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**THE SYSTEMS ANALYST AND EMANCIPATORY PRACTICE: AN
EXPLORATORY STUDY IN THREE NHS HOSPITALS**

TERESA SHIRLEY WARING

**A thesis submitted in partial fulfilment
of the requirements of the
University of Northumbria at Newcastle
for the Degree of Doctor of Philosophy**

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Abstract

The application of Critical Theory in Information Systems (IS) research is comparatively recent and is still at a very early stage, having hardly progressed much beyond a critique of existing approaches to systems development. It has been argued that from the perspective of Critical Theory the challenge of developing a more rational society involves the transformation of institutions so that computer based systems facilitate emancipation rather than providing more powerful systems of control. Utopian visions of autonomy, creativity and democracy may be much removed from the realities of everyday life for participants in an IS implementation but this does not mean that certain principles cannot be adopted to facilitate emancipation at a 'micro' level.

The potential of critical theory for IS implementation study can be found in the work of Hirschheim, Klein and Lyytinen who have been some of the main advocates of its importance. They believe that the design of information systems is dependent upon a process of free and open communications guided by an appreciation of the presence and value of each of the three knowledge constitutive interests identified by Habermas. Although not detailing a way forward they do suggest a number of ways of mitigating socially unnecessary impediments to and distortions of rational discourse. One such course of action could be the systems analyst acting as an 'emancipator' within an IS implementation.

This thesis is a result of research which has explored how the systems analyst can develop emancipatory practice within the context of integrated information systems implementation.

The organisational context for this research was three NHS acute hospitals in the North East of England that were beginning the process of implementing integrated information systems (IS). Action Research was the methodology adopted and utilised to explore a framework of emancipatory practice within these IS projects. One particular objective, facilitating emancipation through less distorted communication, was explored in detail utilising IDEF0, a process modelling tool.

The thesis concludes by developing reflexive insight into the research as a whole and the use of the emancipatory framework by the researcher who was also the systems analyst. It draws attention to the difficulties of carrying out this type of research for the organisations concerned, the individual actors and the systems analyst.

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I would first like to thank my Husband, Steve, and Sons, Gareth and James, without whose support this work would not have been possible.

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Chapter - 1

1. Introduction

This chapter provides the reader with an overview of the thesis, which includes reflections on my own, the author's, involvement in the research scenario. This is followed by the background to the research, the emergence of the 'theme' which resulted in a 'paradigm shift', the aims of the research, the research strategy and techniques. The structure of the thesis is outlined and a chapter by chapter résumé will outline the content and development of the project.

Like Tietze (1998) it is my belief that the reader of this thesis will only be able to understand, follow and finally critically evaluate the text, if I, the author, abandon the objectivist disguise and present myself at the outset. Because my biography and personal affiliations are inextricably linked to the selection of the topic area and research strategy, it is vital to share them with the reader rather than to pretend to write from a stance of uninvolved neutrality.

1.1 The historical context of the Researcher

This thesis is not written by a professional researcher but by a student interested in practice within organisations. I have always been interested in what people do, how they do it and why. In fact, my first professional indoctrination (Mintzberg, 1991) and socialisation took place within a Chemistry Department of a traditional 'old' university where I was introduced to scientific research and which was not very people oriented. Concepts such as ontology or epistemology were never discussed and I was left completely unaware that alternative paradigms existed or that people did research in other ways.

I began my working life as a teacher of Chemistry and my socialisation then developed during a period of unprecedented change in the UK in the early 1980s where Information Technology (IT) became accessible to many people within organisations. I became interested in using IT within the context of my teaching and eventually studied for a further qualification in IT through the Open University.

Having taken a career break I underwent a second extended training/socialisation period by taking an MSc. in Computer Based Information Systems. This course was taught in a manner which appealed to my scientific background by giving prescriptive methods of writing computer code, carrying out analysis and design and presenting the role of the information systems (IS) professional as an individual working for the good of the organisation. However, six months working for a large organisation as an analyst-programmer provided me with yet a further period of socialisation which revealed to me the highly political nature of systems development and exposed the inadequate methods with which I had been equipped to deal with organisational trauma and resistance to change.

