

### **How information technology was implicated in the trust status discourse**

Part of the problematization presented by Wells was a definition of identities for key actors required for establishing the trust status discourse within the LAS. In this way, he linked the interests of the regional health authority with identities proposed for LAS senior managers, in which service improvements were a necessary condition to accomplish the proposed goal. Each of these actors had some room for manoeuvre while their identities were stabilised, but when the Select Committee reported in June 1995 it gave the IT director more room than others.

The service improvements to match resources to demand, which were a key part of the identities proposed for other senior managers, have been discussed already, so this section focuses on how information technology was implicated in the discourse. In this sense, the OPP was concerned with implementing a call taking system in September 1995, which would enable the necessary improvements in performance against ORCON standards to qualify for trust status in April 1996. In this way, although the objective of developing a full CAD system by 1997 was endorsed in the Wells report, implementing the full system was not part of the OPP, since the goal was to achieve trust status beforehand. Thus the Wells report did not address how, in light of continually rising call volumes, satisfactory performance as a trust would be maintained if a full CAD system was not installed during 1997. The post-1996 developments are discussed in the next chapter. For now, though, I focus on how the IT director defined, enrolled and mobilised support for earlier technological developments after negotiating his own identity, or more specifically, the definition of the technology he was required to implement.

### *Negotiating the definition of technology*

During 1994 and 1995, the IT director, in collaboration with a few members of the senior management team, used the power of an ailing IT infrastructure to slow the pace of change to enable him to 'have something that I knew I could deliver' (IT director interview). It was well-recognised among this group that this move would 'be seen as stalling' (LAS, 1994b), yet Wells built on and formalised this approach, and then the Select Committee, in contrast to its comments on other management initiatives, reinforced this course of action.

The IT director's strategy for dealing with external bodies by portraying the LAS as 'an organisation working hard to succeed and making significant progress' proved successful again on the issue of procuring a new computer system. This time the Select Committee urged him to consider purchasing a packaged CAD system but did not insist, despite the successful experiences of other services and its insistence on many other things. So the IT director pursued a bespoke development approach. Thus he employed existing infrastructural weaknesses as an interest device to divert attention away from a full packaged CAD system towards a system with reduced scope (call taking only) built in-house on a sound IT infrastructure. In this way he negotiated his identity, whilst setting the scene for development of the CTAK system in which he became a key actor.

### *The Golden Circle*

Improvements to IT infrastructure were accepted by operational staff as necessary safety measures to ensure a satisfactory level of service, but this rationale was insufficient to enrol support for the changes in working practices that would be required when elements of a CAD system were introduced. So the IT director employed the Golden Circle approach to build a network of interests around the CTAK system. This approach involved managing change by partitioning activities, so as to isolate areas directly involved in a change from other influences within and outside the LAS (LAS, 1994b; 1994c). The argument was that those outside the Circle were not affected by the change, hence should not interfere with it. The Circle was drawn around the 300 staff in CAC, identified as those with a legitimate interest in development of a call taking system. People outside the Golden Circle, including vehicle crews, were not aware of the implementation date for

the new system. The first the crews knew of it was when they observed that calls were being handled more quickly by the control room (IT director interview). This approach built on existing support within the control room for a call taking system and sought to persuade this group that such a system could be implemented successfully.

Using rhetoric concerning how the LAS had failed before with both a bespoke development and a packaged solution, the IT director says that he was able to introduce prototyping techniques. This terminology is interesting in the way it suggests that prototyping, like bespoke development or packaged implementation, is a strategy rather than a technique for systems development. By proposing an approach in which the LAS would write their own software in-house, the IT director was clearly showing a preference for a bespoke strategy. However, by emphasising the techniques, he was able to create the impression that the approach was one the LAS had not tried – and equally importantly had not failed with – before, although bespoke software was a major, and not unproblematic, aspect of the LASCAD project. Nevertheless, the techniques gave control room staff an identity – as an *actively* involved user group – within the development process, so the IT director had some grounds for his claim that the approach was different. In emphasising the techniques, he achieved two objectives. He allayed fears that the LAS would fail again with information technology, while simultaneously preserving the rhetoric that ‘we’re different, we’re special’, hence that the packaged solutions adopted by other services were inappropriate for the LAS.

In the space for movement opened up between regimes the Golden Circle was created, which isolated staff in CAC from external influences that might see things otherwise. These members of staff were not aware of either the Golden Circle terminology or the related policy of partitioning until implementation of the CTAK system in 1996 (meetings with CAC staff). Yet the approach was laid out in the technology strategy written in late 1994. So control room staff were seduced into an alliance, the rules of engagement in which became apparent to them only over time. Nevertheless, these members of staff were aware that something was taking place in a shared space, which was substantially different from the opposing regimes that characterised the LASCAD implementation. In populating a space with an evolving form and no name, CAC staff perceived what was happening to be the *active involvement of a user group*, and this became embedded within LAS discourse as

their preferred approach to systems development. A user view on what took place when changes to the prototype were required, describes it thus:

We'd sit in our little huddles in the corner [outside the shared space] saying "what do you think we should do ... what shall we say, and ... how will we handle this?", never quite sure what sort of reception you were gonna get. And we'd come away from those meetings [inside the shared space] sometimes and say "hey, you know, we really can say what it is that we want – we can tell them we're gonna have to have it, and then we get it – this is good"

Responding to my comment that the Golden Circle excluded significant others, and especially the vehicle crews, the IT director described it thus:

It was, rather, a means of defence on one part and a means of captivating and motivating the important and affected players on the other part. It was never intended to disempower but rather empower those who felt so hopelessly ignored in the CAD crash of before. It was about doing justice to those who paid a heavy price during the CAD collapse and ensuring their views were dominant on the grounds that others would be unaffected. It was about team spirit, togetherness, and a sense of identity. It was often almost palpably tangible but sometimes gossamer like. It was real, it was false, it was for use, it served no purpose, it hindered, it facilitated, it empowered, it excluded, it included, it marginalised, it promoted strength, it promoted willpower, but most of all, it worked!!!! [exclamation marks in the original]

**Figure 6.1. The IT director's description of the Golden Circle**

In working to gain acceptance for the CTAK development, the IT director adopted an 'infiltration' approach with users (IT director interview). Key individuals were identified who liaised between the technology department and the control room. These individuals were trusted by "staff side" to protect its interests, whilst being considered supportive of the proposed changes by "management side". Deals made with both sides by these individuals were instrumental in enrolling and mobilising support for technological change. The IT director described one such member of staff as:

a great lump of glue that brought all the interests together, because at that time [second half 1995] some people thought that they could talk to us and some people thought they couldn't, but they all thought they could talk to [member of staff].

The staff member, who described the role as cementing relationships, commented:

we made a pact with one another ... in trying to get the trust of the people in Control that we would not let anything happen that would be detrimental, so there were a lot of instances where we had to say "stop" ... we had to be sure that things that were allowed to go wrong last time couldn't go wrong this time ... we had to do a lot of work on helping people to believe that we wouldn't let us go down that route again – never again!

Within the Golden Circle, four different solutions were evaluated, prototypes of two of these were demonstrated to the user group, and then one was developed and built in joint consultation. The scope of CTAK and the degree of automation attempted were considerably less far-reaching than for LASCAD. Indeed, CTAK comprised just one of the six elements of a full CAD system described earlier. In effect, the aim was to replace the existing manual system of recording call details on slips of paper, and using human runners to transport the slips around the control room, with online data entry and related enquiry and printing facilities. An online gazetteer replaced the manual method of using a map book to determine a grid reference for the allocator. Whilst this system allows allocators to view call details as call takers are recording them, the paper-based resource management system for tracking, allocating, and dispatching ambulances endured.

As the project continued, different user requirements were addressed by inviting contributions from representatives of those interests (user group member interviews). These representatives spoke on behalf of the 300 staff in the control room and negotiated the final solution so that, ultimately, resources could be mobilised in readiness for implementation. Staff who were enthusiastic about computerisation were seconded to the user group, and:

we made sure we threw in some sceptics as well, because if you could convince them, then that would do a lot of convincing of other people ... we could use them to spread the right sort of word ... they'd hear this person talking about such and such ... people

would say “blimey, if he’s saying it’s all right, it must be OK ... because you can never please him” (user group member)

The IT director recognised stages during the period 1994/95, which he describes as ‘phases of domination’ (British Computer Society, 1997; IT director interview) – not at all unlike the periods leading up to the four moments of translation which inform my analysis. He identified the first period as one where the users were centre-stage. In this period their statement of need was over-specified in an attempt to maintain the *status quo*. This period lasted until publication of the Wells report. The second period was one of proposing technical solutions which would address a subset of the specified need, until a discrete area of activity was isolated to be the focus of attention within the Golden Circle. The third period was one where a view of the efficiency benefits predominated and hence a “value for money” discourse was invoked, while the fourth period marked the attainment of user support for the proposed solution with the emergence of the view that ‘this is good enough’.

Here we see a gradual merging of the interests of the operational regime and the new management regime. In the first phase, operational staff concerns about losing control of their working practices predominated. On the one hand, over-specifying the need may be seen as resistance to “technology as a disciplinary mechanism”, in an approach which sought to prove that technology cannot do everything humans can do. On the other hand, these tactics created space for operational staff to explore the possibilities for their preferred view of “technology as equipment” in the hands of those that use it. Could technology be deployed like the pens and paper they had used for so long? What were their capabilities to mobilise technology as they did these other artefacts? What might act against such mobilisation? In the second phase, publication of the inquiry report into the death of Nasima Begum created a situation in which IT developers could establish their credentials, by proposing alternative technical solutions to the issues raised. By inviting user involvement, IT staff were able to legitimise the project, as well as to acquire the knowledge of working practices they needed to design the system. In proposing solutions to a subset of the specified need using hardware and software with which they were very familiar, IT developers set the scene for later stages of the project where professional management interests predominated. During the later stages, managers drew on their



knowledge of risk management, benefits evaluation, and cost justification. In particular, by starting a discourse about risk management, managers were able to merge the interests of both regimes, neither of which wanted another disaster and public inquiry at the LAS.

This analysis shows how the interests of a diverse group of staff in CAC were translated and stabilised, and how those who were sceptical were included and focused upon in a tactic that acted against the formation of alliances with any who saw things otherwise. The Golden Circle approach and accompanying prototyping techniques resulted in an aligned network of interests around the CTAK system. Actors were translated towards this OPP through the use of power exercised in discourse. In stabilising the identities of control room staff, two considerations were crucial – their fear of failure and their conflicting need to enhance self-esteem. In the first case, staff used the powerful image of a computer disaster on New Year’s Eve to delay implementation of the new system from December 1995 to January 1996:

... put yourself in the place of those people working on a strange system with the call rate rising as it does through December and reaching its peak on New Year’s Eve ... why would we want to do this to them? (user/IT liaison group member)

In the second case, despite their view that ‘we’re different, we’re special’, staff were conscious of how far behind the performance of other services the LAS had fallen:

... people were not out to sabotage trying to make it work ... people wanted to be not looked down upon ... not just by the public at large and the press particularly, but by other ambulance services. When we were at that stage [implementation], other ambulance services were moving on to their second computer system ... and there’s us still fumbling around with pens and paper. ...we didn’t want to be the ones who are bad at doing things or so behind at doing things, so there was a lot of self-respect in there as well (user group member)

Whatever the rhetoric about the “London effect”, it seems clear that part of the identity of control room staff was that traversing the OPP would not only improve the performance of the LAS, but also would restore their sense of achievement and with it their self-esteem.

## REVIEWING THE CTAK PROJECT

The above analysis emphasises the use of power exercised in discourse to achieve translation. During the CTAK project, the IT director uses persuasive rhetoric – concerning weaknesses in infrastructure and approaches to systems development – to enrol support from LAS staff, the Select Committee, and other external bodies. He translates the Select Committee’s contention, that he purchase a packaged CAD system, into a bespoke development of a call taking system, and does so while the LAS is under considerable pressure to improve its performance in line with other services, many of which are using packaged CAD systems. Moreover, he persuades the user group of the merits of a bespoke development strategy, although this is a strategy that the LAS has tried and been unsuccessful with before, even if the introduction this time of prototyping techniques is a new tactic. In this analysis, then, the IT director emerges as a powerful actor who, despite sometimes protracted negotiations with others, manages to align them with his preferred strategy for IS development.

Nevertheless, a relational concept of power informs the analysis. Action within the Golden Circle is seen as a negotiated process of systems development involving deals, pacts, and trials of strength, which encourages more user input than had been the case during the LASCAD development. So, although some user requirements are challenged by IT staff, and other requests are keenly contested within the Circle, the sense of a joint if not unproblematic venture rather than the pitched battle of the LASCAD project, prevails in the argument. Furthermore, members of the user group use persuasive rhetoric, both with their colleagues, to enrol the support of those sceptical about the project, and in their dealings with IT staff, to negotiate requirements and to delay implementation of the system until January 1996.

This analysis draws attention to the partitioning aspect of the Golden Circle, and to its covert nature during the early days of the CTAK project. Yet, the overall sense in the account is that, while power relations within the Golden Circle were asymmetrical, they were not essentially repressive (Foucault, 1980a). In making this claim, I need to address some key issues. Why was covert action thought necessary? How covert was such action, when uniform tells you so much about the wearer’s role at the LAS? In this

way, even without being aware of the contents of the technology strategy, was it not possible for members of the Golden Circle to establish by looking around at meetings which broad functions were represented? If members of the user group felt that others should be involved, did they not have a capacity to act, as when they argued that implementation of the CTAK system should be delayed? Did those who were excluded have a capacity to intervene, if they felt a need to do so?

By way of addressing these issues I argue that, whether they called it the involvement of a user group or a means of managing change by partitioning activities, members of the Golden Circle were aware that the shared space was “made up” – that it was fabricated. Furthermore, whether they acknowledged it explicitly or implicitly, everyone knew who was included and who was not. In this way, all subscribed in some manner to the view that vehicle crews, and the various external bodies mentioned earlier, did not need to be involved directly in development of a call taking system to be used in the LAS control room. Nevertheless, members of the Circle were aware that the exclusion was not total, nor in some cases did they desire it so. In the day to day running of the LAS, staff in the control room must work with the vehicle crews, and therefore they considered the requirements of this relationship when developing the CTAK system. Moreover, they knew that the Select Committee and government ministers could have intervened in LAS affairs, if they felt that its approach to IS implementation was not an appropriate way to spend public funds. Equally, inclusion in the Circle was not unproblematic. The approach encouraged more user input than had been the case previously at the LAS, nevertheless systems development efforts within the Circle were fragile events that needed constant attention to maintain the stability of the group.

In this way, the Golden Circle did not endow its creator with control, nor did it deprive the user group of autonomy. The IT director was at times overtaken by what he had created. When he says that the development process ‘was very time consuming and wearing, to say the least’ (Computer Bulletin, 1997, p. 23), he shows some of the surprise he felt. He did not expect a system that, in its initial implementation, comprised three data capture screens (one for each type of call) with related enquiry and printing facilities to take nine months to implement, but ‘we had to move at a pace that everyone could cope with, no matter what their ability ... [which] meant explaining over and over

what we were doing' (ibid.). Members of the user group were also surprised by the extent of their autonomy, as in their view that 'we really can say what it is that we want'.

The Golden Circle emerges as something that made action possible, despite certain fears experienced by its members – fear that sabotage might occur again, as alleged about the LASCAD implementation; fear, also, of another disaster, with all the media attention and public scrutiny that followed in the wake of LASCAD. Indeed, for many, a fear of experiencing fear again, the fear that gripped staff in the control room as they lost their sense of organisation or structure when trying to use the LASCAD system.

Now, a paragraph I included in my analysis of the CTAK project starts to come alive. It is the IT director's response to reading an early draft of this chapter, in which he felt I developed a rather limited view of the Golden Circle. In this rendering, we learn of the history of the Golden Circle, and get a sense of what it means to say that it was both exclusive and inclusive, both mysterious and rational, both constructed and real. I refer the reader to the IT director's words, in Figure 6.1, now that I have tried to give a greater sense of how I have come to understand them.

In this discussion, then, the Golden Circle emerges as a way of arguing and acting that made argument and action possible. Latour's (1999b) word for such an idea is a factish, although he seems resistant to the notion that social scientists can arrive at such a position from a Foucauldian informed discourse about power-knowledge relations. Nevertheless, with a little bit of prompting from *Pandora's Hope*, I seem to have managed that translation.

### **Factishes, making-do and translation drift**

Factish is a neologism indicating a combination of fact and fetish. It is a type of action that does not force us to choose between real knowledge (facts) and powerful beliefs (fetishes), but rather to focus on ways of arguing and acting that are always fabricated. In such a view there are neither amoral manipulators who take in naïve believers, nor apolitical moralists who argue for participation by all. Equally though, Latour would

resist saying that there is a combination of the moralist and the politician in all of us, if this were to suggest that these elements can be retrieved independently rather than being entangled, inseparable, and shaped with the same clay. The concept of a factish, then, is one example of Latour's (1999a) efforts to develop a vocabulary for actor-network theory that eschews distinctions such as power and knowledge, or politics and morality, that come to us *ex ante* loaded with meaning.

A factish is constructed, it is what holds people together, but this attachment does not decrease autonomy, rather it fosters it. In this way, we are always a little surprised, or overtaken, by what we do. That which acts through us is also surprised by what we do, 'by the chance to mutate, to change, and to bifurcate, the chance that I and the circumstances surrounding me offer to that which has been invited, recovered, welcomed' (Latour, 1999b, p. 281). A factish 'protects humans against inhumanity ... [it is] the thing that, when removed, turns them into monsters, animals, things' (ibid. p. 286).

When the Golden Circle is conceived as a factish, the rules of engagement in it are neither wholly mysterious nor entirely rational. Rather they are worked out as the project progresses, in a 'making-do, accomplished along with others in an event, with the specific opportunities provided by the circumstances' (p. 288). The need for constant attention, with unforeseen consequences, to a fragile moral order and an unstable social one is emphasised. Action within the Golden Circle involves an ability to grasp opportunities provided in the moment. After translation, a drift or slippage in the actors' original goals will be observed, in which they are surprised by what they have created.

A reading of the CTAK project in terms of making-do and translation drift suggests that, following the death of Nasima Begum, and arguably even before, the IT director was trying to find a way of arguing and acting that would make IS implementation possible at the LAS. He realised that '[u]sers' confidence was rock bottom, so [he] decided to start with some relatively safe but important [infrastructure] projects' (Computer Bulletin, 1997, p.23). In this context, his realisation that infrastructure projects were 'relatively safe' was arguably far more telling than his view that they are

‘important’. Fear seems more significant in this move than the implementation of sound management practice. Similarly, the death itself may be seen as giving rise to a number of makings-do that grasped the circumstances of the moment, in which previously accepted methods of working were rejected. In this way, the IT director’s discourse with the user group about IS development strategies and techniques, whether in the vocabulary of prototyping or “something the LAS has not tried before”, may be seen as one that helped to allay their mutual fears about sabotage and failure. Indeed, the CTAK system addressed a need – to provide more efficient and effective support for call taking – that was accepted at the LAS as far back as 1992. Thus the challenge for the IT director following the withdrawal of LASCAD was to find an approach to IS implementation that built on this need without jeopardising the initiative by, at the same time, introducing some of the more controversial elements of a CAD system.

While much of the attention in this discussion has focused on discourses in which the IT director of the LAS was a key actor, similar concepts may be used to describe discourses in a broader community. In the context of the UK NHS, William Wells may be seen as someone who found a way of arguing and acting that made organisational change possible at the LAS. Following the death of Nasima Begum in June 1994, he argued that the service should aim to achieve NHS trust status. While undoubtedly some observers felt that the LAS could not achieve this goal, in the context of an established internal market, there was an absence of voices raised in contradiction to this proposal. In his joint role as chairman of the public inquiry and chairman of the regional health authority, Wells was able to support his proposal with additional government funding worth £15 million. In this way, he grasped opportunities provided by the changing environment of the UK NHS, at a time when members of the LAS found their existing factish – of improved performance using manual methods of working – to be wanting.

### **An emerging emotional dimension**

The analysis, then, emphasises the way various stratagems employed by key actors, including the use of persuasive rhetoric, helped to create and maintain network allegiances. This discussion interprets the political dimension of these actions, as an opportunistic effort to address a fear of IS implementation within the organisation. In

this context, such fear existed following the implementation of the LASCAD system, in which it is alleged that 20 people died in 36 hours following protracted waits for an ambulance (Guardian, 1992; Independent, 1992, but see Page et al, 1993 for a counter to these allegations). When the case is examined in terms of the concept of a factish, and a vocabulary of making-do, the improvised and unanticipated nature of the change efforts is emphasised. Key actors are seen to grasp opportunities presented in the moment to engage support for IS implementation at the LAS. The themes of fear and improvisation in organisations emerge from the analysis rather than being buried in the argument.

Drawing on the Foucauldian arguments that inform the sociology of translation, the Golden Circle may be seen as a regime of truth (Foucault, 1980a). In this view of activity, members of the community draw on knowledge that is both institutionally framed and locally informed, and enact it in a negotiated process in which some members obtain the right to speak for all. In the case of the LAS, various members of the Golden Circle drew on knowledge of best practice for IS development and management, and on standards of good performance for ambulance services, and enacted this knowledge in a way that was sensitive to local conditions. In particular, they were sensitive to the history of IS implementation at the LAS, and to issues of managing ambulance service operations in London. In this way, the Golden Circle provided a framework or model for IS development and management, in which certain ways of arguing were accepted by its members, and were enacted by them in a way that addressed a dominant mood within the community. Following the collapse of LASCAD, the dominant mood was fear, in particular fear of failure and fear of sabotage.

Drawing on Latour's arguments about the nature of a factish, the Golden Circle was a way of arguing and acting that made IS implementation possible at the LAS. It protected its members, as well as allowing them to accomplish things together. Here, Latour's (1999b) arguments about the protective nature of a factish provide a way for starting to conceptualise an emotional dimension to what was happening. So, I emphasise how mood, as an attunement with the situation and a medium within which activities take place (Ciborra, 2001) influenced the way that actors performed. Key

actors within the user group approached this period of IS development in an anxious mood, fuelled by their experiences during the LASCAD project. The IT director was anxious too, given the stakes involved, but he sought to combat this mood, to drive it away (Ciborra, 2001, citing Heidegger, 1995), by grasping opportunities as they arose, and by presenting what he was doing in a persuasive way to internal and external audiences.

In the mood in which they approached systems development, members of the Golden Circle sought to provide automated support for a limited number of control room activities, which in turn limited the number of people who were thought to be directly involved. The rules of engagement in the Golden Circle were negotiated as the project progressed, as it became clearer who needed to be involved and who did not. In seeking to prevent interference by those who were not seen as directly involved, the Golden Circle became a protection against fear (Latour, 1999b), but by attending to their structure, members of the Circle found that their capacity to act increased (Weick, 1993b). In this way, systems development activity within the Golden Circle was action in which there was time available, there were resources at hand, and there was a solution to the problem that had to be addressed. In other words, members of the Circle acted in a way that seems to be influenced by most of the attributes that fear does not have – they improvised. The CTAK system emerges from the process as something built by the group in interaction, rather than being, in a more traditional view of IS development, the product of a structured sequence of activities, such as feasibility, requirements analysis, system design and development, implementation.