I joined Newcastle Business School (NBS) in 1991 as a lecturer where my education continued and I began to become aware of the many other facets of business and organisational theory which had alluded me to this point. I had never really challenged traditional approaches to IS development and began to feel confused about the new theories to which I was becoming exposed. However, my 'one-dimensionality' of a rational scientific positivist belief in the world slowly developed new aspects as I began to become involved in practical research and consultancy as is the norm in Business Schools.

My 'one-dimensional' understanding of IS development has been very much at the centre of the confusion and internal conflict I have felt over a number of years. It has only been through re-focusing my thought processes from technological solutions to the roles of individuals, their particular needs and how power and politics can affect social responsibility that I have been able to begin to understand alternative paradigmatic approaches to IS development.

1.2 Research Orientation, Affiliations and Allegiances

The most basic assumption of this thesis is that it is not humanly possible to be free of bias, but it is possible to account for it and in particular to openly reflect upon it. I have already reflected upon my research interests and how that is linked to my biography but I need to comment further upon my cultural affiliations. I have been brought up in a strongly Christian environment and I am a white female. Although I am not a member of any political party including organised feminist groups I could be described as sympathetic to some of their concerns. Through my readings in management studies and IS I have become intrigued by the concept of 'emancipation' within the business IS environment. According to Alvesson and Willmott (1992b):

“emancipation describes the process through which individuals and groups become freed from repressive social and ideological conditions, in particular those that place socially unnecessary restrictions upon the development and articulation of the human consciousness. The intent of Critical Social Theory (CST) is to facilitate clarification of the meaning of human need and expansion of autonomy in personal and social life...Emancipation necessarily involves an active process (or struggle) for individual and collective self-determination...Any substantial and lasting form of emancipatory change must involve a process of critical self-reflection and associated self-transformation....A fundamental claim of the proponents of CST is that social science can and should contribute to the liberation of people from unnecessarily restrictive traditions, ideologies, assumptions, power relations, identity formation, and so forth, that inhibits or distorts opportunities for autonomy, clarification of genuine needs and wants, and thus greater and lasting satisfaction.” (p 432-435)

This has led me to question whether I fully understand the theoretical underpinning of my subject discipline. It has also led me to think about whether I am in need of emancipation and to reflect upon whether I, through my practice in IS, am an instrument of control and domination of others.

Thus with regards to my research affiliations I see the researcher as the research instrument herself who will have to switch from the object of study to herself to theory in order to fully understand the research scenario (Tietze, 1998). Tietze (1998) describes this process as located in the hermeneutic tradition where the “subjectivity” of the researcher needs to be transcended to self-awareness as researcher. Thus the project can also be viewed as developmental and self-exploratory.

1.3 My Journey

With regards to the developmental and self-exploratory aspects of this thesis I have often related it to ‘St Paul on the Road to Damascus’. I have experienced many challenges, emotional, intellectual and even spiritual during the course of my journey and what has evolved is research, reflection and writing. However, most importantly, what has happened to me during this journey is an ‘opening of mind’ and intellectual development which has resulted in the ‘arrival’ of this thesis. The travelling has consisted of my intellectual development in relation to the theoretical underpinning of the discipline of IS and its critique followed by a ‘shift in paradigm’ to explore alternative practice.

In order to begin to understand the ‘journey’ the reader needs to appreciate the background to the research which led to the exploration of the research problem.

1.4 Background to the research

In the field of IS research there have been many perspectives taken which try to develop theory about IS development and implementation. However, there continues to be concern about the nature of this work and its theoretical underpinning. There is extensive literature on the character of and reasons for IS failure (Lyytinen and Robey, 1999; Myers, 1994; Sauer, 1993; Lyytinen and Hirschheim, 1987) and the roles of the systems analyst, users, developers and management within that context.

In response to perceived failures of IS many development methodologies have emerged to support the systems analyst in their work. These methodologies have been categorised in a number of ways : firstly, ‘hard’ methodologies which are based on a scientific paradigm and take a functional approach to development e.g. SSADM

(Ashworth and Goodland, 1990) IE (Martin and Finklestein, 1981) Yourdon (Yourdon and Constantine, 1978) and more recently Object orientated (Coad and Yourdon, 1991). Secondly, there have been the socio-technical methodologies of which the best known is ETHICS (Mumford and Weir, 1979) which appear to be more user-focused but yet still accept the management goals as rational and acceptable.