Writers on improvisation argue that what takes place becomes ‘visible only after the fact’ (Weick, 1993a, p. 348), so that action that ‘looks extemporaneous ... [then] turns out to be highly competent behaviour’ (Ciborra, 1999b, pp. 136/7). In this way, it may be argued that what took place within the Golden Circle was broadly in line with a prototyping approach to IS development – an approach considered by many to be a highly competent way to manage the development process. However, the IT director (Computer Bulletin, p. 23) presents what occurred as the implementation of a decision taken *ex ante* (‘we chose prototyping’), whereas the argument of this section is that such a rationalisation only became possible *post facto*. The latter argument explains why



members of the user group felt uncertain about how to handle requests for changes to the prototype, and concerned about how these requests would be received by IT staff, while at the same time they felt able to make such requests. If a decision to adopt prototyping had been agreed in advance, it seems unlikely that key members of the group would have experienced the combination of uncertainty and empowerment that took place within the Golden Circle. Rather the degrees of both experiences would probably have been reduced, since a greater degree of certainty about how to act during prototyping might have suggested that a greater licence to act should be taken for granted.

### **REVISITING LASCAD**

If we now revisit the LASCAD project, we can make some further observations about the emotional medium in which that project took place, and the way that the LASCAD system challenged the activation box method of arguing and acting about resource management. The activation boxes are factishes for control room staff – call takers are not allowed to touch them and dispatchers can only do so under the supervision of their sector controller, or resource allocator. These boxes may be compared with the sacred stone or saligram which protected Jagannath's high caste family and could not be touched by the pariahs (Latour, 1999b). In attempting to remove them, John Wilby – as Jagannath – took on the role of modern iconoclast, but '[i]nstead of freeing the pariahs from their abject condition, [he] destroys his own humanity, and that of his [relatives], along with the humanity of those he believed he was liberating' (ibid., p.271).

All of the operational staff knew that these boxes were a "mere stone", a 'child's comforter', just 'bloody paper', but somehow the humanity of the LAS depended on their undisturbed presence (ibid.) – a presence that the CTAK system worked around but the LASCAD system did not. In this way, when the subjects speak about 26 and 27 October 1992 they reveal a dimension to this tragedy that is about more than poor industrial relations and resistance to a disciplinary technology. Without their activation boxes it is as if control room staff are surrounded by a fire with nowhere to run to, and the only tool available to them – the LASCAD system – was one that fanned the flames rather than allowing users to burn their way through them (Weick, 1993b).

Having said that the activation boxes were factishes for control room staff, vehicle crews accepted them. Indeed, since 1992 the crews' attunements with this method of resource management have been one of the most compelling reasons for retaining the activation boxes. Central to this enduring acceptance is the issue of granularity of work monitoring (Bowker and Star, 1999) – the level at which the activation box method allows the work of vehicle crews to be scrutinised. Once a radio or telephone dispatcher has mobilised a vehicle crew to an emergency incident, there is no further automatic time stamping of work until the crew is given the next call. In this way, the times the crew arrives on scene, gets to hospital, completes the handover of the patient, and subsequently calls up “green” (available) at the hospital are recorded after the event on a patient report form (PRF) completed by the crew. The PRFs are then processed by a batch system to determine the response times against ORCON standards. Thus, the PRF ‘is a work of fiction – some of them could be up for the Booker prize’ (manager, CAC).

In this way, crews have scope to negotiate their availability for work. How they are feeling about the demands of the job at any given time is extremely significant in such negotiations, and many things affect these feelings. So, if crews have just dealt with a couple of “crap calls” (their term for abuse of the service), or there is a poor industrial relations climate, cycle times will lengthen. Crews will take time out at the hospital before calling up available. How they construct the PRF in these circumstances varies:

It has been suggested to me that some staff deliberately record a time that takes their response outside ORCON ... because they are pissed off with the LAS ... [Others] usually don't change the response time. They are more likely to change the time on scene – there's no way of estimating how long that might be (service development officer).

So, vehicle crews experience a combination of cognitive and emotional dissonance (Morris and Feldman, 1996; Abraham, 1998), in which their actions and the emotions they display differ from how they perceive and feel. In general, a concern for patient care means that crews respond quickly and caringly during each call cycle up to the point when the patient is handed over at hospital, but how long they wait at hospital before reporting “green” is very variable. Compelling among the possible scenarios for

constructing the PRF to account for “lost” time is the one where crews reach patients within the ORCON standard of 8 or 14 minutes and then report that they did not in order to express anger or frustration with their managers. In this way, they remain authentic to their feelings about patient care, but fake it in the performance figures of the LAS, which may then attract public criticism of their managers (Ashforth and Tomiuk, 2000).

Of course, crews are aware that as they take a break at hospitals other calls are coming into the control room that need emergency responses, but their ambivalence to their work situations manifests itself in vacillation (Pratt and Doucet, 2000). Crews know that staff in the control room will give them an official break when they can. Equally, control room staff know that crews take unofficial breaks, even though the activation box method of resource management does not allow them to know precisely when this is happening. So, vehicle crews may be seen to engage in splitting (Sincoff, 1990), where they alternate between a concern for patients at some points and a lack of concern at others. The dimensions of splitting are both rational and emotional. If a crew has handed over the patient assigned to their care, they have completed a job satisfactorily; the patients who are now calling in are not *their* patients yet. Nevertheless, as they take a break at hospitals crews listen to their radios, and if they hear a general broadcast about a major incident – such as the Paddington rail crash – they offer up immediately. Indeed, ‘they moan like hell if you don’t send them’ (manager, CAC) because attending such incidents is for many the “real work” of the ambulance service.

The emotional-rational dimensions described above formed a backdrop to the LASCAD implementation. The LASCAD system changed the level of granularity of work monitoring, because the system attempted to “know” what vehicle crews were doing at all times. Crew staff could no longer negotiate their availability for work – they could not judge when they could take a break nor could they construct their PRFs accordingly. The system was tracking their locations, and they were required to press buttons in their vehicles to say what they were doing, and all the while the system was time stamping their work. In some cases, their feelings and their responses to them changed from ambivalence and vacillation to ones of negativity and sabotage (Pratt and Doucet,

2000). Moreover, sector staff in the control room could not make do – could not improvise – without their activation boxes. During the LASCAD implementation, rather than using a combination of paper, experience, and “gut feel” to tell them what crews were doing, sector staff had a computer system that badly mimicked their prior improvised activity (Ciborra, 1999b).

However, the LASCAD system provided new possibilities for some call takers – opportunities to allocate ambulances if they were located less than 11 minutes drive from the scene. Call takers embraced this attempt to replace a paper factish with a technical one until it became apparent that the system and this way of organising around it presented serious problems. For the LASCAD implementation did not just redistribute responsibility for ambulance allocation; it no longer maintained the boundaries – the sectors or divisions – within which each allocator and vehicle crew worked. Members of the control room were now working pan-London, allocating ambulances in areas they did not know, and drawing as if on a pool of resources rather than on the specific ones allocated to each sector. They could neither fully gauge the implications of their decisions nor adequately grasp the resource utilisation pattern across the 620 square miles of London served by the LAS. Since time from scene, as determined by the system, was now the criterion affecting allocation decisions, crews were sometimes asked to respond a long way from their home station, which was not welcomed near end of shift. Emotions ran very high for 36 hours; then the activation boxes were reinstated. Call takers continued to use the system for a few more days – simply to record call details online, which the sectors could then print and deposit in their boxes – but from 4 November 1992 even the paper forms were being handwritten once more.

Channel Four Television (1996) showed the activation boxes being moved into the new control room during the CTAK implementation. Moving the boxes was described as ‘the most tense moment of the night’, a time when one of the busiest ambulance services in the world was ‘out of action’. The commander (or senior operations officer) in charge of the control room on that night carried the boxes to their new locations. I wondered what would have happened if he had dropped one of them, and the image of a priest dropping a chalice full of consecrated communion hosts flashed into my mind. Of course, one could argue that the hosts are “mere bread”, but that is not the discourse of a

Roman Catholic mass, and history has shown us the intensity of feeling within that community about its ways of arguing and acting.

## **CHAPTER 7    The Emergence of Priority Dispatch**

In my analysis of the period to 1992, I argued that the operational regime at the LAS and a coalition of institutional, managerial and technological interests came into conflict, and that the operational regime survived, albeit in a more loosely aligned network than had been the case during the 1980s. Analysis of the period 1992-1996 shows certain members of the operational regime, specifically staff in the control room, working with members of the new management regime to achieve some first steps in computerising the A&E operations of the LAS. In the latter period, the Golden Circle emerged as a shared space in which such negotiations were accomplished. In 1996, as the LAS implemented the CTAK system and achieved NHS trust status, a national review of ORCON standards was in progress. The results of that review gave rise to a new regime of truth within the ambulance services, which changed the basis on which their performance is measured.

The new regime was the move within the ambulance services to call prioritisation, or priority dispatch, and this chapter includes an analysis of how that move was enacted at the LAS and a new computer system was implemented in November 2000. The emergence of priority dispatch, in combination with changing local conditions, interrupted the goal of implementing a full CAD system at the LAS in 1997. At the time of writing, full implementation of a CAD system has still to be achieved by the LAS, and its performance continues to fall short of the new national standards. This chapter, then, examines how goals were interrupted, detours were taken, and shifts in meaning occurred to arrive at where the LAS is today.

### **HOW REGIMES OF TRUTH WERE CONSTITUTED DURING 1997/98**

#### **A new discourse of modernisation**

At sectoral and national levels, the period from 1997 to date has seen a stream of official publications and ministerial speeches outlining plans for modernising the NHS. The 1997 White Paper, *The New NHS: Modern, Dependable* (Department of Health, 1997), set the scene, outlining the new Labour government's plan to abolish the internal market in the UK NHS. The aim is that in 'a ten year programme to renew and improve

the NHS through evolutionary change ... the internal market will be replaced by a system ... called “integrated care”, based on partnership and driven by performance’ (chapter 1, pp. 1/2). The government’s argument is that the internal market focused resources on administering competition rather than attending to patients’ needs. It emphasises five key themes – working together rather than competing, preventing as well as treating ill health, decentralising responsibility for operational management, the need for quality and efficiency to go hand in hand, and the crucial role of information technology. The plan is called ‘a “third way” of running the NHS ... [neither] the model from the late 1970s nor the model from the early 1990s’ (ibid. chapter 2, p. 1).

In the third way model, local service agreements will reflect national standards of quality and performance developed by a National Institute for Clinical Excellence (NICE). These standards will be delivered locally through a system of clinical governance, in which NHS trusts are required to quality assure their clinical decisions, and will be monitored by joint mechanisms of a new national commission, a national performance assessment framework, and an annual national survey of patients. The new ambulance performance standards (Chapman, 1996) are an example of these national standards. They reflect the requirements of the national performance assessment framework for coronary heart disease (Department of Health, 2000a), in which the aim is to achieve a 40% reduction in deaths from heart disease and stroke in the under 75s by 2010. In London this means that survival rates (still alive one year later) for out-of-hospital cardiac arrest patients under 75 must be improved from 2% currently to about 15%.

In line with this changing view of what it means for NHS organisations to be responsive, call prioritisation, or priority dispatch, became an increasingly significant requirement on ambulance services during the late 1990s. It involves allocating one of three priorities (A, B or C) to an emergency call based on a clinical assessment of the patient’s condition, and changes the basis on which ambulance services operate and their performance is measured. First, call takers need a mechanism to enable them to prioritise the emergency calls they receive. Second, the need to consider ‘an appropriate’ rather than just ‘an ambulance’ response for category A calls means that other types of vehicle, including rapid response motor cars and bikes, have been

introduced across ambulance services. These vehicles are strategically located and used, with the aim of providing a response to life-threatened patients within 8 minutes. These responders provide basic medical assistance, while awaiting the arrival of an ambulance to convey the patient to hospital. Third, allocators must now make more complex resource management decisions, not only because of the range of vehicle types available, but more crucially, because these vehicles must be dispatched based on the clinical needs of patients. During peak periods when vehicle utilisation is very high, deciding how to allocate the last few available resources becomes a much more dynamic process.

Information systems were seen as ‘essential to the proposed changes’ (Chapman, 1996, p. 6). They provide the mechanism by which call takers prioritise emergency calls. So, in the late 1990s ambulance services began to introduce priority dispatch systems. Through a structured series of question and answer protocols and embedded rules, these systems guide call takers through a process that suggests a clinical determinant indicating the severity of a patient’s condition. Thus they enable the priority of each call to be assessed so that vehicles can be dispatched to patients according to the priorities assigned, and in this way, they provide support for clinical decision making. The emergence of priority dispatch has been accompanied by the introduction within ambulance services of local quality assurance units, which monitor compliance with the new discipline.

Although the determinant attached to each medical condition is determined at organisational level, ambulance services have limited freedom to decide on the category of response provided for each complaint. Indeed, in some cases the priority category is mandated at national level, as in the government imperative that suspected cardiac arrests receive a category A response (Department of Health, 2000a). In this way, a deviation from the discipline can have serious consequences for the ambulance service and the control room staff concerned, who will be accountable for the outcomes of such action. This eventuality may be seen as giving rise to a situation in which the suggested determinant is accepted uncritically, rather than risk the consequences of overriding it. Thus the embedding of clinical guidelines within information systems introduces a measure of standardisation into the processes of call taking and resource mobilisation.



However, it may also be seen as changing the nature of work in an ambulance control room, in which conformance with the discipline may be emphasised over individual human judgement of the clinical priorities.

The priority dispatch initiative is part of a changing institutional context in which efforts are being made at sectoral and national levels to move ambulance services away from their traditional organisational model to a new model with very different characteristics (Nicholl and Turner, 2000). The traditional model reflects ambulance services as hierarchical, uniformed, operationally-focused emergency care organisations functioning under locally informed medical direction and driven by protocols. The emerging model is one that emphasises a health service organisation whose role is to address a wide range of medical conditions, some of which may be non-urgent. Managers of these organisations would have professional management training and experience of health service management in a broad sense, and staff would be medically educated to national and local standards as appropriate to the job functions they perform. This new regime of truth in a sectoral and national context presents opportunities for local regimes to be reconfigured. Key interests in this reconfiguration, evident at the start of my empirical work at the LAS during spring and summer 1998, are discussed next.

### **Concerns about performance**

The performance of the LAS against ORCON standards was dropping. In summer 1998, some performance figures in the year to date were as follows (LAS Web site, week ending 12 July 1998; LAS News, 1998b):

	January 1998 (last 3 weeks)	April 1998 (first 2 weeks)	July 1998 (w/e 12/7)	<b>Target</b>
8-minute performance	37-38%	50%	41%	<b>50%</b>
14-minute performance	92%	95%	89%	<b>95%</b>

The shortfalls since April were a particular concern given the directive from the Department of Health, effective 1 April, to start timing against ORCON standards only when key details had been logged (LAS News, 1998a, 1998b), rather than as soon as the call was answered in the control room. The key details were the caller's telephone number, the incident location, and the nature of the chief complaint. The new ambulance performance standards were not yet in force nationally, but since the recent performance of the LAS was dropping against the existing standards, senior managers were becoming increasingly concerned about the shortfall to be made up before the new, and more demanding, standards took effect in March 2001.

### **Information technology – the extant and the goals**

By summer 1998, some enhancements had been made to the existing computer system, CTAK, to provide greater manoeuvrability around the screens and to indicate the nearest ambulance stations and hospitals to an emergency scene. However, there was still no automated support for tracking where resources were and what they were doing, or for dispatching them to an incident. So CTAK continued to address call taking activity only, an area of work in CAC where there had always been support for computerisation, to the extent that an attempt was made to retain the call taking subsystem of LASCAD in 1992.

Although CTAK was introduced as part of a 'survival strategy' (LAS, 1994b), changing priorities nationally and locally now meant that it would have to be updated to interface with a sophisticated software package for call prioritisation. Implementing the vital interface was planned for March 2000 and would test the robustness to change of the CTAK system. Work was in progress to automate tracking, allocation, and mobilisation of vehicles – major outstanding CAD tasks – with implementation scheduled to occur during 1998 and 1999. In interviews with the IT director in the second quarter of 1998, the following schedule of changes and benefits was identified.

Calling line identity (CLI) was due for implementation in October 1998. For most calls, this system would automatically present a caller's address on the CTAK data entry screen based on the telephone number from which the call was made. Addresses are made

available by agreement with the public telecommunications operator. In this way, calls connected by major land line operators would receive a faster response than previously, since the call taker would only have to confirm the caller's address rather than enter it, so that resource allocation could begin within a few seconds of call connection. Call response time was expected to improve by about 40 seconds. Working methods for vehicle crews would not change.

An automated vehicle location system (AVLS) was scheduled for implementation by the end of 1998. This would give details of the nearest resources to a call in a priority order based on availability. Tracking of resources would be achieved automatically via aerials fitted to the vehicles, which during trials had been giving a correct location on average 95% of the time. Vehicle crews would no longer be required to radio in their positions, replacing one half of the radio link between crews and the control room. An AVLS when integrated with the CTAK and radio systems would allow vehicles to be linked with the calls they were attending, automating the entire process of call taking, vehicle tracking, and resource allocation.

Trials of mobile data terminals in vehicles were planned for the end of March 1999. This feature would replace the other half of the radio link, since the terminals would act as the means of communicating dispatch instructions from the control room to crews that were mobile. Using mobile data terminals, then, the process of resource mobilisation would be automated. Mobile data was expected to reduce the time for information exchanges between the control room and vehicle crews to about 3 seconds (from 40 to 60 seconds), but would go against the Golden Circle approach adopted so far that system changes would not impact on working methods for crew staff. AVLS and mobile data were highly contentious aspects of the original LASCAD system, which were sabotaged by some vehicle crews, as described earlier.

An implementation schedule for call prioritisation, or priority dispatch, had also been determined. A phased development was planned, with manual operations starting in 1999, and a computerised software package due for implementation by March 2000 (LAS, 1998b). This system would change priorities in the control room, providing call takers with a means of determining the urgency of a call. At the time, the balance of power in the

control room was with the allocators who made subjective judgements about the priority of calls and the mobilisation needs of each, while call takers simply recorded information received from callers.

### **The pace of change – views from the front line**

Reactions to the pace of change within the service reveal some contradictions and paradoxes. Senior management had given a powerful message to staff about its expectations of the required pace of change when the LAS achieved trust status. The chairman of the LAS, in conjunction with the selection panel, gave the job of chief executive to Michael Honey in favour of the incumbent, Martin Gorham, who had been criticised by the Select Committee (1995, pg. xxi) for ‘passivity and reluctance to take hard decisions’. Staff reactions to that unexpected turn of events, notably those of control room members, were described earlier. By 1998, members of staff in CAC were telling managers that the pace of technological change was not fast enough:

we have a very long list of requests for change ... some of those changes ... will be part of the next version, but some ... are two years old; people have been asking for things for that long and that means people lose faith a little bit ... some of those things would really help people to be better at what they do (user group member)

Whilst there was a strong body of support for technological change in the control room, delays to an AVLS and mobile data – from the original implementation date of 1997 (Wells, 1995) – meant that vehicle crews’ responses to these technologies had hardly been tested since the LASCAD implementation. Even though an AVLS system would not require crews to take any action, they could find that control room staff, who would have automated tracking support for vehicles, challenged their availability more frequently. Direct crew involvement would have to be achieved to enable the use of mobile data terminals in vehicles to receive dispatch instructions.

Nevertheless, trials of an AVLS in a parallel running mode with the existing manual system had received a generally favourable response (IT director interview; CAC staff meetings) both in the control room and among the crew staff on whose vehicles it had been tested. Support rested in the trial finding that resource allocations suggested by the

computer system matched human decision making in the vast majority of cases. Still, the north east London crews had been chosen for the trial because they were perceived as ‘friendly’ to technology (IT director interview) and 20 enhancements to the system were requested by evaluators (LAS, 1998a).

Notwithstanding continued concerns about vehicle crews’ reactions to the introduction of technology within their own working practices, there was evidence that, while being outside the IT implementation process, they had become interested in what control room staff were doing and why and how it was done. This phenomenon had become apparent during post-proficiency refresher courses for crew staff, which revealed some of the discourses that circulate within ambulance stations in the absence of information to the contrary about IT developments at the LAS. One such discourse involved speculation about the purpose of aerials left on the vehicles after the LASCAD implementation:

so when we start talking about what’s coming soon which is AVLS ... they look at you a bit funny and say “well, haven’t you got that already” and we haven’t, but it’s just that’s what they think (refresher course team member)

When implementations of an AVLS and mobile data were attempted, they would take the LAS closer to the issues that led to the collapse of 1992 than it had been since. It would be a key event. If handled well it could be a crucial element in improving the reputation of the service and in healing the rift between CAC and vehicle crews. If not, it would surface old tensions among staff and between staff and management because:

there are some little Hitlers down there [in the control room] who would be very happy to say “you’re lying” [reference to control staff challenging crews about availability] (manager, CAC support)

The apparent caution with which senior managers were grasping these particular nettles of change suggested that they were well aware of the issues at stake. Nevertheless, as the service drew nearer to the concerns that tore it apart in 1992, indications were that key actors felt it was in better shape to manage them this time. The IT director was optimistic:

I understand there will be problems, but ... I think it’s achievable ... It’s all about handling people really, isn’t it?

## **Industrial relations**

On the organisational changes in progress, industrial action had been narrowly averted in 1996 when standby on the roads was introduced (Channel Four Television, 1996). This initiative continued to be a very contentious issue, because of physical danger, abuse from road users, and the need for breaks. Each May, operational arrangements are reviewed with the unions. In 1998, further changes to shift rosters were proposed. So far, these proposals had not been implemented, owing to resistance from vehicle crews (manager, operational development). However, the management position on standby had changed, to being one of considering it as a 'hole-filling exercise', so long as ambulance stations could be resited in the drive to minimise response times. This position was a long-term strategy, which would involve a considerable investment in the estate, with perhaps up to 50% of stations changing location (estate director).

So, crew members had experienced changes to their shift patterns, they were required to standby on the streets waiting for emergency calls, and many had been allocated to new ambulance stations. Although the new computer system had improved overall response times, they had experienced no say in its design and soon, with the introduction of an AVLS, it would be able to monitor their whereabouts without any cooperation required on their part. One perspective might say that, given the requirements on LAS management to match resources to demand and hence improve performance, coupled with the allegations that some crew members sabotaged the LASCAD implementation, minimising the influence of the crews on future developments was a rational, if exclusionary, response. On the other hand, the Select Committee praised 'the fine work done by a majority of dedicated staff within the LAS', arguing that the new rostering arrangements and the early installation of a computer system would 'be welcomed by the majority of zealous staff, who have no wish to see their hard-earned reputations tarnished by a minority' (1995, p. liv).

Either way, the crews had aimed but they had not fired. They had held ballots, threatened industrial action, slowed the implementation of changes to shift patterns and crew distribution, but change had moved on relentlessly, if slowly. There was recognition amongst staff that they 'have been ill-served by management and by some of their own

colleagues and representatives' (House of Commons Select Committee on Health, 1995, pg. liv) in the past. Nevertheless, although moves were being made 'to construct a new relationship between management and staff', staff had been advised that the price of that relationship was to 'make the operations of the LAS more transparent ... [to] improve efficiency and in consequence morale' (ibid.).

Managers and staff were exchanging views via mechanisms such as post-proficiency refresher courses (manager, CAC development), staff letters in LAS News (the in-house magazine), and through union representatives. Meanwhile, staff were exchanging views amongst themselves by peer group pressure (Channel Four Television, 1996) and the moves 'by UNISON to appoint more forward-looking union representatives' (House of Commons Select Committee on Health, 1995, pg. lv). Letters in LAS News indicated the discourses that were taking place between management and staff:

In the April/May 1998 edition, a paramedic wrote:

I have read with ever increasing incredulity the answers given by senior management to points raised by operational staff.

Frontline crews are not entitled to a car parking space regardless of their finishing time! I would be interested to know which other London-based organisation has such total disregard for their staff's safety ... Uniforms are not being issued and when they are they don't fit properly ...

With regard to patient care ... [a divisional director's] comment (February issue) that "The change to vehicle-based drugs will mean that whenever a paramedic is working on duty, a supply of drugs will always be available" is at best a fantasy. ... I would like to know if it will be you standing in a coroner's court trying to explain why there were no drugs or equipment available ...