Thirdly, in contrast to the 'hard' methodologies where management goals are taken as given approaches to systems development based on the interpretivist paradigm have gained credence.

In the UK, and notably in the public sector, research carried out by Peter Checkland (1981) has established Soft Systems Methodology (SSM) as a viable alternative to SSADM in particular problem situations. Here the complexity of the development process is acknowledged and the systems analyst acts as a facilitator to develop consensus between differing groups of interested users and management. Checkland's work continues to be adapted and refined through use in real life situations, and, because of the academic nature of his work, is reported widely in many journals e.g. Information Systems Journal and Systems Practice.

Although SSM is seen as a progressive methodology in both the Operational Research and the IS field it does have its critics who believe that it is naive in its approach and does not address the real organisational issues of power, politics, domination and control (Jackson, 1982). These critics have tried to offer alternative approaches to implementation which have an underpinning theory based on Critical Social Theory. However, much of this work has been in the field of Operational Research (Flood and Jackson, 1991) and the challenge now for IS researchers is to develop equivalent practice in their own subject domain. Willmott et al. (1990) propose that opportunities may lie in the development of more reflexive practitioners - systems analysts who are more 'socially responsible'. These practitioners would be able to critically evaluate their own historical and educational background and recognise the power and control that has been vested in them.

Knights and Murray (1994) argue that the power of IS specialists is also linked to the technical-rational discourse they utilise which 'depoliticises' the development and use of technology as it supposes these specialists to be impartial experts. However, there is

a mismatch between discourse and practice especially where systems are becoming increasingly complex through more advanced technology and the number of organisational actors involved. Tensions exist between the IS specialist *as 'a technical rationalist selflessly pursuing unified and uncontested corporate goals'* and the forces of power, politics, control and domination which cannot be ignored and can impact upon the implementation (Knights and Murray, 1994:90). These complex systems are ones that Jackson and Keys (1984) have articulated as being suitable for an approach informed by Critical Social Theory. In the IS domain complexity is demonstrated where organisations implement integrated systems which cross departmental boundaries and which involve a large number of staff. These are situations where people can become subjected to restrictive working practices, where their needs are ignored and where working life becomes miserable.

1.5 The research problem

The research project discussed in this thesis has been inspired initially by the work of Hirschheim and Klein (1989) who, like so many others (Alvesson and Willmott, 1996), have been influenced by the Critical Social Theory of Jurgen Habermas, which is committed to applying critical reason to expose and overcome domination at the level of society.

Critical IS research has been fragmentary and needs to move towards *'systematic praxis-oriented research'* (Lyytinen, 1992:171). He suggests critical inquiry should aim to improve the human condition by *'criticism of alienated and distorted practices'* and develop and support reflective practices. This is the aim of the research outlined in the thesis - to explore how this may be done.

Hirschheim and Klein (1989) have challenged the IS community to consider an alternative paradigm for systems development – Radical Humanism. They argue:

“..this reflects the desire to improve the existence of organisational actors (through emancipation) by developing information systems that support rational discourse” (p 1209)

This concept of emancipation within the field of IS is one that is being explored by a number of researchers (Wilson, 1997; Klein and Hirschheim, 1993; Lehtinen and Lyytinen, 1983) but the *‘IS practitioner as an emancipator’* has yet to emerge as a possible role within the IS specialism. Hirschheim and Klein (1989) have no empirical evidence on which to base their discussion but suggest ways forward for potential research. The difficulty for a researcher schooled in the traditional practice and theory of the IS specialism is moving to a new paradigm underpinned by what can only be described as an ‘alien philosophy’. Therefore, if the researcher is also to be the researched then the ‘process of being emancipated’ must be understood before the researcher can understand what it might mean to be an ‘emancipator’ and in fact what emancipatory practice might consist of. The emancipation of the IS practitioner must therefore commence with critique of the prevailing theory and critical self-reflection of practice to begin to free themselves from the domination of historical constraints (Alvesson and Willmott, 1996:15).

The research undertaken in this thesis is exploratory in nature and intends to inform the IS research community of the challenges involved in a ‘Radical Humanist’ approach to systems analysis from the perspective of the researcher who is also the researched/ systems analyst. Thus the following research problem is addressed:

How can an IS professional develop emancipatory practice within the context of an integrated systems implementation ?

Having considered the research problem a number of questions will need to be answered in the course of this thesis:

- What is the traditional role of a systems analyst within an integrated information systems project ?

1. How does the traditional practice of the systems analyst contribute to domination and control ? (Addressed in Chapter 2)
2. Which phenomena lead to distorted communications within an IS implementation ? (Addressed in Chapter 2 and explored further in Chapter 11 after primary research)
3. Why is Critical Theory relevant to IS research ? (Addressed in Chapter 3)
4. How is emancipation defined in the context of an integrated IS implementation ? (Addressed in Chapter 4).
5. What skills does an IS practitioner need to facilitate emancipation within an IS implementation ? (Addressed in Chapters 3 and 4)
6. Can an emancipatory approach be facilitated within an IS implementation and what are its limitations? (Addressed in Chapters 7, 8, 9, 10, 11)

The research questions reflect the exploratory nature of the thesis in that at the beginning of the project I saw myself as a systems analyst in the functionalist paradigm setting out to further my understanding of the concept of emancipation. As the project progressed I looked to Critical Systems Theory, and specifically the contribution of Jurgen Habermas, to provide a theoretical underpinning of the move into the Radical Humanist paradigm. This was followed by an examination of potential emancipatory practice from appropriate sources which might be explored by the researcher/systems analyst in the field.

1.6 Context of the Research

My interest in the NHS began in 1991 when I became part of a small research group within NBS interested in the implementation of the NHS Information Management and Technology strategy of that time (Thomas et al., 1995). The NHS has had a recent history of failed integrated IS projects which have been dominated by hardware and software vendors, IT consultants and IS 'experts' (Brown, 1998). It is also an organisation where research is high on the clinical agenda and not just positivist scientific study e.g. Reed and Proctor (1995). Thus it provided a suitable research context.

1.7 Structure of the thesis

The thesis is structured in a manner which has tried to encapsulate the journey undertaken by the researcher. In order to move paradigms it is important to recognise the intellectual ‘baggage’ which is brought along and to openly reflect on it. Thus following this introduction **Chapter Two** begins the process of emancipation for the systems analyst by critically examining the IS literature which is pertinent to this study. It focuses on the role of the systems analyst within the context of IS implementation and uses the framework adapted by Hirschheim and Klein (1989) from Burrell and Morgan (1979) to explore the changing nature of that role and the various responses through ‘paradigm shifts’ to the disenchantment with the functionalist approach to IS development. It is reflexive and aims to develop an understanding of the historical and educational context of the systems analyst which must be overcome if the researcher is to become emancipated from the traditional ideologies of IS theory and practice.

Chapter Three provides a review of the theoretical body of literature pertinent to Critical Social Theory (CST) and its application to IS specifically, Operational Research and general management. It aims to demonstrate where IS research is positioned in relation to CST and highlights the contribution of the work undertaken to date in relation to the wider body of knowledge. Much of the work carried out by these critical social researchers is highly theoretical, shrouded in jargon and has contributed little to practice.

The emancipation of the systems analyst is continued within **Chapter Four** by an exploration of emancipatory or socially responsible practice synthesised from available theory in a number of subject disciplines. This research is then developed into a provisional framework for emancipatory practice which is explored within the context of the primary research. The framework is intended to be a heuristic to aid understanding not a mechanistic approach to be followed rigorously.

Chapter Five, entitled “Research methodology”, provides a discussion on the rationale of the primary research methodology and uses the framework developed by Crotty (1998) to structure the chapter. The methodology used is Participatory Action

Research underpinned by a critical theoretical perspective. It details the rationale for my approach, the primary research sites and the data collection methods used.

Chapter Six gives a contextual and historical overview of Information Management and Technology within the NHS leading up to this research project. Awareness about the historical nature of social phenomena has implications for how a variety of issues are conceptualised and may contribute to a better understanding of their relevance to contemporary phenomena under study (Alvesson and Deetz, 2000). The integrated IS projects discussed within the primary research have been carried out against a macro environment of political, economic change and failed high profile Hospital Information Support Systems (HISS).