It's not all bad, though. Management have at last decided to trial stab vests and maybe they will be issued sometime in the next five years ...

As everyone knows we are now in the throws of having our working pattern totally disrupted again. Yes, ... we do know that providing a 24-hour emergency service

to a city like ours is not easy but the police and LFB [London Fire Brigade] do it and they do not treat their staff like our service does.

It was with great humour that I read ... that we now have someone who is leading the work for our bid to gain the Investors in People award. God forbid anyone from this award speaking to frontline crews – with morale as low as it is the LAS would not stand a chance. Then again, we as frontline crews know exactly what management think of us, don't we? It was broadcast across national television!

The director of operations replied:

Your letter addresses a number of issues that have been raised in recent months and rather than trying to reply to each, I would like to discuss your concerns in person.

In the June 1998 edition, the paramedic wrote:

Further to my letter in the last issue, I had a meeting with [the director of operations]. It was very interesting and informative to have management's view of things ... As good as his word, within three weeks I had a written reply ... It is good to see that [the director of operations] and one or two other managers are trying to introduce a new style of proactive, not reactive, management.

### **The pace of change – how managers saw it**

There was a managerialist discourse in circulation that improvements to date had been achieved by technology, but that fundamentally some people had not changed, in particular, the vehicle crews; that 'to move on, people need to change' (manager, operational development). Composition of the body of operational staff had altered significantly since 1992, with several hundred new vehicle crew staff in post (ibid.) – about 20% of the entire complement. Yet, there was a sense among managers that this influx of new staff, with no ingrained culture, had impacted in a limited way on attitudes and behaviours of operational staff overall. Among the changes in attitudes perceived by managers were recognition by staff of the improving nature of staff-management relations, the slow but increasingly positive attitudes of staff to the introduction of information technology, and peer group pressure among staff to 'do it



properly because I'm suffering' (IT director interview). These attitudinal changes complemented earlier changes in behaviour which originated from the days of John Wilby, and included acceptance of less formality in both dress code – with senior managers coming out of uniform – and forms of address – involving the use of first name terms (manager, CAC).

In other words, managers subscribed to the view that there were changes to the more visible aspects of LAS culture (Schein, 1992), but these changes were superficial and not universally accepted. In effect, they saw the nature of the changes that had taken place as a move from a manifestation of culture in which there was apparent consensus among cultural members to a position where different manifestations of the culture could be seen clearly to exist (cf. Meyerson and Martin, 1987). In this way, the crisis within the LAS revealed by the death of Nasima Begum was the catalyst creating a receptive political environment for a cultural shift (Pettigrew, 1990b); the influx of new staff enabled that shift to happen more readily than otherwise – yet the people had not really changed. Visible behaviours had changed, attitudes had changed in as much as staff were increasingly less afraid to voice concerns to both managers and their peers, but basic assumptions, which in a managerialist discourse are the essence of culture (Schein, 1992), were perhaps as ingrained as ever. So, in the rationalistic discourses of their management education, facilitating technological, organisational and personal identity factors had allowed a performance discourse to prevail for a time, but there was evidence of some weakening of it. However, in the more emotional discourses of their lived experiences, despite their best efforts, IS implementation and organisational change had not become irreversible within the LAS, and managers were surprised, and often frustrated, by the relentless demands of attending to a constantly changing collective (Latour, 1999b).

### **The future for the Golden Circle**

Pervasive in the discursive practices described to me at an early stage in this research was the view that management best practice and information technology are neutral, rather than artefacts mobilised by actors so that both are changed in the process. So, for example, at first the IT director described the CTAK project as one in which staff and management had confidence, owing to adoption of a tried and tested technology, and a small-scale, low-risk,

phased approach to system development, which allowed significant opportunities for user input via prototyping methods. Later, he described subjective judgements, such as adapting PRINCE (Projects in a Controlled Environment) to be 'documentation light'; the informal communications mechanisms that he and others used to enrol support for CTAK; and the way that as staff engaged with and modified the prototypes, they in turn felt less threatened by technology. Nevertheless, at this stage, interviewees gave little emphasis to the intense negotiations that had taken place within the Golden Circle, focusing instead on the sense of achievement they had felt both when CTAK was implemented and later when the control room and CTAK received a British Computer Society award.

Finally, then, the IT director raised the question of whether the Golden Circle could be enlarged to include all LAS operational staff, or if it was now beginning to outlive its usefulness and approach its death. This was a compelling question at the end of my first period of empirical work. Indeed, the LAS approach to AVLS aimed to preserve the Golden Circle approach because:

The secret is not to ask them [the crews] to do anything. ... What we've done is we've decided not to go outside the Circle. ... It's because of the Circle that we looked at AVLS in this way, because nobody else does it like this. ... [Other services] will track the vehicles simply to get which is the closest to a particular incident [rather than using AVLS to track them throughout the response cycle]. They ask their crews to press a button to say they've arrived, and now they're leaving, and now they've arrived at hospital, and now they're moving off from hospital ... it's a specific action. Now they asked for that in 1992 here, and crews just went [he tapped the table 6 times], so the system fell over. But that's more the culture of this service than others.

But they're not stupid ... and when we went for the trial of pure AVLS to do this [the proposed method] in north east London a couple of months back, they knew what we were doing and how it had come about. So, you know, we're sometimes kidding each other, about what we can kid each other over (IT director)

## HOW REGIMES OF TRUTH WERE CONSTITUTED DURING 2000

### The priority dispatch initiative

At the start of 2000, there was just over a year to go before the new ambulance performance standards became effective. A number of ambulance services had installed a computerised priority dispatch system (PDS), and several of these trusts were already getting close to or regularly meeting the new standards. Indeed, at the UK National Conference for Ambulance Services (Ambex, 2000), the Health Minister said ‘I cannot but pick out Staffordshire Ambulance Service’ in this regard, while declaring that 13 (out of 32) ambulance trusts yet to achieve their targets would be expected to show considerable progress by March 2001. At the conference, the new chairman of the LAS, who had taken up his post in October 1999, questioned the Minister about how much she believed could be achieved by triaging (prioritising emergency calls) over the telephone, rather than when a medical examination is performed. She suggested that ‘there are a number of days you get through on a wing and a prayer’, but she held fast to the aims of call prioritisation, and then dispatching resources based on the priority assigned to each call, so that those in the greatest need receive the fastest responses. Responding to a question from a senior executive at the East Anglian Ambulance Service, the Minister said:

any notion that we are prepared to lower the standards – no.

The issues raised with the Minister reflect concerns within the ambulance services about the efficacy of the new regime as well as the demands of meeting ‘a far tougher standard’ (IT director). Although priority dispatch effectively requires that fewer calls receive a response within 8 minutes, the new standard is perceived as more demanding than ORCON because the latter allowed *any* 50% of calls reached in 8 minutes to be counted. In this way, the ORCON regime created pressure to dispatch resources as quickly as possible to each call regardless of how urgent it seemed, while deemphasising the implications of having no resources available when, say, a “suspended” patient – one who has stopped breathing – was reported. Under a priority dispatch regime, services must reach 75% (by 2003, 90%) of *category A* calls in 8 minutes. These calls may be only 20% of their work, but they occur all of the time. In this way, services have to manage their resources much more

dynamically than before to ensure that their vehicle responses match a changing profile of call priorities in the control room. In the above scenario, this would mean diverting an ambulance on its way to a lower priority call to respond to the “suspended” patient.

For these reasons, services are employing “first responders” – typically, paramedics in cars or on motorbikes, but in the Leicester Square vicinity a former international BMX champion on a pedal bike – to provide a first line of response to category A calls. As long as these responders reach the scene within 8 minutes, the service is deemed to have met its 8-minute target. However, an ambulance must still be sent, since the patient will invariably need to be conveyed to hospital. In a priority dispatch regime, that ambulance should provide a better response to a category A patient than to those who are category B or C – in other words, despite the first response, the ambulance should arrive within 14 minutes of call receipt in 95% of cases.

In this context, a development of the LAS chairman’s question to the Health Minister becomes compelling. How much can we tell about the urgency of a patient’s need over the telephone? Substance abusers frequently present symptoms which when described to a call taker by a member of the public indicate a category A response, whereas a patient who falls off, for example, a building site, and sustains a serious and very painful back injury, may not. In these cases, the patients would need a medical examination before it was possible to gauge the seriousness of their conditions. For example, the first could have lost consciousness under the influence of the substance, but might recover naturally without any emergency intervention required. The second patient requires emergency intervention, but generally would not be life-threatening, hence would not receive a category A response. The issue I am raising here is not one about the ethics of substance abuse, although clearly such matters come into play as responses are provided, rather I am suggesting that call prioritisation, however expertly informed, might not pick up urgency of need in the above cases. Hence, it can give rise to consequences that few, if any, involved intend. In this way, there are issues for all of us when we make a call to the ambulance service, but few of us are aware of the extent of them.

A further comment from the Ambex 2000 conference is interesting in this regard. The chief executive of Staffordshire Ambulance Service argued that staff should dispatch an

ambulance as quickly as possible and worry about the priority later. Members of the audience were well aware that Staffordshire had been responding to over 80% of *all* calls within 8 minutes for some time, and therefore had not only been exceeding the new 8-minute target before it took effect, but exceeding the then current ORCON 8-minute target by over 60%. Nevertheless, few of the chief executives and trust board directors in the hall were sanguine enough to attempt a post-dispatch prioritisation strategy in their own services, lest they failed to respond to the majority of life-threatened cases within 8 minutes. Indeed, the chief executive of the Essex service, an advisor to the Department of Health, argued that prioritisation is essential *when the call is received*, especially for the larger services like Essex and London – the latter has about 9 times the call volume of Staffordshire. Still, it is interesting to note that the service that is out-performing all others, including the 50% that are smaller than it, is one that has chosen not to *dispatch* by priority.

### **Negotiating performance targets**

Between mid-1998 and early 2000, the performance of the LAS against ORCON standards had continued to decline. At the end of March 2000, overall performance figures for the service in the preceding three years were as follows:

Period	8-minute performance	14-minute performance
1997/98	37%	91%
1998/99	39%	87%
1999/00	34%	84%

So, by April 2001, the service was unlikely to meet even the existing 8-minute and 14-minute performance standards of 50% and 95% respectively, far less the new ones of 75% (for category A calls) and 95% (for category B and C calls). Thus, in spring 2000, under the leadership of a new chairman and a new (then acting) chief executive, the LAS agreed a revised timeframe with its commissioners for compliance with the new standards. In this

way, full compliance was not expected until December 2002, but interim targets were set (LAS News, 2000). The March 2001 interim targets required that:

- 55% of category A calls receive an appropriate response within 8 minutes, and
- 92% of category A calls receive an ambulance response within 14 minutes, and
- 95% of category B and C calls receive an ambulance response within 19 minutes.

The 8-minute response target for category A calls would rise to 65% in March 2002, and to 75% by December 2002 when full compliance with the new standards was required.

### **Information technology – the goals and the interruptions**

Between the two stages of my empirical work, several changes to the schedule of IT development projects occurred:

July 1998 the Trust Board sat down and seriously prioritised its work, and took out – certainly – AVLS, and it took out Calling Line Identity [CLI] and some other things ... but we continued with the manual priority dispatch system, which meant a lot of changes within our computer system. And [a year later] we brought back on to the table Calling Line Identity as a means of boosting the performance of the control room. ... So we took a bit of a risk around – well we didn't take a risk really – we knew it could impact the year 2000 programme, but we decided that, as long as it didn't do so in a detrimental sense, that we would pursue that one initiative [CLI], because it was more compact than trying to deal with AVLS for instance, which was more uncertain. And that went live last July very successfully, and we're very pleased with it – it's brilliant, in fact (IT director)

So the IT director argued that, owing to the work involved in ensuring year 2000 compliance, CLI was implemented 9 months later than planned. Moreover, he stated that work on an AVLS and mobile data would be resumed in August 2000, with a revised implementation date for both projects of April 2002. These projects had been scheduled to happen during 1998 and 1999. Instead changing priorities meant that, with the exception of a trial of AVLS in January 1998, vehicle crews had not at this time been involved in IS-related change since the LASCAD implementation in 1992. As a precursor to these two projects, the IT director proposed that printers should be installed on ambulance stations to

receive details of emergency calls from the control room, replacing the pen and paper method then in use.

Regarding call prioritisation, a manual (card-based) priority dispatch system (PDS) had been installed in the control room in November 1999, but implementation of the computerised version had been delayed from the original date of March 2000. In the event, the automated version of PDS was implemented in November 2000. Both the PDS implementation and the printers on stations (POS) project are discussed later in this chapter.

### **The pace of change – views from the front line**

In the two years since my initial study, staff in CAC had become increasingly frustrated with the pace of technological change at the LAS. Comments from them indicate a perception that the IT department sanctions the *operational* requirements and priorities that will be addressed by information systems, that IT implementation should happen more quickly within the service, and that its current technology is out of date, as in:

the tail is wagging the dog (control room member)

The millennium was the excuse last year, I can't remember what it was the year before (user group member)

I take it you've been to the museum on the ground floor [reference to the LAS control room] (manager, CAC).

From their 1998 position in which CAC staff were tending to 'lose faith a little bit' because their requests for change were two years old, there was now a very marked perception that the IT department was unresponsive to the operational needs of the service.

During summer 2000, I spent about 25 hours talking to vehicle crews in their mess rooms and riding out with them to attend emergency calls. While their major concerns were abuse of the service by callers, assaults on staff by members of the public, and a failure by their own management to communicate with and support them, they did express some views on information technology. These views include:

I'm all for technology as long as management aren't trying to use it to check up on us

How can technology help us? I don't see the need

I've no objection to technology as long as it helps me to do my job better.

Such views were not overtly hostile, although there was some suspicion of managers' motives for introducing information technology, and a questioning of whether my study had any relevance for their work. Nevertheless, crews were prepared to talk with me and to have me ride out with them. Moreover, when I asked questions about how they did their job I received detailed answers, a demonstration of the contents of a kit bag, and a running commentary on what was happening as we watched hospital staff make a failed attempt to resuscitate a patient. Views on the role of information technology also varied between stations, as the above comments from three different ones indicate. Some operational staff suggested that 'every station has a different culture', and hence a different response to issues arising. Others argued that technology is not the major concern, rather it is a pawn in a struggle between staff and management about working conditions, performance measurement, and forms of reward:

It's all about power relationships ... it's not the printers that's the issue, it's all the undercurrents (manager, POS project).

### **Industrial relations**

During 1998/99, relationships between staff and management at the LAS deteriorated further. Vehicle crews voted 91% against new rostering arrangements, as performance against ORCON standards continued to decline. The first line supervisor role at ambulance stations, called operational shift manager (OSM), was disbanded, even though the successor role of team leader was not yet in place. Commenting on these events a few months after taking up his post, the new LAS chairman said:

If you were a landing Martian, and that's a little bit what I am, you'd have to say "What on *earth* made you do that? How *could* you – in a situation where already relationships are very bad and you have just lost a ballot on the new rostering system, which you thought you maybe had a chance of winning? ... You are clearly out of touch with your



own grass roots. How can you persist in a policy of removing what little remains ... of your first line supervision?" ... So we have ... an organisation where the top and the bottom are disconnected – where there is deep distrust between the top and the bottom – and the people we have just pointed to in the middle are caught in the middle because nobody trusts them.

In this industrial relations climate, IT projects had focused exclusively on requirements that would mean no change to working practices for vehicle crews. Although the AVLS trial had been generally well received, especially in the control room, some warning bells had been sounded about the extent to which performance is contested among different actors:

We did have some incidents that we would have preferred not to have had with crews, and we did discover that our performance was quite possibly not what we think it is, because AVLS says it's something else. ... No up-front, overt resistance to "Hey, I'm not gonna do that ... I'm not driving that vehicle" ... but an increase in incidents of damage to equipment. ... And also in terms of performance, you know, finding out that what crews actually write down – they say are times of activities – actually we have some difficulty correlating what the system is saying they were actually doing. ... Lots of incidents in the control room where the crews felt they were being trapped [because where they said they were and where AVLS was plotting them was different] ... Those are issues that will come back. It was an early taster that the issues of the past are not truly gone – we've still got a lot to do (board director)

### **The new management discourses**

By February 2000, the LAS had a new chairman in post and had appointed their director of operations as chief executive in an acting capacity. The chairman's theme of reinstating first line supervision for ambulance crews was a pervasive discourse within the organisation at all levels, and was mentioned many times in my interviews with staff. For those on the front line, the team leader role provided an opportunity for recognition of their efforts and promotion. For senior managers it was seen as a 'very powerful' mechanism for gaining:

direct access to 150 staff that you can influence, that you can get feedback from ... in an organised way ... It is and remains I think one of the biggest opportunities to change this organisation (chief executive).

In a move generally welcomed by those on the front line, the new chairman reinforced the need for senior managers to maintain regular contact with vehicle crews:

They never, ever, see anyone from here, and I have now instituted a little system whereby my secretary keeps track of how often each of [the senior managers] go out on an ambulance, because they need to be out there, and be seen.

Middle managers, in some cases, did not welcome directors' attempts to get closer to the front line. They saw it as the latest form of a discourse in which senior colleagues were undercutting their authority. The senior colleagues, on the other hand, were concerned that many in the middle management group let the rank on their shoulders do their talking for them, and in this way failed to gain the respect of their staff. Middle managers were seen as the most static part of the organisation, a part that had remained largely rooted in a command and control culture, despite the changing composition of the workforce and, more generally, a changing operating context for ambulance services.

Reflecting on some of the more rationalistic discourses that were evident within the organisation in 1998, the acting chief executive said:

I think that in theory the injection of a whole host of new staff in recent years, in theory, should have made a difference. The issue is who's influenced who, I suppose

The need for change within the LAS was pervasive in management discourses and this message was delivered to staff in a series of meetings about a service improvement strategy held during August 2000. The LAS Improvement Programme is a major organisational change effort, which requires additional government funding of about £40 million over four years and will be ongoing at the LAS until 2005/06. Although I make no attempt in this study to address all of its initiatives, its major themes should be understood as how managers in consultation with about 1,000 staff have defined what it means for the LAS to modernise. The modernisation message is that there is a need to improve support for

staff, a need to improve performance, a need to get the best out of technology – overall, a need to demonstrate results in response to government funding received.

We can't be in a position of negotiating with staff what they will and won't do all the time – I'm exaggerating for effect (chief executive to staff at LAS Improvement Programme meeting)

In all of this, there was a generally optimistic view among managers that the LAS was now in better shape to extend its use of information technology, even into areas where working practices for vehicle crews would be affected. The IT director was encouraged by the favourable response to installing e-mail on ambulance stations, the follow-up requests for office products, and the way staff had trained themselves to use the new software. Nevertheless, somewhat more cautiously than his colleagues, he observed:

So I think these things taken together says the world is a different place out there, that they are prepared to do things that formerly they were not ... but is it different enough?

### **The future for the Golden Circle**

Before moving on to discuss how the PDS and POS projects were accomplished, it is appropriate to consider what future there seemed to be for the Golden Circle in early 2000. Views expressed by CAC staff, members of the IT department, and vehicle crews suggested that the demise of the Golden Circle rather than its continuance was the more likely outcome. In CAC, the view that the IT department was unresponsive to operational needs meant that the Golden Circle, as a space in which control room staff, their trainers, and IT staff worked together, was recalled as a symbol of the past. The discourse concerning the "London effect" was now that 'we are lagging behind other services' (meetings with CAC staff). Members of the IT department saw the nature of the PDS and POS projects as different from CTAK, so that an alternative approach would be required. On the one hand:

Priority dispatch is of course a system that is a product that you integrate into something. So in terms of what it is and what it does, and how it looks and how it feels and how you drive it and so on ... aren't actually under our control. It is "well, this is

what it looks like and this is what you get”. Our activity is successfully integrating that and making it part of our system. The users don’t exercise any form of choice in this ... It’s an issue ... It could bring a quite different reaction (IT director)

On the other hand, the POS project involved a different audience from CTAK, both control room staff *and* vehicle crews, and hence the Circle for this project – if such a concept were relevant at all – would have to be drawn in a different way. How vehicle crews might respond to such a project seemed to depend on the prevailing industrial relations climate. The last time an attempt to mobilise the combined audience had been attempted was in 1992. Since then, the pace of technological change at the LAS had slowed considerably, and had been focused on control room operations, most notably on the working practices of call takers. So, the context for the POS and PDS projects was the same in some ways but compellingly different in other ways from the contexts for the LASCAD and CTAK projects.

### **CALL PRIORITISATION AND THE PRIORITY DISPATCH PROJECT**

Throughout the analysis, I have been using the terms call prioritisation and priority dispatch as though they are interchangeable – subsuming nuances in the terminology, while at the same time continuing to use both terms. Although this has been a conscious decision on my part in the writing up so that I may examine something that happened during the PDS implementation, it happened more unwittingly among members of the implementation team. In this way, some implications of the meanings of both terms in the technological environment of the LAS became apparent only when user testing of PDS commenced.

The term call prioritisation tends to focus attention on the need for call takers to follow a procedure in which a priority is assigned to each emergency call received based on the clinical needs of the patient. Priority dispatch is a more inclusive term, since it suggests both that calls must be prioritised and that vehicles must be dispatched to calls according to the priorities assigned (rather than treating all calls with equal priority). In this way, priority dispatch addresses the work of all staff in an ambulance control room – be they call takers, resource allocators or dispatchers. Moreover, vehicles (including fast response cars and bikes) and not just ambulances are involved for category A calls.

Finally, the constantly changing profile of call priorities in an ambulance control room affects the work of vehicle crews, since an ambulance may be dispatched to a call and then diverted if a second higher priority call comes through while it is en route to the first scene.

Although these considerations were understood at the start of the PDS project, what was not fully appreciated was that the embedding of PDS within CTAK might change the way information was recorded by call takers and then passed to allocators and dispatchers, and ultimately to vehicle crews. This change could in turn adversely affect both patient care and vehicle crew safety in dealing with the incident. In other words, although only call takers would use the new software – to prioritise calls – its capacity to act extended into the dispatch process, and in unanticipated as well as preconceived ways. The unanticipated outcomes were acknowledged explicitly when the user testing team saw the combined information system for the first time during user acceptance. The implicit assumption at the start of the project that allocators and crews needed to react to the outcomes of an automated call prioritisation process were challenged when the team found that technology could act to change the dispatch process without the cooperation of allocators or crews. Thus the nuances in meaning between the terms call prioritisation and priority dispatch become important as we go on to examine the PDS project.

### **The problematization**

In London in 1992 there were traces of the need to reconsider ORCON standards, as some LAS staff informally responded to calls on a priority basis in ways that were very variable, were often more emotional than rational, and were sometimes based on poor quality information about emergency incidents. Indeed, the Wells (1995) report into the death in London of Nasima Begum, following a 53-minute wait for an ambulance, reveals a number of such concerns. Both the Wells report and the report of a House of Commons Select Committee (1995) into LAS performance called for a national review of ORCON standards. Thus they attributed problems at the LAS to wider causes than the failed attempt at total automation in 1992, and judged that these problems might

increasingly affect other ambulance services, despite their greater degree of automation. The review of ORCON standards in 1996 was a response to these findings.

The new ambulance performance standards acknowledge that meeting target response times is less about total automation of call taking, vehicle allocation and mobilisation in the interest of speeding them up (as framed by ORCON standards), and more about targeting responses based on the clinical needs of patients. Nevertheless, the new reality in the ambulance services contains elements of both concerns. Calls must be prioritised, and a greater percentage of the most serious ones must receive an emergency response within 8 minutes. The priority dispatch systems, which ambulance services have purchased to address the clinical need requirement, operate by being embedded within existing CAD systems, which address speed of response. This embedding creates ‘a tension between two systems with different goals’ (consultant, PDS supplier). The goal of a CAD system is to minimise response time assuming all calls have equal priority, while the goal of a priority dispatch system is to make a considered assessment of patient need so that responses can be prioritised. This argument suggests that implementation of the combined information system requires a careful balancing act. The tensions that surfaced around the LAS embedding of PDS within CTAK in one such act are the focus of this section.

## **How the implementation was negotiated**

### ***The opening position***

The project plan presented by the project manager to the project initiation meeting for the PDS implementation shows the project starting at the beginning of March 2000, with a “go live” date of 16 October 2000. The business case for the PDS implementation was approved in April 2000, and the project initiation document (outlining the project organisation, products or deliverables, and project control mechanisms) was authorised two months later. Nevertheless, the project initiation meeting at which technical, user, and service interests are represented in the formal start-up to a project (in the PRINCE framework for project management adopted by the LAS), did not take place until 16 August 2000. With only two months then left to go

before the “go live” date, it is clear in this scenario that the IT director’s view that the ‘users don’t exercise any form of choice in this’ was being enacted by some members of the meeting at least.

On the user front, however, these constraints were not accepted without challenge. Throughout August, PDS “briefing sessions” occurred. These meetings took place from 7am to 8am, at the start of the early morning shift, and involved the user manager for PDS, who I shall call Brian<sup>2</sup>, any control room staff who wished to attend and could be released from duty to do so, and myself as observer. The user manager stated that the purpose of the meetings was:

to show you the product [a demonstration version of PDS, available from the supplier],  
to give you an indication of what to expect, and to take some feedback from you.

Nevertheless, he made no guarantees that any requirements identified would be acted upon by the IT department, simply that he would ask Desmond, the IT developer who was integrating PDS and CTAK, if they could be actioned. Of the 350 members of staff who work in the control room, nearly 60 chose and were able to attend these meetings. Staff representatives fed back to those who did not, or could not, come. Commenting to me after the meetings, Brian said:

Desmond doesn’t think staff should be involved in this. He thinks managers should decide and staff should do what they are told ... He would be very happy if I just came and told him all of the requirements, in line with how he thinks decisions about these things should be made. ... He’s happy to talk to me about the system, but he refuses to come to meetings like that ... We’ll have to see what he says is possible ... All roads lead to Desmond ... It’s a big risk because he could get run down by a bus.

### ***Enrolling the operational staff in Central Ambulance Control (CAC)***

In the PDS implementation, arousing the interest of staff focused on gaining their acceptance for a technology that would introduce increased levels of discipline into

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<sup>2</sup> All names in this account are disguised

working practices. At a broad level, PDS would structure their conversations with callers and would determine the order in which resources should be dispatched. At a detailed level, PDS aimed for precision when data values were recorded. For example, it accepted numerical values for age (in years or months or via an age band), but unlike CTAK it did not accept A-adult, B-baby, C-child or E-elderly, if the caller could not or – as with calls from the Police – did not provide the approximate age of the patient. Perversely, in the latter cases, PDS lost some of the richness in the data, since the only value it would then accept was “unknown”. An issue for managers was one of how, without giving rise to an overt staff-management conflict, they could contain the desires of some control room staff to customise the product to suit their preferred and individualised ways of working.

Briefing staff was a tactic employed to address this issue – one that involved them having a voice only to the point that a system requirement would be identified at these meetings if staff could compellingly show that service would suffer if the requirement was not met. In this move, managers were recalling the lengthy negotiations that had taken place within the Golden Circle during the CTAK project, and the effects of the many changes made to the LASCAD system ‘on the fly’ (Page et al, 1993). In the PDS implementation, they felt they did not have the time available for the CTAK project, nor did they wish to see the disastrous outcomes achieved in 1992.

Gaining acceptance for PDS at a broad level proved not to be problematic, since call takers had been using a card-based version of the system alongside CTAK for nearly 9 months. Indeed, a number of staff who came to the briefing meetings were in favour of a more standardised approach to the work of the LAS. Furthermore, many members of staff were keen to move to a Windows operating environment, and PDS, as a Windows based application, was seen as a first step in this direction. In this way, peer group pressure helped to enrol support for the project, so:

The interesting thing about that meeting was that many of the issues raised by staff were also answered by staff. I just sit there and let them get on with it (Brian).

In effect, the Golden Circle drawn around all staff in CAC during the CTAK project was being narrowed during the PDS implementation to include only a group of



operational and IT managers, who determined requirements in meetings convened among themselves. In particular, these managers decided, under medical direction, how parameters within PDS would be set to assign clinical determinants – indicating the severity of different patient complaints – to the categories A, B and C within the new ambulance performance standards. Moreover, they intended to enforce these assignments during system use through the work of the quality assurance unit – a discipline that the PDS system in its automated or manual versions does not enforce.

A majority of control room staff accepted in a broad sense this attribution of identities, not only because many call takers did not want to make subjective judgements about call priorities, but also because most allocators and dispatchers saw PDS as guiding their work not structuring it. Nevertheless, control room staff also thought that IT managers had too influential a role in deciding which, if any, detailed requirements would be incorporated – a belief that the briefing sessions tended to reinforce. It was less apparent at the meetings that operational managers also wanted to see a more disciplined approach to working, both broadly and deeply within the operational staff group. Notwithstanding some agreement about objectives among IT and operational managers, achieving an alignment of their interests was not straightforward, as discussed next.

### ***The identities of IT and operational managers***

At the project initiation meeting, the logistics of the PDS implementation were discussed. These logistics had technical, user, and overall service dimensions. A user testing and training environment had to be set up, so that user acceptance of the system could be given and the 350 control room staff could be trained to use PDS in combination with CTAK. A crucial issue in implementing these arrangements was one of maintaining adequate cover in the control room while members of staff were taken out for training purposes. The training manager favoured conducting training at Waterloo, and was supported by other CAC operational managers, who argued that this approach would minimise the time that staff were away from the control room. The IT managers favoured using the LAS training facilities at Bow, about an hour's journey away, rather than having to convert a meeting room at headquarters. Moreover, CAC

managers favoured a phased implementation of PDS, in which staff could use CTAK only if they had not yet been trained, or CTAK and PDS when they had been trained. IT managers argued that the work involved in a phased implementation would delay other projects in the pipeline.

The feasibility of the proposed “go live” date on 16 October was also discussed. CAC managers were concerned that, in a “big bang” implementation, this date would not allow everyone in the control room to be trained – a move they felt was necessary so that all staff would be familiar with the implications of call prioritisation and not just the call takers invoking it. Delays to the “go live” date would bring the LAS very close to the “winter pressures” period – their busiest time in the run-up to Christmas and New Year – when implementation of a new system would not be desirable. In the discussions about these issues, Desmond informed the meeting that:

We have been delivered the product as a CAD developer. There is a CAD integration role and a contract role. We have to make our system work in a way that is acceptable to [the supplier]. Then we have to liaise with [the supplier] as an end user and give our acceptance of their system. ... What we have got, we can at best do a conditional acceptance on because there are bugs in the PDS system – you can have a boy of 13 who is 6 months pregnant. ... [The supplier] won’t supply the dongles without acceptance of their system by the LAS. ... It might take them a week to send the dongles. When we have them, then we can [and he went on to mention configuration issues and linking to database servers].

The above comments were Desmond’s explanation of the work he was doing, the dependencies between tasks, and hence how technical acceptance would be accomplished by 12 September. Nevertheless, user acceptance testing then had to be completed within 5 days – two of which occurred at a weekend – if he was to start installing the software *at Bow* on 17 September, in a further 1.5 weeks effort. Once the software was installed, there was less than 3 weeks to complete training of instructors, who would then train the quality assurance advisors and 180 call takers. The remaining control room staff would, according to the plan, be trained in the last 2 weeks of October, following the “go live” date on 16<sup>th</sup>, so that all implementation tasks would be complete before the winter pressures period started.

In this iteration of the plan, operational interests were subsumed within those of the IT department. The late time at which the project initiation meeting was convened left less scope for negotiating the tasks to be carried out in the final few weeks leading up to 16 October – the user tasks, primarily – than it did for earlier ones, many of which were complete or in progress. The identity of IT managers attending the meeting – Desmond and Graham, the IT director – was one of assuming that once Desmond had tested the system, user acceptance would be a formality. Yet Desmond's orientation was informed by an engineering approach to IS implementation, and hence showed little tolerance for the way humans intervene in operational situations. For example, it transpired later that the case of the pregnant boy was one arrived at by changing the nature of a patient's chief complaint during the taking of a single call. Although callers may change their minds in this way, to arrive at the case about which Desmond was concerned this would have to happen and then the caller would have to assert and the call taker record without question that a male patient was pregnant. While one can imagine the newspaper headlines if the LAS was found to be running a system which accepted that adolescent males can conceive, one also has to consider whether the human actors in such a system would behave as Desmond did when testing it.

I am not suggesting here that this case, however unlikely to occur, should be overlooked, just that it reflects a particular style of engineering-informed testing, and that Desmond's way of arguing at the meeting revealed that he thought acceptance of the system should rest primarily, if not exclusively, in a technical assessment. User acceptance testing was more likely to reflect a more human-centred and intuitive way of dealing with operational situations, but also a different set of cases that would merit attention. IT managers' language blocked IT-operational collaboration and understanding. Bow, they assumed, would be used for training, a phased implementation would delay other projects, negotiating with the supplier was a role for a technical specialist, and we all know what dongles are and how they can act to delay IS implementation efforts.

Eventually, the senior user manager present asked 'what is a dongle?', to which the service director added 'I'm glad you asked that'. Desmond informed them that 'it's like a sort of electronic key. It stops people making pirate copies of the software'. The

managers then had two apparent choices – either to replay the last several minutes’ conversation in their heads to try and understand what Desmond was doing and the significance of the dongles, now that they knew what they were, or to ask further questions to make sure they had understood. They chose the former, and they may well have understood, but in similar situations other operational managers do not, and when they ask questions of Desmond and Graham:

It didn’t get me anywhere

The terminology used by IT is not very understandable to the user group at large

It’s one of three things. Either they don’t think it is necessary to discuss it with you, or they are not prepared to discuss it with you to let you comment on what they are doing, or they know there is an issue and they are going to make damn sure you don’t find out about it.

Since neither Desmond nor Graham was project manager for PDS, we may ask what part do project managers have to play in the negotiations about IS implementations at the LAS? I suggest that the answer to this question is to document outcomes. Project managers are drawn from a team called the Project Support Office (PSO), which falls under the remit of the IT director. Members of the PSO have lower rank than Desmond – who is widely acknowledged as Graham’s second-in-command – and typically they also have lower rank than many of the user managers who contribute to IS projects. Not only, then, has an LAS project manager to coordinate a team whose members have conflicting priorities, but also to deal with situations where most, if not all, members of the project team have the seniority to undercut his/her authority. In this way, project managers are more like project management administrators – they prepare project documentation, including project plans, under the guidance of team members, they coordinate diaries so that meetings can take place, but they administer the project, as PRINCE-knowledgeable personal assistants to a team of managers.

### *How operational interests rose to the surface*

Following on from the project initiation meeting, CAC operational managers made further attempts to negotiate the approach. They were unsuccessful on the issue of a phased implementation. Desmond maintained his position that ‘that will not be possible’. One CAC manager had queried this stance, and ‘Desmond said we can’t have it. There’s not enough room on the server’ to run two versions of the live system. The issue was then closed. This manager suggested that Desmond and Graham have technical knowledge that enables them to say “no” and no one can question it:

This is the power they have in the organisation, and I’m sure that sometimes they abuse that power.

Moreover, operational managers accepted that certain tasks had to be done in the order and in the timeframe that the IT department advised, suggesting that ‘we can test 24 hours a day’ (Brian) to get the user acceptance testing completed. However, they held to the view that training should be done at Waterloo. Moreover, when the system was handed over to them for acceptance testing, they argued that the way that CTAK and PDS had been integrated was inappropriate in some cases, but also, and crucially, introduced increased levels of risk in other cases.

In the first scenario, there were calls where PDS was not required because no clinical questions needed to be asked, nor any clinical advice given. These cases included ETAs (calls requesting an estimated time of arrival for the crew), RVPs (calls from the Police advising a rendezvous point for the crew, as during a bomb scare) and cancelled calls. In the second scenario, printing a ticket for the allocators’ activation boxes took place once the call details had been completed in CTAK, as in the existing system. However, in the existing system, when the patient was in cardiac arrest or in labour, the call taker had the option to finish the call in CTAK and then refer to the PDS card set to give CPR (cardio-pulmonary resuscitation) instructions or to provide telephone advice during the birth. In this way, printing the ticket was not delayed while the instructions were given, and so the allocator had a marker for his/her activation box to indicate which crew was assigned to the call. Although this was an intuitive and unofficial way of working, it

was also one that addressed the limitations of manual processes at the LAS for allocating and dispatching resources. The integrated system aimed to support the official way of working – that instructions had to be given before the call was completed in CTAK – but this meant that allocators could spend 20 minutes or more without tickets for their activation boxes. In this way, they would have nothing but their memories to rely on about which crews had been allocated to these calls. The potential for resource management to break down was evident.

The above scenarios demonstrate how the embedding of structured conversations within CTAK was not uniform for all calls – a way of arguing and acting that call takers invoked intuitively when using the card-based version of PDS because they understood what the prioritisation procedures meant in the technological environment of the LAS. Attempts, then, to create a uniform interface for all calls when CTAK and PDS were integrated proved unsustainable once user acceptance testing commenced.

### ***Anxiety about the PDS implementation***

In negotiations about the training venue and the issues arising from the way PDS had been embedded within CTAK, the “go live” was postponed until 15 November, taking the implementation date very close to the “winter pressures” period of December to early January. Moreover, training of allocators and dispatchers was postponed until after winter pressures. The training venue was agreed as Waterloo, and preparations were put in hand to convert a meeting room for training purposes. Two instructors were available to train the 180 call takers in groups of 6 staff per 4-hour session. As training commenced in the second week of October, modifications to the system were still in progress. These changes involved providing a facility to exit PDS in cases where clinical questions did not need to be asked, and to print a partial ticket for allocators in the middle of long calls where, for example, CPR or childbirth instructions had to be given. During the training sessions, instructors described the nature of the changes being made, and how the system would operate on the “go live” date. Furthermore, opportunities would be available for those who were trained early on to refresh their training closer to the implementation date, by practising in the training room when it was not in use for scheduled training sessions.

In this situation, anxiety heightened. If implementation did not occur before the end of November, the project would have to be postponed for two months, and this would seriously jeopardise LAS chances of meeting its interim target against the new ambulance performance standards in March 2001. Staff who had been involved in the LASCAD project started to recall the events leading up to October 1992. In particular, they remembered:

and all the time we were trying to prepare the training the system was changing

all we'd be saying was "right, well, on the day it will do this and on the day it will do that".

Then they discovered the implications of a further issue that had arisen during user acceptance testing. PDS would now capture as part of the structured conversations some data that had been recorded in an informal way within CTAK, as free text comments on the call taking screen. However, PDS would record these data in logs not previously accessed by allocators and dispatchers, whereas CTAK printed them on the tickets for the allocators' activation boxes. These messages (the answers to key questions) might contain information of a critical clinical or crew safety nature – for example, assailant still on scene – so allocators and dispatchers had to know what they said, so that they could inform the crews. Patient care and crew safety were at risk. If this requirement was not addressed, CAC staff argued, 1992 might happen again. Crews would reject the new system, patients would be at risk, and public outrage would follow. Moreover, industrial action could not be ruled out (user group meeting). Allocators and dispatchers had to be given access to the logs, and then they would require a short training session to show them how to use them – their training could not be deferred until January, at least not all of it. So, although only call takers would use PDS – for call prioritisation – nevertheless it would act to affect all operational staff involved in priority dispatch, and in ways that had not been anticipated beforehand.

596 answers to key questions were examined in a process in which quality assurance staff assessed the clinical and crew safety issues involved, and decided which phrases had to be highlighted in the logs so that crews could be informed. Arrangements were made for a 20-30 minutes training session for allocators and dispatchers. The

implementation date was postponed until 22 November – in effect a ‘drop dead date’ (senior operational manager), which made further delays unacceptable. Moreover, two CAC managers who had played a key role in the project were now going to be on leave when PDS went live. When issues arose, negotiations took place between IT and operational staff, and solutions were developed in an emergent process of IS development rather than a formal one of enacting a plan prepared in advance. As the implementation date slipped back, and the buffer before winter pressures was used up, anxiety among staff was evident in meetings. Staff talked about operational risk as they examined 596 phrases, modified training sessions when system changes were made, and called progress meetings to check outcomes. In this case, risk may be seen as a set of discourses for managing the process (Power, 2002), discourses that staff enacted to attend to their fears that 1992 might happen again. This time the Golden Circle was not protecting them, but their talk of risk as they worked out around the clock what priority dispatch meant in their environment. With less than a week to go, they tried to say “stop” as they had done in 1995, but if they delayed beyond 22 November, a key representative from the PDS supplier would not be in the country. Had they worked through all the scenarios? Was it reasonable to think they could? Had all known risks been minimised? Would it all go pear-shaped – again?

### ***Mobilising resources for implementation***

Senior managers decided that implementation would go ahead on 22 November as planned. The supplier was confident about the PDS product – a product licensed to over 2,500 users worldwide. Staff had been using a card-based version of the product for nearly a year. Extra staff would be on shift during the first few days of live running, and managers and quality assurance advisors (QAAs) would be on hand in the control room.

Tension was palpable in the call taking area on the day that PDS was installed. When call takers tried to invoke the system at 9am as planned, it would not start up. A modification was made to the system configuration to enable operations to start at 10.40am. The delay heightened anxiety, causing some to speculate that the LAS was again trying to use a system that could not deal with its call volume. The more established members of the service seemed to be experiencing the most anxiety, but



then many of them had experienced 1992. Call takers were asking for one another's help with the new system, members of the user acceptance team were in the control room to answer queries arising, and representatives from the supplier were also present. In a part of the room where there is usually extremely limited interaction among staff about work and how to accomplish it, the interactions were intense on that day. Interestingly, some of the younger and less operationally experienced members of staff were advising their senior colleagues about what they needed to do in the new environment of automation. On the sectors there was anxiety about using the logs, because this process was thought more time-consuming (because of the need to change screens) than retrieving the crew safety and critical clinical information from the printed ticket in the activation box.

Some in the room said 'it's much better'. Many said 'I think it will be OK, when we get used to it'. A few said 'it's just like last time – we're all here in the thick of it, but there's no sign of any of them [the senior managers]'. The managers and QAAs drafted in to walk about the control room watched for the first sign that help was needed or that communications might be breaking down. Based on my past experience of IS projects and what I had observed on this one, I did not feel that something disastrous was going to happen, yet I could not help being affected by a mood among some that it just might. It seemed that they felt they were in a goldfish bowl, and that the world was looking in, waiting to pounce if they made a mistake. If things did go wrong, then aspects of this project might not stand up well against the simplistic critique of a rationalistic discourse of best practice in IS implementation. However, without trying to suggest that this was a "perfect" IS implementation, I argue that it is such discourses that should be critiqued for the partial explanations they provide.

Overall, the system was implemented without any major disasters. Some disruption to the service was experienced during the first two weekends of operations, in which a build-up of calls made it necessary to divert some of the backlog to the incident room of the Metropolitan Police at New Scotland Yard (Computer Weekly, 2000; Sunday Telegraph, 2000). A union representative made it clear to the press that staff had tried to delay the implementation.

## **After the mobilisation**

In a meeting with the PDS supplier, their consultant representative argued that ‘CTAK is about response time, PDS is about patient need, the combined system reflects the priorities of the service [the LAS]’. Members of the LAS enact these priorities in ways that reflect contradictory and conflicting interpretations of the issues raised by the new performance standards. For example, the declared objective of a recent strategic planning exercise is to turn the LAS ‘into a highly professional and cost effective pre-hospital care organisation’. This objective is embodied in several organisational developments, including the introduction of PDS to support dispatching by priority or responding to patients based on clinical need. However, the working practices of staff and the local language they employ reveal the gaps between institutionally framed knowledge and the discursive practices of the community in which it is enacted.

For example, my observations of working practices revealed the diversity of responses to an automated call prioritisation process as follows. Some members of staff comply readily with the protocols inscribed within PDS. Reasons include finding them easy to use, believing that they facilitate work in the control room, and accepting that this method of working is the norm and will be enforced by the quality assurance unit, whose role is to monitor compliance with the new regime. Others feel stressed by the new procedures, and a few are antagonistic toward the quality assurance advisors (QAAs). A small group questions more fundamentally the legitimacy of call prioritisation, suggesting that it lengthens the process of responding to calls and that the LAS does not have the resources to deal with this outcome.

At times, control room staff bypass or override aspects of the disciplinary mechanisms, adopting them as guidelines only. On these occasions, staff draw on their own knowledge and experience to compensate for perceived anomalies in either the structure of the protocols or the priorities assigned to calls. For example, call takers who are mothers often feel well placed to give childbirth instructions over the telephone. When I spoke with them, they said that they feel the standardised dialogues intrude on what they want to say. One call taker said:

Sometimes there are other things I want to say [based on her own experiences], but I can't [because she feels she should follow the standard dialogue].

Another questioned some of the vocabulary of the dialogues, saying:

I've had five kids and "trimester" means nothing to me.

So she asks a caller how many months pregnant she is, rather than asking which trimester her pregnancy is in. In this way, call takers' experiences and philosophical standpoints come into play in the way that responses are provided.

Some patterns have started to emerge as to which protocols and which clinical priorities staff members find inappropriate, and QAAs follow up these cases and issue revised instructions periodically. So, as far as working practices are concerned, the reasons why staff comply or do not comply with a disciplined approach to responding to emergency calls do not give rise to any clearly articulated regime of truth, such as might be held by a particular community. Rather the reasons for compliance and non-compliance seem to depend on each individual's knowledge and experience of the job and of life, the extent to which s/he feels able to negotiate with QAAs about the suitability of certain mechanisms, and the individual's degree of comfort with using the system. Clearly each of these aspects may change over time, but, in the months following implementation of PDS, the network of relationships was both diffuse and unstable.

Focusing on the local language used to describe the nature of work, evidence emerges of uncertainty in the broader context and a confused pattern of local manifestations. The institutionally framed theme describing the LAS as a 'pre-hospital care organisation' is at odds with some members' visions of the organisation as an ambulance service dealing with 'real emergencies' which require a response 'on blue lights and sirens'. This is a reference to what is called 'red work'. Others articulate a broader interpretation of the role of the service to include 'white work', which involves transferring patients from doctors' surgeries to hospital and from hospital to hospital. Members of staff engaged in 'white work' suggest that they are 'conveying the patients who are really sick'. This is a reference to ways in which the ambulance service is abused by a significant number of callers who do not, in clinical terms, require an

emergency response. This abuse has continued despite the introduction of initiatives such as NHS Direct, which provides an alternative route for non-emergency callers. Members of staff who focus on abuse of the service suggest that in responding to inappropriate calls they are ‘doing the work of social services’ and therefore that the boundaries between the roles of the LAS and other public services are blurred, uncertain, or contradictory. Thus local language employed by members of the operational regime reflects more than a differentiated group of ‘red workers’ and ‘white workers’. Rather it suggests a community in which changes in socio-political and economic conditions have given rise to uncertainty about fundamental aspects of the nature of the service provided by the LAS.

The objective to turn the LAS ‘into a highly professional and cost effective pre-hospital care organisation’ may be said to reflect a desired alignment of interests, whereas the current network is one in which contradictions prevail. Competing tensions arising from the pervasive presence of ‘the ORCON disease’ (explained as responding to all patients with the same type of response) and the need to move to a prioritised system of responses according to patients’ clinical needs have given rise to further fragmentation of the operational regime. The process of moving from one regime of truth to another may be said to have started, but the manner of achieving this goal by disrupting everyday discourses is adding some contradictory and conflicting dimensions to the existing network of social relations.