Chapter Seven is a relatively short chapter which describes the initial ‘questioning’ project from Hospital X where I was part of an IT department. Here I began to learn about discursive closure and systematically distorted communications and where the Participatory Action Research was used for the first time to address this type of practice.

Chapter Eight describes how I moved the research on and gives an account of the Participatory Action Research at Hospital Y. Having explored how discursive closure can operate within the context of an integrated IS project I began to develop practice within the user domain which could facilitate their emancipation as well as continue my own.

Chapter Nine describes an integrated Payroll/Personnel implementation at Hospital Z where the emancipatory framework was used in a more extensive manner and a number of the concepts put into practice. In this project there was the added complexity of two hospitals merging as well as two previously autonomous departments trying to acquire an integrated IS. The modelling tool, IDEF0, was used by the participants within the project in order to overcome distorted communications and to act against domination by individuals or groups whose intentions were discursive closure.

Chapter Ten describes a further integrated IS project within Hospital Z where the clinical department of Gynaecology appeared to require a new system to help administer their work in outpatients' clinics, on the wards, in theatre and in patient administration. This provided the opportunity to develop further the research carried out on the Payroll/Personnel project. This turned out to be a very complex piece of research and illustrated the difficulties the systems analyst can encounter when adopting this type of approach.

Chapter Eleven is intended to be highly reflexive where I problematise my assumptions, interpretations and interactions with the empirical material outlined in the primary research chapters. It is not intended to provide a definitive methodology for conducting emancipatory research but to develop some insightful conclusions which may inform further research. It considers the value of this type of practice within the context of the wider body of knowledge and this feeds into the final concluding chapter.

Chapter Twelve brings to an end my journey and explores how it has affected me as an individual. It then draws conclusions, considers the limitations of the study and highlights potential areas for further research.

1.8 Summary

This chapter has laid the foundations for the thesis. It has introduced the research problem and the research questions. The author has justified the research in terms of its importance in the academic domain of critical social theory and the need to move the concept of emancipation into developing relevant and appropriate practice. On these foundations the thesis can proceed with a detailed description of the literature review which underpins the research.

Chapter - 2

2. A critical perspective on the role of the systems analyst

2.1 Introduction

In all areas of life individuals acquire skills and abilities which they are able to bring to their work and the systems analyst is no exception. Academic ability, education and individual ethics and morals form part of their historical context (Kendall and Kendall, 1998). If they have come through a Higher Education course or have been formally taught systems analysis then they acquire a perspective which reflects the predominant theories and practice.

The purpose of this chapter is to begin the process of emancipation of the systems analyst by reflecting on predominant functionalist theory and practice with a view to *“mobilising critical reason to diagnose prevailing conditions”* (Alvesson and Willmott, 1996:15). From the perspective of the ‘insider’, the IS professional, much of this theory and practice reflects the continuing struggle against IS failure and the need to improve praxis. However, there are alternative interpretations of this theory and practice which reveal more sinister insights into the role of IS and the practitioners therein. Having considered this theory the chapter will also reflect briefly on other paradigmatic approaches which have led to alternative theory and practice being developed.

The chapter begins by outlining a framework developed by Hirschheim and Klein (1989) to consider the various paradigms for systems development or acquisition. This framework is then used to structure the chapter. The main paradigms under which the systems analyst can operate are then critically evaluated along with the methods, approaches and skills used.

2.2 Information Systems Acquisition Paradigms

In their work, Hirschheim and Klein (1989) argue that there are many reasons why the implementation of information systems fail and recognise that it cannot be attributed to any one specific factor. However, they do believe that by considering the assumptions and in particular the underpinning philosophy of the approach of key players in the implementation field a better understanding may emerge of the associated problems. They identify the systems analyst as being integral to implementation. From the perspective of this thesis, the systems analyst is considered to be an individual who could be involved in a number of phases of systems acquisition from carrying out feasibility studies to training users on the new system (Crawley and Morris, 1970:2). Hirschheim and Klein (1989) use the Burrell and Morgan (1979) framework, Figure 2-1, to consider the basic assumptions of the analyst under the prevailing paradigms. This framework, though flawed (Jones, 1999), is very useful as a heuristic to classify the philosophical approach of each paradigm of IS acquisition but it is also important to explore how these paradigms have been adapted over time in recognition of changing circumstances.