### **How anxiety sustains the status quo**

In the negotiations that took place around the PDS project, three issues are compelling. First, CAC operational managers accepted a very situated approach to IS implementation more readily than the IT staff who had, in effect, taught it to them. So user managers produced justifications to support the positions they adopted in meetings (in general, written ones, as the IT department had requested in the past), which aimed to make their requests understandable to IT developers. Yet IT managers presented much terser and, in general, oral arguments, and when the user group tried to understand, by questioning these arguments, the descriptions they received were the *in-order-to* elements of the work stripped of the *because-of* motives (Ciborra, 1999b) that

would have given them meaning. In this way, IT staff did not present analysis or design specifications for the PDS project to CAC, nor did they engage, as with CTAK, in a prototyping approach to seek views on how the interface might operate. Yet CAC managers documented in detail the issues they perceived with the integration of CTAK and PDS.

In the PDS implementation, the project manager and a user manager prepared a business case and a project initiation document, but the detailed working of the interface between CTAK and PDS was documented within the program code as it was written. In presenting neither a paper image nor a development prototype to CAC, IT staff enacted the assumption that integrating CTAK and PDS was a technical exercise, which proved ill-founded when user acceptance testing commenced. Second, then, the IT director's view that the 'users don't exercise any form of choice in this' could not be sustained in the later stages of the project, and so attempts to make a boundary between what is technical and what is operational proved inappropriate:

[Desmond and Graham] used to come and talk to us a lot, but this week's events show how out of date their knowledge [of user working practices] has become (manager, CAC)

It's easier to say what you want when you have something to look at, rather than just trying to imagine it. When you can see it, you can say "I don't like that, but it would be better if we could have it this way" (user group member).

Third, 'all roads lead to Desmond' (Brian), and 'everyone knows it's a problem, but no one does anything about it' (IT project manager). In other words, the limited IT resource available for the PDS implementation was both a constraint on that effort and an outcome of previous efforts. Moreover, it was a constraint that user managers appeared to accept, and Desmond and Graham reinforced in action. Desmond is *the* IT resource dedicated to supporting the CTAK system. He developed it, he and Graham worked with users within the Golden Circle approach, and he was the *de facto* choice to integrate CTAK with PDS. When Desmond is on leave, Graham – in addition to his work as IT director, director for the LAS fleet and estate, and trust board secretary – supports the CTAK system, telephoning Desmond as necessary to discuss issues

arising. Occasionally, Desmond engages the help of another IT developer, but then only to make a minor change to CTAK under his guidance, and once the change is made permission to access CTAK is withdrawn from the other developer (member, IT project support). Moreover, as the LAS goes forward to develop AVLS, mobile data and any related systems, Desmond again will undertake this work. Indeed, Desmond was the IT developer involved in the printers on stations (POS) project discussed later in this chapter.

Operational managers, however frustrated they become during negotiations with IT staff, accept the way of arguing and acting about IS development that Graham and Desmond have established – a way that is situated for both groups, but where the degree of transparency available to users was reduced during the PDS project. Many argue that IT should have no budget, that the budget should be held by the operations directorate, and that operational managers should decide how and to whom resources for IS implementation should be allocated. Yet few moves have been made to adopt this approach so far. Although CAC managers played a key role in the decision to acquire a packaged application for priority dispatch and hence to enlist an external supplier in addition to Desmond, this was not a move in which their allegiance to Desmond and Graham started to founder. Rather, it was one that all acknowledged was necessary because a proposal to write bespoke software in-house for priority dispatch would have been unlikely to meet the most fundamental criteria of feasibility. In effect, it would be like trying to make a business case for writing a bespoke system for word processing rather than purchasing a package from one of the office products suppliers.

Again, anxiety about IS implementation infuses the discursive practices in which it is enacted. Operational members of staff accept that Desmond and Graham have accomplished with technology what others who came to the LAS could not. Memories of 1992 still loom large in the minds of many at the LAS, and they surfaced again during the PDS project. Throughout 2000, operational managers suggested to me that the LAS needs to acquire a packaged CAD system, as other ambulance services have done, and as the Select Committee urged the LAS to do in 1995. Yet, more than 7 years on, the LAS continues to pursue an incremental and bespoke approach to developing the

outstanding elements of a CAD system – a way of arguing and acting about information technology established by Graham and Desmond.

## **THE PRINTERS ON STATIONS (POS) PROJECT**

### **The problematization**

The printers on stations (POS) project was first raised during April 2000 and like the other projects I have discussed it was framed by a performance improvement discourse. At a preliminary meeting of IT and operational managers, Graham presented a proposal in which he argued that a saving of more than one minute could be made on response times to emergency calls if printers were installed on ambulance stations to receive dispatch instructions from the LAS control room. The time saving would be made because it would no longer be necessary for dispatchers to read call details over the telephone to a member of the responding crew, who would write them down and then read them back to check accuracy. In some cases this procedure took more than two minutes, if road names or patient names were unusual and had to be spelt, or if other circumstances relating to the call, for example how to gain access, needed further explanation. Such a saving, then, had the potential to bring many more LAS responses within the 8 and 14-minute ambulance performance targets, particularly since statistics suggested that over 80% of emergency responses were made by station-based crews rather than crews on the road returning from another incident. Nevertheless, mindful of the need for the control room to be sure that a crew was on its way to an emergency scene, crews receiving printed dispatch instructions had to wait on station until the control room phoned to confirm receipt. In this confirmation “handshake” with the control room, only the reference or CAD number of the call, the initials of the conversation participants, and the time would be exchanged.

At the preliminary meeting, one of the operational managers said:

I have a lot of concerns about this, all related to staff ... We have had trouble with this in the past and unfortunately we still have the same [trades' union] convenors in place ... We still have a lot of people who remember 1992.

There was a consensus at the meeting that saving time on responses was very desirable, but that vehicle crews would be sceptical of a move to introduce information technology in any form into their working practices. Anticipating their responses, Graham said:

They will say “well, this is what you are telling *us*, but what is going on behind the scenes”.

The POS project would be the first test of vehicle crew responses to information technology since 1992 – the first steps outside the Golden Circle – and there was anxiety among managers from day one about whether crews would accept this move and what the outcomes might be.

### **Interessement and the actors needed to accomplish it**

Graham’s proposal involved conducting a trial over three months on five of the 70 ambulance stations, evaluating results during and after the trial period, and then making a decision on whether to retain and extend this way of working by installing printers on all stations. The proposed stations for the trial were clustered in the West sector – an area where resolving industrial relations issues in the past had proved less problematic than in some other areas – and to make the development sizeable enough to claim the attention of a particular group of managers and staff. In this way, it was an attempt to build social relations among a discrete group of staff, not unlike the Golden Circle approach adopted for the CTAK project, although the Circle for the POS project now included vehicle crews. Moreover, it was an attempt to isolate a particular group of staff so that issues arising could be contained.

A strategic group, a working group, and an implementation group were set up for the project. The identity of the strategic group was conceived as one in which they would sanction the membership of the other two groups and determine the principles of the project, the operational priorities to be addressed, and the means of evaluating outcomes (terms of reference, POS project). The working group would undertake the consultation process with staff; agree the print design; develop new working procedures, a training plan, and a staff feedback mechanism; and evaluate outcomes from the trial. The



implementation group would conduct the training and oversee the implementation of the system at local sites. Trades' union representatives or their convenor were members of each group. Desmond would make the necessary changes to the CTAK system and act as the IT development representative on the groups, while a member of the project support office would undertake a project management role. Operational managers and trainers, both from CAC and crew operations, sat on groups according to their role in the project as strategic, tactical, or implementation-oriented, and help was enlisted from other LAS departments, in particular the management information section and the press and public affairs office. The former would be involved in establishing what difference the new method of working was having on service response times, the latter would help to develop and implement a communications strategy for publicising the project internally and externally.

### **The process of enrolment**

Members of the above groups engaged in a range of activities to enrol support for the project. Consultation meetings were held with station representatives to establish staff reactions to the proposal and identify areas of risk. The trades' unions agreed to support the project on a trial basis. Local managers and trades' union representatives briefed other staff, and a mechanism was instituted whereby participants in the trial could provide feedback in a log book or in a comments box on the printed tickets. Laminated posters, guidelines, and pocket guides were prepared and distributed to all participating stations and relevant staff within CAC. Staff bulletins publicised the project, and an article was prepared for the in-house magazine. A senior operational manager undertook a detailed risk analysis. Among the issues arising was how to deal with situations where printed tickets were sent to a station and there was no crew there to receive them. This situation could arise at shift changeover because crews arriving early for their shift will sometimes "jump up" to take a call for a crew going off duty, allowing the latter to get away promptly. So, when control room staff try to mobilise the early arrivers at the start of their shift they find they are not on station. Other issues arising concerned how to deal with "out of paper" or "toner low" situations, printer jams or other malfunctions,

sabotage, no dispatcher available to make the confirmation “handshake”, errors during data transmission, and data protection issues.

In the approaches identified to deal with these situations, no assumption was made that crews would try to remedy perceived problems with the technology, and they were asked not to do this if it would delay their response to a call. So crews were instructed to revert to the established dispatch procedure when problems with the printers arose, while local managers would address the issues arising, calling in technical support as required. Nevertheless, part of the familiarisation programme for vehicle crews involved a presentation on how to deal with printer problems, while the familiarisation programme for control room staff involved demonstrating how to invoke and use the new procedure for sending dispatch instructions to ambulance stations.

The detailed scenarios worked through by project group members can be illustrated by reference to a working group meeting at which participants discussed what colour paper should be used in the printers and how changes to call details should be highlighted after printed instructions had been sent to a station. Members of the group were concerned that call details would go astray if they were not printed on coloured paper, but they also wanted a colour that could not be confused with colours adopted for other forms used within the service. They also considered what would happen if the coloured paper was used for other purposes, and an instruction was prepared advising staff of the specific role of the plain blue paper selected. The discussions about how to highlight changes to call details focused on whether these should be italicised or underlined in red on the amended ticket used by the dispatcher to advise the crew. These changes can occur after the printed instructions have been sent to a station, because often the caller is still on the line giving further information while the crew is being mobilised. If further critical information is revealed while the crew is on its way to the scene, the resource allocator will underline the changes in red and advise the radio operator to contact the crew and brief them of the changes. At this meeting, an italicised style was chosen to flag the changes to the allocator, who would then underline the critical ones that the radio dispatcher needed to transmit.

At the second meeting of the strategic group on 4 July, participants were advised that the trades' union convenor had resigned and might no longer be involved in the project. Industrial relations issues had been gathering force in the background. Although they were concerned with staff-management relations in a broad sense and specifically with requests from staff representatives for more trades' union convenors – who had decreased in number over the years while staff numbers had increased – nevertheless they touched on the POS project. This is the backcloth against which the process of managing risk at the LAS may be understood. Groups involved in specific projects try to guard against the possibility that they have left a loophole in procedures, in training, or in the system design that will allow information technology to be mobilised in an industrial relations dispute about wider issues.

### **Mobilising for implementation**

By mid-August, with just a few days to go before implementation of POS on the 21<sup>st</sup>, some vehicle crews on the West sector were in an angry mood and members of the project team were concerned about what might happen when the printers went live:

I've been told by three people on three different stations that they are not going to use them [the printers] until they get a convenor (operational member, working group)

There's someone down at [ambulance station] who's intent on stirring things up because of [the convenor's] resignation. They're saying if [the convenor] doesn't get support from management, then they're not going to support this ... We're going to have an officer on every station on Monday morning ... It's not the printers that's the issue, it's all the undercurrents' (operational manager, strategic group).

The project was implemented on August 21, 2000 as planned. Officers were present on each station to oversee the implementation while the first few calls were taken. There were some instances where crews refused to use the printers, and officers addressed the industrial relations issues involved as these instances arose. When the officers left to attend to their other duties, there were a few incidents:

It started off well, then there were a few glitches ... there were a few occasions of them turning the printers off ... There were a few occasions where the call did not print out ... if they'd pressed the reset button, then it wasn't set up correctly. ... They said until they'd heard from [the convenor] that everything was OK, then they weren't going to support it' (operational member, POS project board).

This implementation, then, revealed a small number of vehicle crew staff adopting similar tactics to those employed during the LASCAD implementation, but on a significantly lesser scale than experienced in 1992 and without the disastrous outcomes that occurred at that time. In separate, concurrent negotiations between trades' union representatives and managers, the convenor was reinstated and then staff began to focus on the differences the printers made to their working practices and the responses they provided.

### **The discourses arising during the trial**

In the discourses arising among vehicle crew staff, two issues predominated. The first had a theme of crew safety, the second a theme of patient care. In the first case, crews were concerned when they received incomplete call details, as occurs when the caller is still on the line at the time they are mobilised. The printed instructions might then give them no more than an address to go to, and so, for example, details of a patient's chief complaint would be missing. So some crews would sit in their cabs at an emergency scene until the diagnosis was transmitted by radio from the control room, lest the patient had, for example, been a victim of assault and the assailant was still on scene. In these situations, the address of the incident and crews' past experiences in attending calls at such addresses would come into play in the responses they made. Moreover, the amount of traffic "on the air" at the time would influence how long it took to advise the diagnosis, and hence the response time achieved to such calls.

In the second case, some crews felt that the telephone "handshake" with the control room delayed responses to patients. They wanted to pick up the printed instructions and get on their way immediately, "booking mobile" from their cabs. Such a move would add to radio traffic on bands that were often very congested as it was, and mobile

telephones were not part of the equipment issued to vehicle crews. Moreover, control room staff and managers were concerned that resource management might break down in these circumstances since they would not know which crew, if any, was responding to a call until they got a message from them. Memories of what happened in 1992 when voice communications were phased out are relevant in this discourse.

Within CAC, control room staff and managers welcomed the move to sending dispatch instructions via a printer. It was faster for sector staff, it avoided having to spell out unusual names, the printed instructions contained all known information at the time they were sent, and further details were transmitted by radio once they were known. Moreover, such a move meant that dispatchers could avoid conversations with some crews who would try to negotiate their availability for work, for example, by suggesting that they could not be the nearest resource to an emergency scene.

### **The end of trial discourses**

At the end of the trial in November 2000, statistics available from the management information section revealed that, over the 3 months' trial period, overall performance achieved by all West sector stations was much the same, regardless of whether or not they were involved in the trial. In other words, even though the five stations involved in the trial had responded to calls faster when crews were dispatched by printer, the response times they achieved when dispatched to one call while returning from another one, in which instructions were transmitted by radio, had got longer. Indeed, the response times the five stations achieved on radio dispatches were now much worse than on all other West sector stations and worse than they had been on the trial stations before the trial began. The management information officer could offer no explanation for these outcomes, although he suggested that they be investigated. Operational managers decided that they had some further work to do on staff communications before they attempted to install printers on the remaining 65 stations.

In the event, a discourse concerning the performance improvements that could accrue from a POS approach was established following the results of the trial. In this discourse, paying more attention to staff concerns was emphasised and a number of suggestions

were made about how implementation teams might be set up to achieve more staff involvement. Recommendations were also made about the urgency of advising crews of diagnoses, including using a separate radio channel, and about the need to reconsider dispensing with a telephone “handshake” in the longer term. So, a decision was made to install printers on all ambulance stations during the first few months of 2001.

At the end of March 2001, the LAS met one of its response time targets for the first time – its interim target of responding to 55% of category A calls within 8 minutes – but its performance against the 14-minute standard dropped further. What installing printers on stations may have contributed to the 8-minute achievement, and how other concurrent developments may have affected performance is not in my view something that can be factored out. Nevertheless, the outcome needs stating, and other developments need to be mentioned. These developments included the PDS implementation, discussed earlier, the introduction of team leaders for vehicle crews in a move which aimed to improve communications within the service, and implementation of a fast response desk in the LAS control room. In the last of these developments, rather than individual allocators managing fast responders and ambulances within their sector, fast response units from two adjacent sectors with known “hotspots” for category A calls have been combined, and these allocations are now managed from a separate desk in the control room. In this way, the new desk manages aims to make more efficient use of fast responders.

## **POSTSCRIPT**

Implementations of team leaders and the fast response desk were underway when I completed my detailed fieldwork early in 2001. Since then, the first steps towards introducing an AVLS have been taken. A computerised mapping system now makes it possible for allocators to track the position of vehicles, but as yet they have no automated support for linking these vehicles to the calls they are attending, so that resource management is still carried out via the allocators’ activation trays. Plans to automate the link between the call taking and mapping systems and to introduce mobile data terminals on all vehicles were priorities for 2002, but by summer 2002 it became clear that this goal would not be achieved (manager, CAC). At that time, mobile data terminals had been introduced in the fast response cars, but not yet on bikes or in

ambulances. Since AVLS and mobile data were originally seen as key to achieving full compliance with the new performance standards by December 2002 (ibid.), discussions were in progress about how the LAS would now attempt to meet the targets. So, incremental moves continue to be made at the LAS in the drive to improve its performance. Adopting the Churchillian rhetoric used by the chairman in his 2000/01 annual statement:

This is not the end. This is not even the beginning of the end. But it is, perhaps, the end of the beginning.

## **CHAPTER 8 Discussion**

The last three chapters examined the history of IS-related cultural change efforts at the LAS. In this chapter, I reflect on what we learn from the case about the issues raised by the research question. That question was:

How is IS implementation accomplished when cultural change of an organisation is attempted, and what does this accomplishment mean for those who are touched by it?

The attempts at cultural change were efforts to disrupt the constituting discourses for a community so that the basis of truth is altered, as in Foucault's (1977) history of how we moved from corporal punishment for criminals to a prison system. Implicit in the Foucauldian perspective adopted for this research is the view that the outcomes of a change effort are unpredictable and may be unintentional, since a prison system was by no means the aim of penal reform two centuries ago. In the discussions that follow I introduce further concepts or unpack existing ones to reflect on the achievements of this research. First, though, I comment on how theory and fieldwork informed each other.

### **ON A THEORY-FIELDWORK INTERACTION**

A discourse of modernising the NHS has been circulating in various forms for more than 20 years, and as with modernisation discourses to which many institutions subscribe, it addresses efficiency of operations, quality of service, and the benefits for staff and consumers of adopting advanced technologies. A regimes of truth concept focuses on how in such a discourse techniques of bio-power and disciplinary power become fused together giving rise over time to shifts in organising regimes from control-centred to self-disciplinary. This concept incorporates a way of examining how we argue and act and a mechanism for linking between the different levels at which a discourse is conceived and enacted. So, using this concept, the way that government finances, regulates, and monitors the performance of the NHS may be given an increasingly localised focus in terms of specific change efforts within the ambulance services in which the discourse of modernisation is being enacted. Closing the circle, the disciplinary mechanisms employed to categorise particular groups within this



discourse are implemented in the name of patient care and therefore these local efforts may be understood as accomplishments in which a particular service discharges its responsibility to foster the health of the nation.

### **On theory guiding fieldwork**

A regimes of truth concept was the theory with which I started. In this view, bio-power circulates in the arrangement in which government through the various arms of the NHS addresses the health needs of the population. The funding bodies, the patients' charters, various performance standards, and other regulatory methods constitute grids of intelligibility, or *dispositifs*, which aim to address patient care by matching resources to demand in systems of categorisation, measurement, and normalisation. The specific aim to reduce premature deaths from coronary heart disease is an example of particular importance in the ambulance services sector. This goal involves a regulatory mechanism with four main aspects. Calls to the ambulance services are categorised based on clinical need, targets are set for emergency response times to each category of call, the performance of the services against target is continually measured, and funding for subsequent periods of operation is based on an evaluation of previous performance. The norms of performance for ambulance services, effective since March 2001, are enshrined in the new ambulance performance standards, and the implementation of information systems was seen as 'essential to the proposed changes' (Chapman, 1996).

Disciplinary power operates at the level of individuals and groups. Implementation of the PDS system at the LAS involved the introduction of a disciplinary mechanism within working practices designed to optimise staff members' individual performances with the aim of improving the overall performance of the service. It aimed to standardise the process of call taking so that the priority assigned to each call is a function of the call taker's compliance with the discipline rather than a function of his or her individual judgement of the clinical priorities. Furthermore, by limiting the dialogue with the caller to a predetermined exchange of questions, answers and instructions, it aimed to provide a response to patients in the fastest time possible according to their needs.

Moreover, call takers are monitored by a call taking superintendent and a quality assurance unit. The superintendent has access to full details for each call in the system and to management information about the set-up and functioning of the call taking operation. This information includes summary details of each call in progress, including the duration, so that the superintendent is alerted to potential problems as they arise. The quality assurance unit evaluates about 1% of the 60,000 emergency calls received by the LAS each month. Members of the unit can listen in unobserved to calls as they are taking place, or after the event by playing back tapes of the calls received. Call takers receive an evaluation record and compliance rating which feeds into their periodic assessments for upgrade. Compliance reports summarising the ratings for each call taker and for each team (or watch) are circulated to managers. The ratings by watch are published on the staff noticeboard. Thus call takers are subjected to a disciplining mechanism and subjectified by it in the sense that, by reflecting on their evaluations and addressing the issues raised, they participate in their own monitoring.

The wall displays in the control room are a further disciplinary mechanism. Call takers respond to these displays in various ways, but they all watch them. Indeed, watching them is not only compulsive, but, owing to their positioning, almost unavoidable. At peak times the pressures they exert on staff are usually accompanied by a drop in compliance ratings, as call takers attempt to answer calls more quickly and in so doing skip over certain aspects of the call taking protocols.

### **On fieldwork informing theory**

The above observations indicated at the start of my fieldwork that I had chosen a useful theoretical abstraction, but that is all it is – a theory and an abstraction. To become more useful, it needs some life breathed into it and a way of remembering the experience. The LAS gave it life, in the remainder of this thesis I try to remember the experience to make it more useful. For now, I include an account of lived experience that gives an indication of how my field data “tested” the limits of the cognitive argument I have just presented, suggesting that it failed to capture emotion in the organisation.

The LAS can be an intensive and stressful environment in which to work, but it has another aspect, which is engaging for those who work in it – they feel they have the capacity to make a difference. Earlier, I presented an account of the way that PDS was implemented. Five and a half weeks later, that system would have its most strenuous test, during the busiest shift of the year – the night shift on New Years’ Eve/Day – which I observed as we entered 2001. On New Years’ Eve, the LAS brings its fallback control room at Bow into operation to share the workload with the main control room at Waterloo. I was told beforehand that at about 10 minutes past midnight the screens will go red as calls flood in and then, best efforts notwithstanding, there would be at least a two hours’ wait for an ambulance. They did and there was. I observed the build-up from about 9.30pm on New Years’ Eve, through the shift changeovers at 11pm that night and at 7am on New Years’ Day, but for all the tension and stress as staff waited to see what would happen this year, there are other things I remember.

A sweepstake was in operation, which added an extra dimension to the interest in the wall displays in the control room. Staff had placed bets on how long after midnight it would be before they had taken 1,000 calls. By watching the queue of calls waiting, members of staff were able to gauge their chances of winning the ‘pot’. In the event, the 1000<sup>th</sup> call was answered at 2.16am – only moderately busy by New Years’ Eve standards, although for most of that time there were about 50 calls waiting in the system to be connected. This interest in their call volume was a pervasive phenomenon that night. Staff arriving for the morning shift came into the mess room or the smoking room between 6.30am and 7am and asked “what was the CAD at midnight?” meaning “how many calls did we take yesterday?” Part of how they construct their identities is as members of one of the largest ambulance services in the world and certainly one that deals with far more calls than any other ambulance service in England. This construction of who they are may be rooted in the old regime of speedy response to address a high call volume rather than the new order of priority dispatch, but identity in terms of size and number of responses made is a distinguishing trait in which they take pride.

At about 5am I had gone over to Bow with one of the QAAs to bring back any members of staff who found it more convenient to go home from Waterloo. People were very

pleased with how operations had gone that night. The crews, they were saying, were in exceptionally good humour, they had been flooded with calls around Edgware and Hendon, and on the telephone advice lines, but they are always flooded somewhere on New Years' Eve. On the way back, one of the call takers was asked to sing. As we drove through the deserted streets of the East End, which a few hours earlier had been so busy, she sang *Lean on Me*. When she had finished, everyone clapped. It had been a good night, and that song said something about why they do the job and the difference they try to make.

## **ON HOW IS IMPLEMENTATION IS ACCOMPLISHED**

Increasingly during the analysis of this case, I introduced improvisation as a way of conceptualising how key players argued and acted, and anxiety as an emotional medium in which these discourses took place. In general, a Foucauldian framework is not the model of choice for researchers examining intuitive working practices or emotion (see Wasserman et al, 2000 for an exception), except perhaps to indicate how such responses constitute a resistance to disciplinary power (Knights and McCabe, 1998). This case suggests that power is not essentially repressive (Foucault, 1980a) and hence that prevailing views of discipline and improvisation are too polarised about which is desirable and which is not. Moreover, the medium in which both practices take place is not purely cognitive.

### **Negotiating a balance between discipline and improvisation in IS implementation**

Others have argued that staff shunned participation in the LASCAD project in an attempt to protect their tacit knowledge, and thereby thwart management attempts to inscribe that knowledge within the LASCAD system to create a universal, disciplinary gaze on them (see Introna, 1997). I argue that the LAS operational staff was not, and still is not, a homogeneous group. Control room staff, based at headquarters, have always been more readily and more frequently “gazed upon” by managers than their colleagues on the road. Moreover, a combination of discipline and improvisation is evident in their working practices. Indeed, prior to the LASCAD implementation, the

militaristic command and control regime was thought to provide a very strong discipline, yet the nature of emergency work on the front line is such that improvisation is common (Weick, 1998).

So, I suggest that the many changes made to the LASCAD system ‘on the fly’ (Page et al, 1993) were an uncoordinated attempt by control room staff during testing to modify the system so that it provided some support for their improvised practices rather than trying to replace them completely. Nevertheless, it did so through the use of multiple windows with a variety of navigation paths between them, and by offering a more diverse set of options to individuals than they had used, or in some cases even been aware of, before. Moreover, the voice communications in which members of staff routinely dealt with exception conditions and changing circumstances were replaced by electronic data transfer.

While such ways of working are now commonplace, in 1992 they were not, particularly at the LAS. Staff and designers tried, albeit at a late stage in the project, to address the need to support discipline and improvisation, and created an information system that poorly mimicked the way that work was accomplished in the LAS environment. Negotiating a balance between when to discipline and when to allow scope for intuition and how that support should look and feel was ineffectively achieved. So the form of the system that emerged was too alien, when compared with established methods of working at the time, and too demanding to use in the time-pressured environment of an ambulance control room (Weick, 1998). In endeavouring to reconstitute the basis of truth for the LAS, the LASCAD system became a repository for data that had no truth at all. So staff reverted to older ideas and away from an innovation that might have brought considerable benefits in other circumstances. Moreover, if we accept that there are degrees of both discipline and improvisation, and that working practices combine some measure of each, then each of the projects I have examined was an attempt to negotiate this balance.

During the CTAK project, the Golden Circle approach provided a way for staff to design a system that supported their working practices in a way that seemed more natural to them, and more workable in their environment. Screen designs adopted a non-

graphical, form-filling approach, which very closely matched the previous paper-based method. Nevertheless, some tracking mechanisms were inscribed in the technology, which prompted allocators and dispatchers to deal with calls quickly, and identified for the call taking superintendent when a long call was in progress. The aim was to speed up call taking activity so that resources could be dispatched more rapidly to improve performance against ORCON standards. Still, the system felt like ‘something that ... helped us do what we did in the same way that we had always done it’ (user manager view). So, even though automated support was introduced, doing work seemed substantially the same despite some structuring of a discrete area. This project, then, suggests that the disciplining that occurred when the CTAK system was introduced was not seen as repressive, but as a way of responding to the response time pressures under which staff work, without cleansing (Ciborra, 1999b) their practices of those intuitive responses they considered necessary.

Ten years on from the LASCAD implementation, the growth in home computing, Internet usage, and Windows based applications are significant changes in society that suggest why the look and feel of a sophisticated, multiple windows application such as PDS would be less alien to LAS staff than in 1992. Now, though, there are tensions involved in making a considered assessment of patient need while continuing to respond rapidly. Indeed, the working environment is much more intensive than it was in 1992, since rising call volumes and increasingly demanding performance targets for UK ambulance services mean that the time available to respond continues to decrease.

PDS is a packaged application, which required a greater degree of compromise about how members of staff carry out their work than was necessary when CTAK was developed as a bespoke system. The PDS protocols provide a disciplinary structure within which to make a patient assessment, and they indicate to each call taker how long it is taking, but they also attempt to pre-generate as many details as possible to keep the time taken to a minimum. So pressures to perform are one reason why the discipline came to be accepted. Another is the peer group pressure within the control room for the LAS to upgrade its information systems so that at least a part of its call taking system is a Windows based application. How control room staff think of themselves, and how they wish to be perceived by other services – who have their

Windows based CAD systems on display at the Ambex conference every year – was significant in gaining acceptance for PDS. Moreover, it shows how the forms of an information system that a particular group will accept vary over time.

During the POS project, some first steps were taken to introduce technology into the working practices of vehicle crews. The printed dispatch instructions and confirmatory telephone “handshake” crews now have with the control room may be seen as moves that reduce their capacity to negotiate about mobilisation. Control room staff and managers argue about the merits of such a discipline because faster responses can be achieved and time is not spent assuring some crews that they are the nearest resource to a scene. Many crews accept these arguments. Moreover, some crews suggest dispensing with the telephone “handshake” and notifying the control room via radios in their cabs that they are on their way to a scene. Such a move might not only improve their on scene response times, but also give them a few more minutes to provide treatment on arrival, particularly for life-threatened patients to whom such minutes are crucial. However, until a crew booked mobile, control room staff would not know if anybody were responding to the call. At this stage, an assumption that all crews will discipline themselves to respond to the paper instructions is perceived by managers as too great a risk.

### **Moving within a mood of anxiety during IS implementation and use**

Anxiety is a response to a perceived danger or threat (Harlos and Pinder, 2000). In this way, anxiety can come into play in IS implementation and use if organising around the new system is perceived to be in some way threatening. Weick (1993b) discusses structuring for resilience in the face of danger or threat. In his account of the Mann Gulch disaster, he suggests that the process of structuring (the way frameworks and meanings constitute one another) was very unstable so that people were unable to negotiate strangeness with the result that their anxiety turned to panic. A loss of organisation reduced their capacity to act, so that structures and actions destroyed rather than constituted one another.

Arguing that the most resilient way of structuring may be one that is simultaneously constitutive and destructive, Weick offers two scenarios, which deal with a loss of organisation and a decline in meaning. First, when an existing structure is threatened, individuals try to work out what the new world means for them, which may lead them to rebuild their social ties in line with new meanings. Alternatively, when people are puzzled about what they are trying to do so that meanings are unclear, they focus on clarifying social relations, and as these become clearer the world is less puzzling to them and their capacity to act tends to increase. In each case, an existing way of structuring is being destroyed but a new one is being built. In a Foucauldian perspective, Weick's references to ways of structuring may be understood as ways of conceptualising emerging regimes of truth at the LAS during different IS implementation efforts. The forms of structuring he identifies were evident either individually or in combination in the projects I examined.

An unstable form of structuring was evident during the LASCAD implementation. Although allocators' tools – their activation boxes – had been taken away, they had not dropped them (Weick, 1996) either cognitively or emotionally, and so they were unable to mobilise the LASCAD system to enact a form of structuring that was simultaneously constitutive and destructive. Moreover, when the system went live, the area-based teams were broken up and the control room layout was rearranged (Page et al, 1993), so staff had no obvious fallback position when working together in the new environment of automation started to break down. In this scenario, rather than actions creating structures (or frameworks or knowledges), which shaped further actions in which an idea was converted into reality, both the capacity to act and the system that was needed to shape that action collapsed together. A loss of identity, which could not be rebuilt by falling back on manual arrangements, set panic free in the control room, with the result that an idea was converted into something monstrous. Since fear has an especially long half-life (Harlos and Pinder, 2000), anxiety surfaced again as actors approached the CTAK, PDS and POS implementations. However, in these later efforts, they moved within their mood by adopting more resilient forms of structuring.

During the CTAK project, stable social ties were established between control room staff and IT developers within the Golden Circle. Unlike LASCAD, the CTAK development made no attempt to automate the process of resource management, and in this way



reaffirmed the task orientations of both resource allocators and vehicle crews. In attending to their structure – to who needed to be involved in the CTAK project and who did not, and to what participants' contributions might be – control room staff clarified social relations. This move helped them to negotiate the strangeness of IS development resulting from their limited involvement in the LASCAD project. Notwithstanding some intense negotiations among members, they developed a stable regime of truth within the Golden Circle in which what it meant to use information technology to respond more quickly to emergency calls gradually became clearer and their anxiety about it reduced. Although the CTAK development preserved much of the existing regime of truth within the control room, the accepted meanings, or basis of truth, within the LAS was renegotiated to the extent that some standardisation and monitoring of call taking activity through automation was introduced. Moreover, when problems with the CTAK system occur during live running, falling back to the previous regime with its manual mechanisms and techniques is straightforward. Some anxiety may be experienced as calls take longer to answer, but the identities that shape action remain intact, and so panic is avoided.

During the PDS project, the information system came already inscribed with meanings, in the form of clinical determinants associated with medical conditions and embedded within a packaged application. A gradual transition to the new form of automated support eased anxiety about its introduction. These moves included the use of a card-based version of the system at first, the meetings in which the meanings of clinical determinants and how they should be assigned to priority categories were worked out, and ultimately user acceptance testing of the new system. Anxiety heightened at various times during the project, but a discourse of managing risk was a way of moving within this mood, in which actors worked through the new meanings so that the social ties needed to support them could be developed and a new regime of truth established.

In the POS implementation, staff brought to bear on the project all they had learned from past projects. They examined risk scenarios, identified what it would mean to operations if these events occurred, and then worked out ways to address them. They aimed to build on the West sector the sort of social ties among staff and information technology that had been accomplished within the Golden Circle during the CTAK

project. Finally, by having managers present on each station on the day that POS was implemented, the discipline was enforced. Again, many of the discourses constituting a regime of truth for vehicle crews were preserved, but some standardisation has now been introduced into the mobilisation process.

An examination of the POS project seems to reveal most about the mood of the LAS during IS implementation. Then, it becomes more possible to see why control room and IT staff acted as they did on other projects. Vehicle crews have the conflicting objectives of doing a dangerous job and providing patient care, and they are less well equipped to deal with this conflict than other public servants that face danger in a public custody role, such as the police force. In this way, if they feel threatened, say, because they believe control room staff have not provided enough information about an incident, they will retaliate, and information technology is a tool they will mobilise to do so. So, when members of IS project groups at the LAS talk about managing risk, this discourse is a way of talking about fear – fear that a small and militant group of vehicle crew staff will undermine these efforts as a way of arguing about working conditions, about who they are, and about how they should be treated.

Staff involved in IS implementation efforts at the LAS remember that in 1992 when vehicle crew responses came into play there seemed to be no way out from the disaster that followed. This is why 596 phrases were examined during the PDS implementation to determine their crew safety and critical clinical implications, why the Golden Circle avoided changing working practices for crews, and why call takers go to great lengths to record everything callers tell them just in case it is important. In this way, I have seen call takers type NFDA (no further details available) 2 or even 3 times into a single call record to indicate to sector staff, and ultimately to vehicle crews, that they have no more information; that this is absolutely all they got from the caller. So, vital context for understanding the mood of LAS staff and the way they act within it is how they construct the identity of vehicle crews and their capacity to act.

## **The constraints on IS implementation**

Support for IS implementation at the LAS is gaining momentum, but there exists a network of constraining forces on this process, which cross-cuts the organisation so that its use of information technology is lagging global, national, and even sectoral norms to a considerable degree. The discourses about IS implementation at the LAS have not established for all the value of using information technology in their work. So the translations are not compatible and integrated (they lack convergence), and even where there is some convergence, as in the Golden Circle, they seem to have limited potential to withstand challenge and shape further action (they are reversible). The main points of resistance to convergence and irreversibility in the network of interests around IS implementation, and hence to the institutionalisation of information technology within a regime of truth accepted by all at the LAS, arise from:

### ***The limited use of resources for IS implementation***

In effect, there is only one person to undertake development and support of critical applications at the LAS. Moreover, the service has limited experience with the process of employing external expertise for IS implementation, particularly since 1992. While external resources could help to smooth the peaks and troughs of workload, the LAS does not seem ready yet to employ such resources to work on critical applications, which suggests that a move in the short term to a packaged CAD system is unlikely. Anxiety that external resources could not achieve what internal ones have accomplished sustains and reinforces this position.

### ***The segmented enactments of professional practice***

The project support office (PSO), IT staff, and the user group enact discrete practices relating to IS implementation. Members of the PSO are knowledgeable about PRINCE, the IT developer for critical applications is knowledgeable about system software and communications technologies, and the user group is knowledgeable about operations. However, these areas interpenetrate during IS implementation, and communication among different groups at the LAS is sometimes hindered by rather strict divisions about what is administrative, what is technical, and what is operational. There is little

evidence of support for a role that might attempt to bridge the gaps among groups. In particular, the language of IT staff and the administrative (rather than managerial) status of project managers acts against knowledge sharing among groups.

### ***Institutional scrutiny***

Government bodies, the press, and ultimately the public, whose interests the others claim to represent, have a number of ways of evaluating the performance of the LAS, either directly on the streets and over the telephone, or indirectly through records of ambulance service performance published by the Department of Health. Institutional scrutiny – in its implementation and in its effects – is pervasive within discursive practices at the LAS. On the one hand, managers are under pressure to improve performance, on the other hand, they know the consequences of attempting this move using a method that is not accepted by the workforce. Institutions exert pressure for improved performance, yet they have criticised the LAS for being too assertive or too passive in its past efforts to achieve this goal. Operational managers argue that the social choices they are now making are not ones of managerial imperative control (Zuboff, 1988), which mobilise the panoptic forces of information technology, but ones that will enable them to provide a better service to patients while valuing their staff and attending to their safety. All at the LAS are subjects of scrutiny, but only some are subjectified. Information technology is mobilised by a small group of staff on the front line to argue about working conditions in a general sense and the role of the trades' union in LAS affairs, yet many see potential for information technology to assist with aspects of work.

The issues raised above show only a partial implementation of the practices that have led to the institutionalisation of information technology elsewhere (Avgerou, 2000). But it also shows the presence of an ambiguous element, one that has institutionalising aspects and yet which appears to act in this context as a significant constraining force – public scrutiny, and the correlative of that force, the power of a trades' union discourse. Managers still have a delicate balancing act to perform – not just in the extent to which they attempt to institute discipline within working practices, but also to find the point

between assertion and passivity that the institutions decided had eluded John Wilby and Martin Gorham.

The result has been an incremental implementation of information technology in which competing tensions continue to surface. On the one hand, there are concerns among operational staff that the pace of technological change is too slow, that the IT department sanctions the operational as well as the technical requirements and priorities addressed by ICTs, and hence that IT staff are not responding to the needs of the service. Nevertheless, many operational staff subscribe to the discourse that ‘we’re different, we’re special’, and in this way they reinforce an IT strategy that favours bespoke development, despite the additional effort required. At the LAS, many actors mobilise the significance of context in diverse ways so that negotiations about IS implementation can be highly contested and lengthy events. In these negotiations, a concern with sectoral and national contexts, and hence with the similarities among ambulance services, can be subsumed within a focus on local issues in which powerful minority groups can marginalise the majority.

### **On how IS implementation is accomplished – final remarks**

To summarise so far, I have argued that IS implementation is accomplished by negotiating a balance between when to discipline and when to support improvised working methods. The case suggests that neither practice is essentially repressive or liberating, but that as the time available for responses decreases the extent to which a disciplinary technology may be accepted increases. Following Foucault (1977), one can argue that this acceptance comes about because subjects find the new way of working in some way therapeutic, and that such therapy is needed because of institutional pressures to perform. Still, local memories also influence the extent to which a discipline is accepted (Foucault, 1980a). In this case, these memories heightened anxiety about what was being attempted, and in moving within this mood actors structured for resilience, which limited the extent to which information technology, disciplinary or otherwise, was introduced. So their ways of arguing and acting about IS implementation were cognitive-emotional ways, in which a thinking/feeling guided actors’ moves and cultural change was at most partially achieved.

Findings from this case may be interpreted as describing an interaction between forces giving momentum to and forces constraining IS implementation. An organisation's history is key to understanding this interaction – in this case, the national strike, the LASCAD project, and the subsequent public inquiries. Particular tensions in the interaction in this case arise about whether information technology should be used to provide technical control or support operational flexibility, about how making speedy responses can endanger crew safety, and about how patient care, and in particular responding by priority, is constrained by resource availability. The issues raised are important ones, but the outcome of negotiating them is unsatisfactory to most members of the LAS in that the service still seems to be gaining less benefits from adopting ICTs than other UK ambulance services.

At the time of finishing my fieldwork, there was a more hopeful mood at the LAS about what could now be accomplished with information technology. Perhaps, though, it is not until the outstanding elements of LASCAD – AVLS and mobile data – are implemented and accepted that the LAS will emerge from the shadow cast over it for so long. To accomplish this move, organisational innovation as well as ICT innovation is required to address those concerns that sustain divisions among staff. Thus far, information technology has largely been exploited in those areas of the LAS where it was felt that there would be sufficient peer group pressure to enrol support for it. Next, as I reflect on the organisational and social consequences of these efforts, I examine the conditions of possibility for extending that exploitation.

## **THE CONSEQUENCES OF MODERNISATION EFFORTS**

### **On how regimes of truth have formed and reformed**

The discourses of modernisation within the NHS may be seen as operating at a number of interacting levels. The institutionally framed view that the NHS, ambulance services, and the LAS in particular must improve their performances is deeply embedded and has been sustained and reinforced since 1989 when the internal market was first posited. Since that time too, developments in hardware, software, and communication technologies have seen ICTs become an ever more pervasive part of all our lives.

Unsurprisingly, then, the discourses of modernisation in the health sector have given an increasingly central role to information technology.

At an organisational level, efforts by the LAS to improve its performance have involved two interacting processes of organisational and technological developments since 1989. These developments may be seen as embodying the joint themes from the government's message about changing the culture of the NHS and taking advantage of the potential of information technology to improve organisational effectiveness. In these processes, the established command and control regime of the 1980s has started to splinter, and parts of the new operational form are now organised around information technology, while other parts are not. In the IS implementation efforts, various regimes of truth have prevailed at certain times. In a given time period, each such manifestation may be seen as involving an attempt to link a specific discourse about performance improvement with a particular deployment of information technology.

Understanding these episodes required a further level of analysis at organisational actor level, on how different interest groups were engaged or marginalised in attempts to make the organisational and technical dimensions of a particular change effort so closely interrelated as to mutually define one another. In this analysis, some divisions among LAS operational staff were evident after the strike of 1989/90. The LASCAD implementation fractured the tenuous truce achieved when the dispute ended. Moreover, a professional management regime began to emerge at the LAS at that time. The need to shift from a purely operational focus became an organisational imperative in the run-up to NHS trust status in 1996. The LAS aimed to develop a more business-like orientation when it became a trust, and efforts to achieve that goal were accompanied by an influx of non-uniformed staff into the support functions of the LAS, in particular, into finance, information technology, human resources, communications, and operational development. These members of staff, many of whom are senior managers and directors, have a distinctly different work orientation from the uniformed operational staff.

I described the framing discourses for these two groups at the start of the analysis, and then addressed how they joined forces at times, as key actors found ways to work

together by subscribing to specific discourses about the performance improvements that could be achieved by particular technological and organisational change initiatives. The different orientations of the two groups is a significant cultural divide within this community, one that is acknowledged by all of them in different ways, yet when they talk about the culture of the LAS invariably it is the operational staff culture to which they refer. In fact, a member of the uniformed group suggested to me that the non-uniformed staff is the ‘non-culture’ part of the organisation. Yet these divisions are simplistic, the boundaries are penetrable, and neither group is a homogeneous one.

Indeed, it is simplistic even to say that in addition to a uniformed and non-uniformed distinction, there are further divisions between CAC and vehicle crews, between different functional groups in the control room, between staff and managers, between newcomers and “old hands”, between “red” (emergency) workers and “white” (non-urgent) workers. Such an argument would suggest that the LAS is a relatively stable culture, differentiated along clearly identifiable lines, but the lines are not so clear because issues arising cut across them. So, when discourses relating to call prioritisation, how to use information technology, and the role of the trades’ unions in the work of the service, amongst others, are taken into account, the cultural patterns emerge as very fragmented. Notwithstanding all of this, attempts are being made at management level to identify unifying discourses, and the LAS Improvement Programme, mentioned earlier, is an initiative to enact them. So there are forces at work to create a more integrated community.

In summary, then, much of the original basis of truth for the command and control regime remains true today and it is still the dominant regime, but it is more fragmented and more permeable than it seemed to be in the past, which creates opportunities for cultural change. Thus far, the changes have involved a reorganisation of the work of discrete groups within strict boundaries. In particular, they preserve a resource management process in which call takers, sector teams (allocators and dispatchers), and vehicle crews hand off work to each other so that calls become “blackboxed” to them once the handover is made. In these moves, what has been addressed is what the government’s targets measure – the on scene arrival time of 8 or 14 minutes.



However, the call cycle time – from taking a call to a crew calling up “green” – is typically 50-80 minutes, excluding major incidents, such as a train crash. Innovation needs to be implemented throughout the call cycle to address how patients are treated at the scene and during conveyance to hospital, and what happens at the hospital during and after handover of patients. New equipment, new procedures, and new ways of organising seem to be called for, and they would need to be supported by changes within the control room. How the LAS attempts to do this through its Improvement Programme could be the subject of another doctoral thesis. At this stage, though, staff support for the programme suggests that there is an opportunity for the service to consider how organisational innovation and ICT innovation might start to transgress existing limits (Foucault, 1984a) rather than sustaining them.

### **On outcomes achieved by the LAS**

Following the collapse of the LASCAD system, IS projects at the LAS have addressed call taking activity as a central concern. Increasingly, these developments have formalised the structure of conversations with callers, so that now the clinical priority of a patient’s need is determined using rules inscribed within the computer system, and then resources can be dispatched based on the priority assigned to each call. These IS implementation efforts have contradictory outcomes for patients, for staff, and for the service as a whole.

First, call prioritisation aims to provide patients with vehicle responses targeted to their clinical needs, and as such a service improvement, but callers receive standardised, conversational responses from call takers, which can seem impersonal and dilatory, heightening patient anxiety. Moreover, while LAS response times against the 8-minute standard continue to improve, its 14-minute performance has declined in recent years. The emphasis in the new standards on providing the fastest responses to category A cases suggests that this target is focused upon at the expense of category B and C cases.

Second, in formalising the dialogues of call takers, while sector teams, and the vehicle crews they allocate and mobilise to emergency scenes, retain more discretion over their responses, information technology sustains and reinforces existing images of who does

the more important work in the service. Nevertheless, since call takers are now involved in assigning priorities to calls, information technology also disturbs the balance of power in the control room, so that sector teams may have to reallocate vehicles to calls, if a call taker signals that a higher priority call has been received. Moreover, call prioritisation systems provide an opportunity for call takers to exercise clinical judgement, since they have scope to override the priority determined by the system or to manipulate answers to questions to affect the priority allocated, albeit that in general they would breach working procedures in doing so.

Third, while focusing the deployment of information technology on call taking activity, the LAS has found it necessary to deploy additional people and vehicle resources in other areas of its operations in the drive to meet the new ambulance performance standards. Computer systems enable vital information to be obtained quickly from the caller, but the time to allocate and mobilise resources to incidents, which is included in the 8 and 14-minute cycles, has until recently largely been addressed by modifying manual modes of operation. On the one hand, these initiatives have resulted in a greater resource mix, of cars and bikes, as well as ambulances and a helicopter, being deployed in an effort to meet response times. On the other hand, managing a more varied resource mix increases the work involved in resource allocation and mobilisation, if only because when cars and bikes are deployed, an ambulance must be sent as well. Further work arises if vehicles have to be reallocated as higher priority calls come through. These resource-based initiatives can then, in the context of a requirement to prioritise responses according to patient need, increase the time it takes to respond to lower priority calls.

In this way, there is an inherent tension in the new ambulance performance standards between speed of response on the one hand and responding based on clinical need on the other. This tension becomes more difficult for the LAS to manage while opportunities to deploy information technology remain underexploited. Nevertheless, the tension in the new standards is one that affects all ambulance services. Indeed, I discussed in a previous chapter how Staffordshire Ambulance Service, whose performance was praised by the Health Minister (Ambex, 2000), deals with it by deferring a consideration of call priority. Moreover, as category A cases are focused

upon, a drop in the response times to category B and C cases is evident in the latest available annual performance figures for several ambulance services, as discussed next.

### **On outcomes achieved by other ambulance services**

I close this chapter, then, with some wider comment on the consequences of a modernisation discourse within the ambulance services. In this discussion, I focus on the trends evident in outcomes achieved by all English services against the government's targets and make some comment on how their performance is measured.

The following table summarises the latest available (Department of Health web site, 2002) yearly performance figures for ambulance services:

**Table 8.1. Summary of ambulance service performance figures 1999-2002**

	99/00	00/01	01/02
a. No of services operating to the new performance standards	20	31	32
b. No of (a) achieving the category A 8-minute standard	1	3	14
c. No of (a) achieving the Category B/C 14/19-minute standard	12	13	16
d. No of (a) where category A performance declined from the previous year	*	1	1
e. No of (d) where performance declined by more than 5 percentage points	*	0	0
f. No of (d) where category A performance declined in 2 successive years	*	*	0
g. No of (a) where category B/C performance declined from previous year	*	11	13
h. No of (g) where performance declined by more than 5 percentage points	*	0	3
i. No of (g) where category B/C performance declined in 2 successive years	*	*	3

\* Indicates no performance figures available

The results in Table 8.1 show a mixed performance against government targets. Against the category A target, each ambulance service tends to improve its performance year on year, an increasing number are reaching the 75% target, nevertheless in 2001/02 only 14 (of 32) achieved it. Category B/C responses are more variable. Performance fluctuates year on year, with 40% of services showing a drop in performance in 2001/02, and 10%

of cases showing a significant drop of more than 5 percentage points. Moreover, 10% of services have a declining category B/C performance over 2 years, and only 50% of services are yet achieving the 95% target. The current trend, then, seems to be for ambulance services to focus resources on meeting the 8-minute standard, with the result that category B and C patients in some areas are experiencing a less prompt service. Clearly, one compelling issue is how this performance is affecting clinical outcomes, but while hospitals and ambulance services continue to report their performance separately there is no way of comparing patient outcomes according to wait times for an ambulance. However, one can question the extent to which comparing ambulance services using the current standards of performance gives rise to meaningful results, as discussed next.

Although the national service framework for coronary heart disease (Department of Health, 2000a) requires that suspected cardiac arrests receive a category A response, not all patient conditions are specified as clearly. Services have some scope for deciding how they allocate other patient complaints to the call categories A, B and C, which affects the response targets they are required to meet. Moreover, services vary in the degree of accuracy with which their systems record response times to emergency calls. For example, some services require ambulance crews to press a button in their cabs when they arrive at an emergency scene so that their computer systems can record the time precisely. Others require crews to fill out a paper form, which may not be completed until the patient is handed over at the hospital up to one hour later, when the arrival time may not be remembered so precisely. When the clock starts ticking is also variable. A Department of Health (1998) directive requires that this is when the caller's telephone number, the incident location and the chief complaint have been logged by the call taker, but not all services time this process so precisely. Moreover, some services use Caller Line Identity (CLI) to identify automatically the caller's address, which may be the incident location, so the time between call connection and the start of timing is variable, and this time is not reflected in current performance figures even though patient outcomes depend on it.

So efforts 'to make the service the same wherever you are' is a discourse of an ideal type, the more so when we consider how the clinical skills of ambulance crews may

vary, and how geographical area affects the time needed to make an emergency journey. This argument is not to suggest that we should accept a postcode or some other form of “lottery” for the ambulance service, but that a focus on national standards may be stifling local innovation and change which might find other ways of improving the service. Indeed, the history of the microcomputer, the Internet, and several strategic information systems has shown us how local innovations can radically change the way that people and communities work.

In summary, then, although themes of cultural change and ICT innovation are articulated in the messages from health service managers and government ministers, they are still firmly rooted in an instrumental discourse that would see these processes as directly linked with organisational performance. Moreover, that performance is measured in terms of a narrow response time target that seems meaningless to many required achieving it. So the government’s rationale for modernising the NHS is one that reinforces an identity of ambulance workers that they would reject – that their value should be measured in terms of their capability to provide speedy transport rather than contribute to clinical outcomes.

Although recent moves within the ambulance services endeavour to differentiate between categories of patient so that those in the greatest need get the fastest responses, three major problems with targets are evident in these developments. First, the emphasis in the new standards on providing the most rapid responses to category A cases means that this target is focused upon at the expense of category B and C cases, some of whom now receive a slower and hence (on a response time measure) a worse service. Second, national targets deny autonomy locally. Only one service claims to reject the telephone prioritisation message, but Staffordshire achieved autonomy by exceeding the targets without accepting the message. Surely we should now ask if there are ways of improving the service without focusing on response time targets. Third, target outcomes are constructed. Ambulance services time their responses in different ways, some of which are more open to construction than others. Moreover, when scrutiny is intense and targets seem meaningless how the construction is achieved may be open to abuse. Indeed, in a recent poll of health service managers (Radio Four, 2002b), 1 in 12 admitted to ‘massaging their figures’. Although this poll was not specifically targeted at

ambulance services, it reveals that the truths NHS performance figures purport to tell are not accepted by all within the service, far less that they constitute an objective truth that all of us should accept.

## **CHAPTER 9    Conclusions**

Whether one subscribes to the view that we are now in an age of high modernity (Giddens, 1991), a postmodern era (Clegg, 1990), or that we have never been modern at all (Latour, 1993), organisations still lay claims, in their promotional literature and elsewhere, to being modern. Relative to other nations, the UK is one where many organisations would make this claim, but just as modernisation programmes deriving benefits from ICTs are unevenly experienced across the world, so they are within nations. Many UK organisations are still trying to modernise, and this discourse is perhaps nowhere more prevalent than within the health sector. Literature published by the Department of Health is replete with references to modernising the NHS and government ministers and health service managers reinforce these messages.

This research has examined these modernisation initiatives, in which cultural change of the NHS is being attempted and ICTs are deeply implicated in the efforts to change working practices with a view to making the service more responsive to contemporary public demands. This study has focused on the ambulance services, and specifically the LAS, and explored how IS implementation is being accomplished and the resulting conditions of possibility (Foucault, 1980a) for staff, patients, and the service as a whole. My conclusions from this study make contributions to theory, to practice, and to research methodology. Moreover, they contribute to a current debate about the future for ambulance services and what it may mean for all of us. Overall, my aim was to produce interpretive generalisations (Walsham, 1995) about IS implementation, which may inform other research settings, and some critical commentary about the organisational and social consequences of a globalising discourse of modernisation.

### **SUMMARY OF CHAPTERS**

I adopted a regimes of truth (Foucault, 1980a) framework with which to conceptualise the culture of the LAS, and concepts from actor-network theory to focus on the negotiations in which information technology was a key actor. In this way, I argued that both organisational culture and information systems implementation are processes, and

that institutions with knowledge and authority frame and delimit the discourses in which they are enacted. So this study examined the interaction between two processes and the extent to which they reconstitute one another when an IS implementation effort is framed in a way that would challenge truths accepted by cultural members.

The analysis chapters trace the detailed unfolding of modernisation efforts at the LAS over a 20-year period dating from the early 1980s. These efforts are set within the changing institutional context for the UK NHS over the same period. In this way, the chapters are not just an examination of the main events and initiatives that took place at the LAS, disengaged from the broader context that would give them meaning. Changes in government policy and societal attitudes are also considered, as are the moves that other ambulance services made to respond to these changes. The focus is on IS-related cultural change efforts, and specifically on the introduction of information technology within the core accident and emergency (A&E) operations of the LAS, nevertheless complementary developments within the organisation are considered where they provide further elucidating context for the focal efforts.

Many of the events and initiatives examined were historically reconstructed from study participants' memories and documentation sources. In some longitudinal case studies, such a reconstruction might form a relatively minor, if necessary, part of the case analysis. Often, participants' memories and documentation sources do not permit a more detailed consideration. Neither circumstance applies in this case. Bringing history centre-stage is crucial to understanding the action, and, in view of what that history involves, participants have neither forgotten it nor have those who commented on events at the time failed to leave us a record of them. I examine what the records, specifically the public inquiry reports, have to say. These records let the institutional voices speak, and their logic is a rationalistic one in which government departments, professional management practices, ambulance performance standards, and information technology are the guardians of the public interest. Study participants accepted these accounts both as descriptions of what happened and as framing their subsequent actions, but, as my fieldwork progressed and I observed their working practices, they added further dimensions to them.



When LAS staff enact government initiatives, directives from the Department of Health, and recommendations of public inquiry reports the messiness of organisational life is revealed – the ambiguity, the contradictions, and the negotiations in which work is accomplished. Institutionally framed knowledge is reshaped in action, and in turn these discursive practices may reshape the relations between institutions and local communities. The instrumental logic of government publications in terms of implementing best practice, managing organisational culture, and information technology producing organisational effectiveness is revealed as perfunctory when local memories are given due consideration.

What such memories mean to people, when part of them are three public inquiries into their performance and the attendant media criticism, became apparent during the course of my empirical work, as we approached the implementation dates for the PDS and POS systems. Some ways of arguing and acting that might otherwise have seemed exclusionary, mysterious or irrational had rational dimensions in light of the events of October 1992 and those that followed it. Other enactments seemed less (or more) significant in light of what had gone before. But these ways of arguing and acting also had emotional dimensions. In this analysis, rationality and emotionality are not two poles with a gulf between them, anymore than are discipline and improvisation. Rather, thinking is always brushed with emotion (Fineman, 2000) and feeling does not occur in a vacuum devoid of a rational dimension. Moreover, neither discipline nor improvisation is essentially repressive or liberating. Our ways of arguing and acting are cognitive-emotional ways, in which a thinking/feeling guides our actions.

Overall, I suggest that the theory with which I started was a useful abstraction for considering ways of arguing and acting that emerge within a community, but that I unpacked it during fieldwork as I encountered the particular discursive practices of the LAS community. In this way, I introduced further concepts to explore the limits of disciplining and the medium in which this occurs. In these moves, I exploit Foucault's work for emotionality, addressing an area of research that has received limited attention to date (Fineman, 2000). I suggest that introducing speaking subjects is a way of accessing their emotions, one that Foucault chose not to exploit.

I do not suggest that I have introduced new concepts, rather that I have found a way of extending some existing ones, in much the same way that I extended the works of Callon (1986) and Latour (1999b) to introduce emotion and improvisation into the discussion in the first instance. Summarising my theoretical argument, if knowledge and power (as a capacity to act) are mutually constitutive, and we always act within a mood (Ciborra, 2001), then a purely rational knowledge cannot exist. Our knowledge is always emotionally laden, brushed finely or strongly with the moods of those who create it and those who draw upon it.

On insights about IS implementation and its organisational and social consequences, I argue that the case may be seen on a number of interconnected levels. At one level, it is about discipline and improvisation in working practices and the extent to which IS implementation has attempted to support them. At another level, it is about distinctions among LAS staff – distinctions constituted not only by functional specialism (such as IT or operational, control room staff or vehicle crews), but also by issues arising, in particular the role of information technology in the work of the service. Discourses about issues cross-cut discourses about functional specialism so that IS implementation is giving rise to new regimes of truth which tend to fragment existing ones in some ways while sustaining them in others. In these moves, some former truths about working practices emerge as more deeply embedded than others. A true discourse for a call taker now involves using information technology to inform the call prioritisation process, but the true discourses about managing resources are still based on an activation box method in which sector teams and vehicle crews retain most of their discretion about what constitutes being responsive. Those aspects of working practices that remain largely unchanged are those that proved most controversial when LASCAD was implemented.

However, these analyses are incomplete without setting this case in the context of a nationally regulated but regionally organised ambulance service, the contradictions of doing a job with a “patient care” ethos in which you may be physically assaulted, and desires by ambulance workers to be valued for their medical skills as well as rapid responses. At this level, institutions and the public call for better performance by the ambulance service, but abuse of the service and the narrow way good performance is

defined would give ambulance workers an identity – as social workers or cab drivers – that they reject. So in this case the contested nature of ambulance workers' professional identity constrains IS implementation in which patient care is measured by a response time target.

Moreover, institutional scrutiny of the LAS since 1992, especially press coverage of its activities, contributes to the organisation's very incremental and anxious approach to IS implementation. In this approach, a full CAD system has yet to be introduced, ten years after it was first attempted. The limited use of resources for IS implementation and the way that this constraint is sustained and reinforced by existing boundaries among administrative, technical, and operational work, and a mood about who can be trusted to do what, are both manifestations of the effects of scrutiny and contributors to the performance outcomes that have made it so intense. In this way, the LAS has been slower to exploit information technology than other UK services, notably the larger metropolitan services such as West Midlands, Manchester, and Merseyside, whose information systems were on exhibition to delegates at the Ambex 2000 conference. Nevertheless, what all UK services seem to be focusing upon is what is measured by the government's standards.

Putting these arguments together, IS implementation is not having a homogenising effect on an organisational culture, rather it is fragmenting it. Moreover, a general desire among organisational members to improve performance is enacted within a professional identity that constrains IS implementation as currently conceived. So IS-related cultural changes efforts are only partially fusing together a unifying aim to improve the health of the population with the needs of specific groups to find meaning in their work. In this setting, then, information technology can be mobilised to argue about something else – about working conditions, about conflicts among staff, or about the role of the service. How it is used can help to improve the performance of the LAS or it can be the match that sets a fire alight.

The history of the LAS, social problems in London, the high cost of living in or near the capital, and other specifics of providing a public service in London may make the struggle between forces enabling and forces constraining cultural change more intense

at the LAS than other ambulance services. Yet, there is evidence that these services also are experiencing some contradictory outcomes. Some responses are now faster, others are slower, yet the change in clinical outcomes for patients overall cannot be established and indeed the efficacy of triaging over the telephone is questioned. Modernisation efforts in the NHS seek to regulate, standardise, and measure, but in measuring they create divisions, they segregate and hierarchise, ultimately they distribute subjects around a norm (Foucault, 1979). What these distinctions mean should be an active concern of all of us. The risk if we forget this is that the public services on which we rely may not be there when we need them, or at least not in the form in which we might want them.

## **CONTRIBUTIONS OF THE RESEARCH**

This research is informed by the view that social relations are constantly changing, that conflict is endemic within them, and that these relations are contextually constituted so that an organisation's history and the socio-political systems of which it is a part enable and constrain the interactions. This way of expressing a critical perspective was influenced by my readings of existing literature; more compellingly, though, since I adopt it to study IS implementation, it was formed and sustained initially by my 17 years' experience as an IS practitioner. Through my teaching and my membership of a special interest group of the British Computer Society, I became familiar with past IS implementation projects at the LAS, and I questioned the extent to which published accounts of these efforts captured the richness of IS implementation as I had experienced it. So this research is concerned with elaborating theory and informing practice, but not in a way that would advise practitioners about best practice, or would suggest a deterministic or contingency theory about how IS implementation is accomplished. Rather the aim was to prompt reflection and stimulate debate, in which change might be initiated.

## **Theoretical contribution**

Given the above rationale, in reviewing the literature of technological change I gave scant attention to normative work. Much of this work is theoretically weak, which limits its contribution to practice as well as to theory development. Crucially, given its aims to inform practice, it does not capture intellectually or empirically the complexities of practitioner experience. Practitioners, particularly managers, may continue to read it, but more, I suggest, to stay in touch with the latest fashions in ICT innovation than because the advice given seems imaginative or appropriate in the particular settings in which they work. My key argument here is that theory is not a luxury in our field. Writing about the latest ICT innovations does not absolve us from the need to present a strong theoretical basis for our work; rather if we do not, our writings are anecdotal.

Explanatory work may draw upon a number of theoretical bases, from deterministic or contingency theories that would establish cause and effect relationships between variables to more interpretive ones that would understand IS implementation within a social context that cannot be reduced to a set of factors. In this study, I am sympathetic to an interpretive approach as a necessary first step to achieving the insight on which an informed critical commentary would be based. Most of the work I have reviewed and drawn upon in this thesis combines varying degrees of insight and critique, and concepts from Foucault, which guided the research, and from Weick, which emerged when reflecting on its achievements, illustrate this point.

Foucauldian informed research can, and sometimes does, present a pessimistic view of our present and our future. Although Foucault (1980a) argues that power is not essentially repressive, researchers have often adopted Foucauldian concepts to focus on the repressive nature of disciplinary mechanisms. What many see in his work on prisons, asylums and sexuality is a way of arguing that managers, organisations or institutions are trying to make us accept something undesirable – a form of control in which how we act is transparent to others and framed by them. Resistance, then, is an escape route (Knights and McCabe, 1998) from something we do not (implicitly, should not) want to encounter. Moreover, some argue, in a Foucauldian perspective the transgressions available in which things might be otherwise involve no more than

exchanging one “disciplinary power” network for another (Laughlin, 1995). Hope is abandoned to the view that history will repeat itself (ibid.).

Weick’s work and much research informed by it is generally perceived as more optimistic for us. Weick adopts an allegorical way of arguing, his critique is subtle and artful, and his technique for exploring contradiction in organisational life is one of his trademarks (Van Maanen, 1995). Yet he sees engaging possibilities for us – how we might structure for resilience (Weick, 1993b), what a focus on improvisation might contribute to organisational design and analysis (Weick, 1993a, 1998), and why dropping our tools will help us to mutate without forgetting where we came from (Weick, 1996). Weick’s work provides a promising set of theoretical concepts for analysing detailed working practices in organisations, but it is less concerned with how such activities are linked dynamically with their political, economic and broader social contexts.

If we are attuned with the above perceptions, and to some degree I was when I started this research, then moving from a Foucauldian perspective to a Weickian one may seem to involve discontinuity of some kind, but such a view may also indicate a reluctance to modernise our paradigms. If we accept that what may guide research at one stage can seem to constrain it at another, shifts in perspective become possible, but I argue that we do not need to disconnect from the past to make them. Rather we just need to remain open to the direction we will take, instead of attempting to orchestrate it. The moves we make may be incremental and continuous, as I believe they were in this research, in which we unpack what we started with without being sure of what it will look like when we have finished.

I was not so sanguine about making these moves when I started to make them. Having picked up some tools with which to begin this research, I tended to use them in much the same way that researchers whose work I found persuasive in the first place seemed to do. I began to let go of mine when I read *Pandora’s Hope* (Latour, 1999b), but not because I accepted Latour’s comments about a Foucauldian knowledge-power relationship, but because I wanted to challenge them. As I drew on my field data to make my argument I began to see that I could go only so far with my challenge, but I

also began to feel better able to make sense of the data than I had before. A contribution started to emerge. I mutated without forgetting where I had come from. In a Weickian sense, I dropped my tools.

### *A factish for the IS community?*

Latour's (1999b) restatement of his philosophical position adopts many of the concepts and ideas from early statements of actor-network theory. Nevertheless he takes a strong stand against arguments about the amorality of actor-network theory, while at the same time introducing some new ideas. Consonant with this position, when he uses the original concepts in *Pandora's Hope*, for example the concepts that describe the sociology of translation, they are expressed in a language that differs sharply from the earlier version (Callon, 1986; Latour, 1987). The references to power relationships, and to the related writings of Foucault and Machiavelli, have disappeared, except where such arguments are critiqued, and the vocabulary that is used is more subtle – drift or slippage as alternatives to displacement. In moving on, and in arguing that ANT is a method and not a theory (Latour, 1999a), Latour urges us to extend ANT, which may take us in a number of directions that we may not anticipate in advance.

Among the new additions in *Pandora's Hope* are the concept of a factish, and a vocabulary of making-do and surprise, which I adopted in this research in my discussion of the CTAK project. I posed some questions about whether the Golden Circle was an exclusive and covert approach to IS development, and in answering them, I drew on this vocabulary to emphasise the efforts that were made to address anxiety about IS implementation within the organisation. I do not suggest that this argument either overcomes or bypasses an analysis informed by a sociology of translation (Callon, 1986) and a knowledge-power relationship (Foucault, 1980a). Rather, these accounts seem to complement one another. In this way, I translated the ideas of two major proponents of actor-network theory to arrive at anxiety and improvisation – or moods and modes of arguing and acting – which may be a different place altogether. Latour's (1999b) nonmodern way of arguing invited me to improvise, so I took the opportunity 'to mutate, to change, and to bifurcate' (p. 281) as well as I am able to do, with what I had to hand, and in the mood in which *Pandora's Hope* left me.

Although the words improvisation and mood already mean something to all of us, they mix up politics and morality in a much more messy way that is implied by “power exercised in discourse” (Callon, 1986) or, for that matter, the institutional narratives of “adherence to best practice”. Despite academics’ claims that power is not essentially repressive (Foucault, 1980a), and practitioners’ lived experiences that best practice guidelines are not a panacea, there are still widespread views that power is a negative concept, and ongoing claims that best practice guidelines are being followed. Perhaps, then, talking about improvisation and emotion in organisations represents a way of bringing academic and practitioner communities together – a factish for all those who are interested in the implementation and use of information systems in organisations. If so, then this factish needs more attention than it has received to date. In this view, I suggest that the conclusions I arrived at in this research have been indicated by other longitudinal studies even if the authors chose to take their argument in a different direction. I comment on two that are very well known.

### *Extending existing work*

In her research on organisational transformation over time at Zeta Corporation, Orlikowski (1996) draws on Weick’s work on improvisation to argue that experimentation with Lotus Notes among a group of customer service staff gave rise to innovation and learning within the organisation. Yet Lin and Cornford (2000) argue that the result of this emergent change was to produce a work process that was effective and appreciated by staff, as described by Orlikowski, but increasingly control-oriented in a Foucauldian sense. I suggest that the Zeta case shows that improvisation and discipline coexist in working practices, that neither is essentially liberating or repressive, and that an information system can change over time the balance between them acceptable to the workforce.

In other words, concepts from both Weick and Foucault may be used to analyse the Zeta case, but not in two disjoint analyses, rather in a continuous one where a succession of gradual moves are made that adapt previous variations. Moreover, drawing on this study in later work, Orlikowski (2000) argues that emotional as well as cognitive attachments are implicated in the outcomes achieved when the same type of technology is



introduced in different settings. Although she does not explore the emotional dimension to any significant degree, this finding is of interest to the current study, since ambulance services have tended to adopt the same types of technology with substantively different outcomes.

Coming at this argument from another direction, in one of the relatively few empirical studies that engages the Foucauldian view that power is not essentially repressive, Zuboff (1988) argues that how we mobilise the panoptic possibilities of information technology is a matter of social choice. She talks of unleashing ‘the autonomous informing effects’ (p. 217) of information technology, in which organisations can move from a system of managerial imperative control to one of collaborative co-workers. One does not have to accept all of Zuboff’s arguments about the informed organisation to see that in this scenario the social choices that organisations make may involve some combination of discipline and experimentation in working practices that may change over time. Although Zuboff is optimistic about what informing might mean for us, she does not suggest that it would be universally accepted, either by managers or by workers. Human responsiveness, she argues, is about feeling, perceiving and behaving, in which ‘feelings are the body’s version of a situation’ (p. 423).

Extending a Foucauldian knowledge-power relationship, then, I suggest that memories shape our emotions and that memories are a form of knowledge, so that we move within our emotions in practices where retrospect or memory is important. Improvisation and discipline are two such practices, and since neither is essentially liberating or repressive, either might be a way of trying to drive an emotion away – in the LAS case, a mood of anxiety that at times intensified to fear. Moreover the experiences we have, particularly when they are intense, create memories, which shape the way we approach later encounters with a similar situation. How we have learned – the experiences we have had – can then affect the extent to which we see improvisation or discipline (or other ways of conceiving discursive practices) as liberating or repressive, and in turn the outcomes we achieve.

So, studies by Zuboff and Orlikowski suggested to me that some eclecticism in the way we draw from theory might enrich the insights gained. Moreover, I pursued the issues

that they or other authors raised about their work, and in exploring emotion I contributed to an area that receives limited attention in the IS field. Indeed, Orlikowski's later paper, where she mentions emotional attachments, was published in an organisation studies journal, and she notes that one of her reviewers prompted her to consider their importance in people's use of technologies. More of us in the IS field might be thus prompted. If we were, then we would surely address another area that receives limited attention in IS research – the way that actors, and not just action, are constituted. Professional identity, organisational culture and national culture are neglected in our field, and even where IS researchers do engage with them they are often viewed as states rather than processes shifting in relation to information technology.

IS researchers may be reluctant to engage with existing work in other disciplines on identity, culture and related concerns lest they be labelled second-rate organisational and social theorists, yet many would accept that we do not have a strong body of knowledge in our field. I suggest that we do not have an option about whether we develop one, just some choices to make about how we do it, in which engaging with work in other disciplines is one route.

Overall, then, IS research needs to have a strong theoretical basis. How we select the theories we will use in our research is as significant a move as how we frame the context of the study, and indeed the two are interrelated. Just as moving the time-space boundaries of context can give rise to an analysis that explains seemingly incompetent behaviour as rational (Avgerou and Madon, 2002), so analysing the complexity of human responsiveness may be enriched if we move the boundaries of our favoured theoretical positions once in a while. We need to make more of the tools we already have, but to make them lighter so that we may modernise our paradigms (Weick, 1996).

## **Practical contribution**

### ***Frameworks for IS implementation and management***

This research suggests that frameworks or models for IS implementation and management should attend to emotional as well as cognitive aspects, and also their interrelationship. First, they should address the moods in which actors approach the task of systems implementation. Second, they need to consider the way that, in moving within a mood, actors may engage in varying degrees of improvised activity. Finally, they should not underestimate the attention that is needed to ways of arguing and acting to create and maintain the stability of a group involved in an IS implementation effort. The Golden Circle approach adopted during the CTAK project established a regime of truth within the LAS community that addressed these aspects, as summarised below.

During the CTAK project, IS development was a largely improvised activity, and this was a response to an anxious mood among the actors involved. The IT director's performance was informed by his past experience, and guided by his knowledge of best practice, but it also benefited significantly from his skills as a rhetorician. His use of rhetoric may be seen as an attempt to find words for what he wanted to do that were not already loaded with negative meaning at the LAS, not unlike Latour's (1999a) hopes for the vocabulary of actor-network theory. Initially, the IT director acted in a 'relatively safe' way, implementing infrastructure projects (Computer Bulletin, 1997). However, he was forced to justify his volitional and irrevocable actions publicly to the Select Committee, such justifications serving to commit him further to a course of creative coping (Weick, 1993a, 1998) within the Golden Circle. In this approach, he created opportunities for members of the user group to contribute to the process, and in this way, the CTAK system emerged as something built by the group in interaction, rather than being the product of a formalised approach to IS implementation.

However, the Golden Circle approach was seen as time-consuming and wearing by IT staff (Computer Bulletin, 1997). So during the PDS implementation, the approach was one in which no changes were made to the package unless there was a compelling case that performance would suffer otherwise. In this way, the user group discussions were

chaired by a user manager and IT staff liaised with him afterwards. In part, they felt that this approach was justified during a packaged implementation in which minimal changes were conceived, but it also demonstrates why full participation is often viewed as an ideal type. During the PDS project, a greater licence to act was taken for granted by the user group, that is, they felt more certain about how and why they should comment, but their opportunities for doing so were more limited. So a different way of enacting participation was employed during the PDS implementation; one that aimed to discipline users' contributions. In practice, there was anxiety about introducing PDS, and this mood was evident in the control room on the day the system was installed and during meetings beforehand. Yet, there were also desires to be seen as a more modern and responsive organisation, in which PDS came to be accepted despite the more disciplinary mechanisms that accompanied its introduction.

So mood and mode of arguing and acting constituted each other during these IS implementation efforts in such a way that anxiety was reduced in the moves that were made. A regimes of truth framework in which modes of arguing and acting are conceived as cognitive-emotional, and neither discipline nor improvisation is seen as essentially liberating or repressive, can then form the basis of a model for IS implementation and management. Existing frameworks, whether based on a lifecycle or an evolutionary model, and whether informed by an engineering approach or a socio-technical one, neglect or underplay one or more of the considerations raised by this research.

Overall, then, during IS implementation technical artefacts, in the form of hardware, software, or a packaged application, are embellished so that an information system emerges as an accomplishment of implementation efforts that provide some degree of support, planned and emergent, for improvised and disciplined performances. The degree of support provided for each activity is negotiated in an emotional medium in which institutional pressures and local memories come into play. In this interaction, the time available for users of the system to act, and their past experiences and accomplishments with information systems are key issues arising. Moreover, these issues need to be addressed as ongoing concerns during system use. So, IS implementation in organisations is a delicate balancing act that requires constant

attention to subtly shifting cognitive-emotional ways of arguing and acting framed by institutions.

### ***Implications for information systems teaching and research practice***

The IS implementation efforts described in this case reflect a range of different achievements in improvised performances. In particular, the actions of the IT director during the CTAK project may be seen as a very effective performance. While such an account of making-do is considered highly reputable in certain branches of research, the normative literature read by managers shows less tolerance for a rendering of improvised responses to specific circumstances. Rather, much of that literature, and trade journals in particular, seek to explain what takes place in terms of adherence to best practice, underplaying the *ad hoc* element of action, as in an account of the CTAK project published in *Computer Bulletin* (1997). That account is ‘based partly on recent presentations by [the IT director of the LAS] to the BCS [British Computer Society] London Medical and Project Management specialist groups’ (p. 24), and the words of the IT director are cited throughout. Paradoxically, then, even when practitioners give a very competent improvised performance, they are unlikely to acknowledge it as such.

The notion of improvisation in organisations has implications for how we teach, how we do research, and how we write about what we do. Many managers are educated via professional courses to understand their actions in terms of normative discourses, so it is hardly surprising that they present rationalistic accounts of their achievements, even when their experience suggests otherwise. It was only when I challenged the IT director – when I influenced his mood – by presenting what he considered to be a limited view of the Golden Circle, that I prompted him to give the much richer description of it discussed earlier. This suggests a need to give more attention to the improvisation literature in management education. While improvisation, never mind the moods to which it might be a response, remains largely a concept that people in organisations use to describe jazz or theatre, but not their own work, we may be neglecting a way of arguing and acting that could enrich both teaching and practice.

Furthermore, if all activity involves some degree of improvisation (Weick, 1998), then writing is an improvised performance. With this argument in mind, academic journal editors and reviewers might act so as to create possibilities for a greater number of papers that adopt a tentative and open-ended style – a style that seems to characterise improvised activity. Moreover, in our writing we might demonstrate how initial theory was modified during the research, rather than presenting the entire theoretical framework up front as though it was all known in advance.

### ***Relevance of this research to other settings***

I suggest that conceiving IS implementation as a process accomplished in an emotional medium is not specific to this case. Although emotionality has received limited attention in IS research, it has developed into a subdiscipline in other fields (Fineman, 2000). In this case, I have described the emotion as a mood – an affective phenomenon that can be short-lived or very enduring (Harlos and Pinder, 2000), a way of being in the world that can change, although we are never without a mood (Ciborra, 2001). Mood is both an emotional medium in which we act (*ibid.*), and an outcome of activity (Fineman, 2000).

So, although anxiety will not always be the mood in which IS implementation is accomplished, there will be a mood and it may explain much about why participants in IS projects act as they do. Moreover, anxiety during IS implementation may be more common than the IS literature suggests. Institutional pressures to perform were at the heart of what occurred at the LAS in 1992. Many people in organisations work under such pressures and their actions do not need to have life and death outcomes for them to feel anxious. From an IS implementation perspective, what is interesting is how their emotion is implicated in the moves they make and the outcomes they achieve. Furthermore, if their mood is not one of anxiety, but, say, resentment, excitement, or boredom, we may then ask how these different moods arise and how IS implementation is accomplished within them.

Perhaps the most difficult aspect of paying attention to mood is that we may not always be aware of our moods or what gives rise to them. Ciborra (2001), drawing on Heidegger (1995), suggests that we may study moods by examining the way we move within them –

in the way we seek to drive them away. In this way, then, IS researchers might consider emotional rather than purely cognitive explanations for the moves they observe in the field. Moreover, given a propensity in many societies to present a rational explanation for what they think and do, researchers need to engage in more suspicion of their own and others' narratives. How reasonable is it to suggest that when we walk through the door of the workplace we become entirely rational beings, when in so many other settings – in the home, in places of leisure, with friends – we very evidently express emotions and feel able to do so?

### ***Further research agendas***

Further research might explore the ideas I present in this chapter. For example, it might examine the relationship between moods, modes of arguing and acting, and models for IS development and management in different settings. These settings might include other ambulance services in the UK and in different national contexts, other settings where critical systems are implemented, for example air traffic control, and contrasting settings, where the information systems being implemented are not perceived as critical or where the framing discourse is not one of performance improvement. Organisations' past experiences with IS implementation and use would provide further dimensions of similarity or contrast to be explored.

Such research might reveal how IS implementation is accomplished when moods other than anxiety, for example excitement, hope, tedium or gloom, prevail. These studies might draw upon the existing body of literature in organisational theory on emotion in the workplace, and from related work in psychology and sociology (for an overview and some references, see Fineman, 2000). These ideas would complement existing perspectives in IS research which, in general, view systems development as a cognitive process.

### **Methodological contribution**

In chapter 4, I described the longitudinal case study presented here as a critical study combining a historical ethnography and an empirical one. Since critical research is still

on the whole theoretical (Alvesson and Deetz, 2000), and there is an absence of critical methods as such, it makes a contribution to critical research methodology in the following ways.

It demonstrates how aspects of interpretive methods might be emphasised to accomplish critique – for example, the principles of suspicion and dialogic reasoning (Klein and Myers, 1999) – and how these questioning techniques may be presented during writing up to demonstrate the convincingness of the research (Golden-Biddle and Locke, 1993). For example, I provide descriptions of my interactions with study participants in formal and informal settings and how I employed suspicion of their narratives, for example about the Golden Circle, and they influenced me to employ dialogical reasoning about the extent to which IS implementation and use are cognitive processes.

I argue for proceeding chronologically (Vaughan, 1996) in research that is historically contextualised, as critical research would claim to be (Orlikowski and Baroudi, 1991). In such situations, I suggest that coding the data and aggregating statements from interviews by topic may not be a useful way to proceed because vital context is lost. By detailing study participants' language, actions, and feelings about their work, my own approaches to data collection and analysis, and how and why I modified my methods over time, I aim to demonstrate the authenticity of my work. In other words, I aim to show that I was in the field and that I tried to be genuine to the experience (Golden-Biddle and Locke, 1993.).

I adopt an unorthodox approach to presenting my work by introducing theoretical concepts as I need them, but since initial theories were modified I think it is important to reveal the moves in which such modifications took place. So I aim to show readers how I made sense of the data while leaving room for others to make their sense of them. Moreover, as I introduce further concepts I extend some dominant views expressed in existing literature or explore lacunae in established ways of arguing. In many of these moves, I aim to differentiate my findings and my way of presenting them to show the distinctiveness of my contribution and ultimately the plausibility of my research (ibid.).

Extending the spirit in which I challenged study participants and they challenged me, I hope also to challenge readers to reexamine their assumptions. In particular, to question



their assumptions about improvisation and discipline and the extent to which they are achievable and appropriate, about peripheral cases and the value in studying them, and about why we should consider the effects of globalising discourses within communities as well as between communities across the world. In these moves, I attend to the criticality dimension (ibid.).

Despite the Foucauldian concepts that inform this research, I do not adopt Foucault's "strong textualist" position (Rorty, 1982, cited in Golden-Biddle and Locke, 1993) in which I disappear from view along with my intentions for this work. Rather, I adopt many of the strategies described by Golden-Biddle and Locke (1993) to appeal to readers concerning the authenticity, plausibility and criticality of my work. I wish to create a space in which readers can interpret my findings according to their personal and intellectual experiences, but I also want to make as transparent as possible how I arrived at mine. Since I do not conform to normative standards for writing up my research – for example, presenting a full theoretical framework up front (Klein and Myers, 1999) – I ground my contribution to research methods in a different set of criteria, which seem more useful for the critical ethnography I have conducted.

## **ON THE FUTURE FOR AMBULANCE SERVICES**

Finally, I contribute to a debate about the future for ambulance services (Nicholl et al, 2001). My aim is not to emancipate a particular group by outlining a better direction for them, but to generate some discussion about where we may be going with current modernisation efforts within the UK ambulance services and how we are attempting to get there.

In this account, institutions such as the UK government, the Department of Health and the media shape discursive practices within the ambulance services, in ways that mandate performance improvements while constraining how they occur owing to the manner of their scrutiny. On the one hand, then, these institutions are promoting the use of information technology to achieve desired change in the NHS (for example, Chapman, 1996), in response to a mood of the general public in which improved levels of service are being demanded. On the other hand, the way that ambulance services are

regulated and monitored means that institutional scrutiny focuses on examining their achievements against performance targets. So cultural change and IS implementation have been conceived largely instrumentally in terms of responding to a goal that is relatively unproblematic to measure but not meaningful to many. A key issue, then, in the debate about the future for ambulance services is how their performance should be monitored.

Most would argue that patient outcomes are crucial, but hospitals do not share this information with ambulance services. Moreover, outcomes depend not just on speed of response but on the medical skills of staff at the scene and on the way to hospital. Since 1996, ambulance services have been required to have a paramedic on every vehicle (Nicholl et al, 2001), but some services have not reached this target. Still, though, the measure of value that government ministers emphasise is the one that requires more responses in 8 minutes – one that would seem to see the ambulance service as the health care arm of the emergency services rather than the emergency arm of the health service.

The new standards do, however, attempt to prioritise responses according to patient need. Issues then arising are the extent to which it is possible to triage over the telephone, the way that the number of 14-minute responses is dropping in a number of services, and the absence of information about whether clinical outcomes for patients are improving overall. Priority dispatch is intended to provide a better service for all of us, but it has received less attention in the media than changes in general practice and the hospital system. Patients call for a better health service, but how many are aware of the implications of a priority based system of emergency responses, and of what they need to learn so that they can, in the words of the Health Minister, help themselves?

This research, then, reveals three major tensions in the modernisation efforts examined – tensions between:

- The government's declared plans for cultural change in the NHS and the uneven modernisation and contradictory outcomes accomplished in their local enactments
- The rationalistic discourses of management education and clinical training and the rational-emotional discourses of managers' and staff members' lived experiences

- Patient demands for a better health service and what is provided in reply and patient responsibilities within that.

### **The conditions of possibility now arising**

At this stage, we may ask a genealogical question, that is, how did we get to the present (Foucault, 1977)? Genealogical questioning seeks a historical understanding, prompted not by an interest in the past and a wish to explain it, but by a desire to understand and respond to the present. It revisits past events in light of the current situation to invite consideration of the future. Genealogical questioning in this case is of the form:

How did ambulance services get to be a community whose value is measured in terms of its capability to respond in 8 minutes, and how is information technology implicated in the moves in which we have arrived at our present?

If we then pursue this question to consider how things might be otherwise, we may ask, extending Weick (1996):

Is a reluctance to drop one's tools in these circumstances an indication that justification, trust and identity need more consideration if the future is not to seem meaningless? Whose survival is threatened, and what constitutes safe pre-hospital patient care? What role is there then for the tools of information technology?

In 1992 there were traces of what was to come in the ambulance services – early evidence that responding to emergency calls was about more than speed of response. More than ten years on, it is perceived as being about speed of response and urgency of need. I suggest that the diversity of medical conditions, the difficulties of differentiating among them (triaging) on the telephone, and the clinical need to respond to some conditions very quickly has contributed to the way that 8 minutes has become institutionalised as a measure of value. Information systems have made it possible to respond more quickly and to triage more effectively, but as yet these systems are not sophisticated enough to pick out, reliably and safely, calls requiring different levels of response (Nicholl et al, 2001). In this way, further developments are needed to establish trust in these systems if the response time is to be increased from 14/19 minutes for

those conditions that are perceived as not so serious or reduced to, say, 5 minutes for life-threatened cases.

The moves in which we have arrived at dispatching by priority have changed the nature of work in an ambulance service control room. The practices of call taking, allocating and dispatching are being conceived in a different way, and skills in using the tools of information technology are becoming increasingly important in the new work regimes. The meaning of work – what it means to be responsive – is changing, but the tools of information technology are not yet part of the identities of all those required to use them. The extent to which managers are trusted by staff, and the ways they justify changing, will influence the extent to which ambulance workers come to accept the modernisation message – that the new tools are meaningful artefacts that define them, that they should pick them up because they are lighter.

Moreover, some of the existing identities may be preserved in the new environment. Certain conditions do not have such a pressing need for a fast response. If we could triage more effectively, then more work might be classified as not so urgent, and more workers might engage in “white”, rather than “red”, work. Furthermore, as part of justifying the changes, managers could act to provide the tools for which vehicle crews are asking – better equipment, more publicity about abuse of the service, prosecutions against those that assault them, and to be acknowledged as more than “glorified porters”. An earlier chapter indicates how a paramedic and the director of operations at the LAS engaged in such a discourse at a time of poor industrial relations, and an alignment of interests was accomplished. Social problems and assaults on staff may be more pronounced in London than elsewhere, and a public accountability model that would change working practices may be more contentious at the LAS than other ambulance services, and together they may account for much about the performance of the LAS. Nevertheless, abuse of the service and of staff is becoming increasingly frequent in other parts of the UK and the way of measuring accountability is also contested in other services. Moreover, many of these services are struggling to meet the new standards. In these developments, the case of the LAS is not as peripheral as it may at first appear. We may draw implications from it, just as when government responded

to two public inquiries – which specifically examined the performance of the LAS – by initiating a national review of ORCON standards.

Modernisation efforts may be accepted because they embody desirable goals – to be seen as abreast of the latest developments in a field, as adopting contemporary technologies, and as being responsive to the world in which we live. Alternatively, they may challenge existing ways of organising and established ideas of providing a service. Both such manifestations are evident in current modernisation programmes within the UK NHS, but the difficulties with implementing these programmes does not reduce to a straight conflict between those advocating new ways of being responsive and those wishing to retain existing ways. Being modern is narrowly conceived in terms of performance targets so that innovation and change means getting faster. Moreover, the targets are defined in such a way that they are disjoint from the patient outcome context that the institutions claim they serve. The *in-order-to* elements of modernisation are being addressed, but a link with the *because-of* motives (Ciborra, 1999b) that would give them meaning has not been established. Not only does such disjunction act to constrain local innovations that might give rise to cultural change, but also, against these homogenising measures of performance supported by ICTs, outcomes achieved indicate that parts of the service are getting worse.

Modernisation is a globalising discourse in which the use of ICTs is deeply implicated. However, in the UK ambulance services those advocating modernisation and those who need to accept and enact it are at most loosely aligned and the way that current ICTs are being adopted creates limited scope to fuse these interests together. Perhaps, though, a different type of fusion should be attempted. Rather than just trying to make conversations with callers so fine-grained that a patient's condition can be determined over the telephone, the potential of ICTs to connect different communities should be exploited. If ambulance services knew more from hospitals about the outcomes achieved by their patients, the need for innovation and change might seem more compelling and so ICTs would achieve more than supporting targetmania.

In all of this, it may be some time before staff, managers or patients have reason to accept that using information systems to triage over the telephone is safe and reliable. In

the meantime, we all have a responsibility to debate the modernisation programme that is being introduced within the UK ambulance services. If some response times are lengthened, does this mean that care for those patients affected will suffer, or could a move to more “white work” mean that they get a different type of service – one that is more attuned with their particular conditions? Should response time targets be at the heart of measuring ambulance service performance, and, if not, how else could we judge quality of service? Is it possible to measure all of the caring work of the ambulance services by a target, and, if not, will those things not measured in this way receive less attention, or will some targets be perceived as less important than are others? These issues need debating, among staff, among managers, among ministers, and among patients. I have raised them, I have presented some reasons for debating them, but I do not have the answers. These answers are for all of us to provide, for wherever we are in the world, and whatever we do in life, we all are potential patients of the ambulance services.

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## APPENDIX A

## Key moments and the discourses about them

Key moment	How people perceived the moment	Ways of arguing and acting about work
National strike (1989/90)	A management-worker conflict Earning more than when working normally Being intimidated by striking colleagues A ghost town in the control room	Recruit professional managers Provide better pay and working conditions Discipline staff
LASCAD implementation (October 1992)	Floods of tears Sabotage Failure Public outrage	Restore the activation trays Hold on to the call taking system Replace the chief executive Hold a public inquiry
When LASCAD locked up (November 1992)	Technology too risky Having to let go of the call taking system Winning the battle	Go back to manual methods Use human runners instead of conveyor belts
The Page report (February 1993)	Criticism A way forward	Recruit a new senior management team Implement a new CAD system by 1997 Give a voice to staff
Death of Nasima Begum (June 1994)	Manual methods will not do Resources are in the wrong places	Develop a computer system Hold another public inquiry Break up the LAS
The Wells report (January 1995)	An attempt at reconciliation An unachievable proposal	The LAS should aim for trust status Develop a computer system - for call taking first Have a national review of ORCON standards



Key moment	How people perceived the moment	Ways of arguing and acting about work
Select Committee inquiry report (June 1995)	More criticism Acknowledging unacceptable performance	Reinforcing the trust status goal Reinforcing the call to review ORCON standards
CTAK implementation (January and February 1996)	A triumph A relief Achieved by a Golden Circle	A user group approach to IS development A time-consuming and wearing approach Progress towards a full CAD system
A modification to CTAK (late 1996)	IT taking the initiative The start of the rot	Managers and IT making decisions Users losing control
Deferring AVLS and mobile data (July 1998)	The past re-emerging The millennium as an excuse	Pro-active management User requests for change being subjugated
Management reorganisation (late 1999 to early 2000)	Consequences of declining performance and a lost ballot Another new regime, but for how long?	Performance improvement taking too long Senior managers disconnected from front line Call prioritisation must be accomplished
Printers on stations trials (August-November 2000)	It's much faster It's not going to work Technology as a way of arguing about something else	Provide step by step operating instructions Involving the crews Going outside the Golden Circle Managers on stations enforcing implementation
PDS implementation (November 2000)	Remembering 1992 Much better OK when we get used to it It's more time-consuming for us	Risk as a discourse for managing the process Responding to a "drop dead" date Take it more slowly Trying to say "stop"