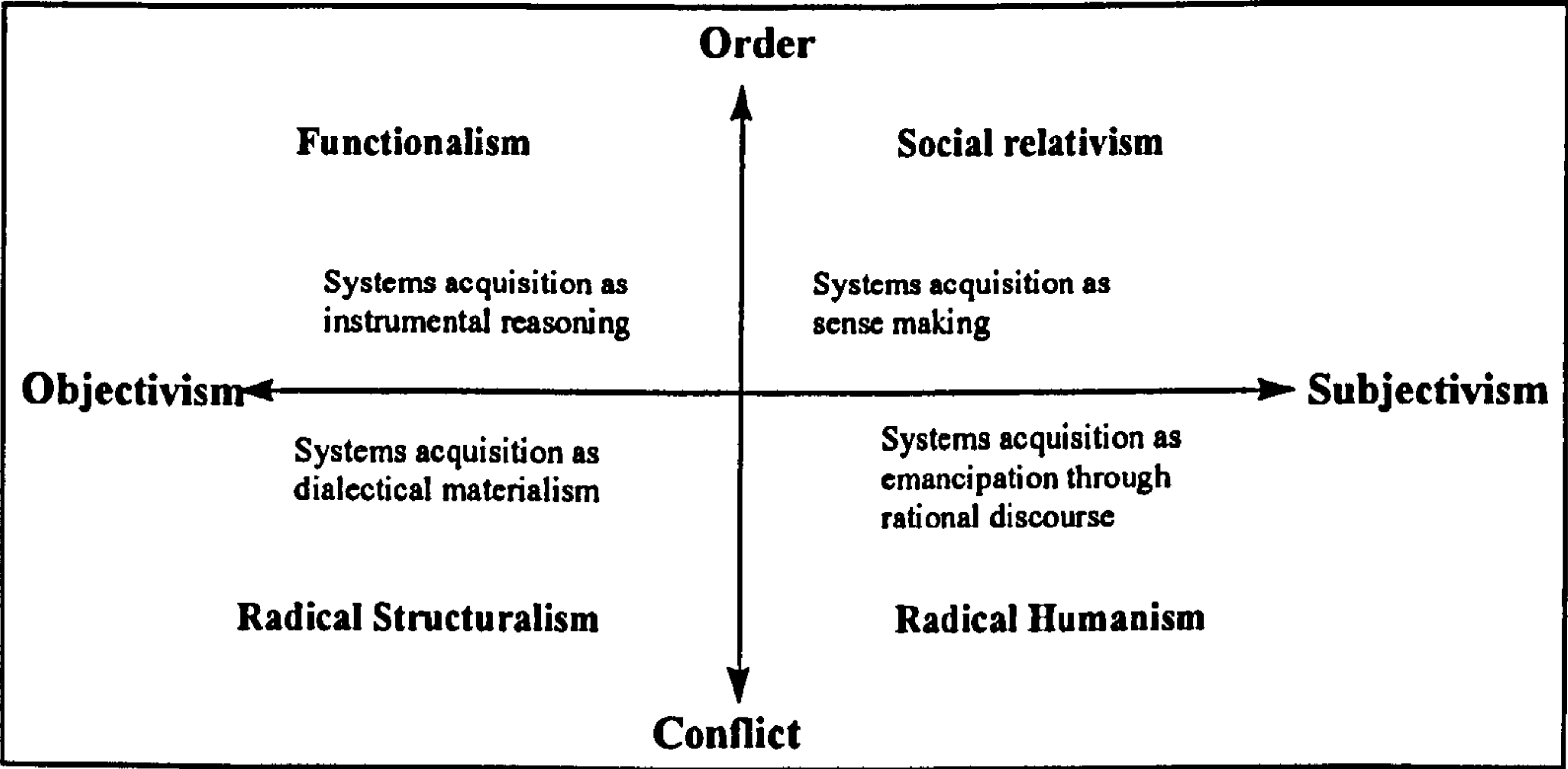


Figure 2-1 The four paradigms of systems development (Hirschheim and Klein, 1989)

Each of the four quadrants in Figure 2-1 represents a different underpinning philosophy which determines the approach adopted by the systems analyst. The dominant paradigm is, and always has been, that of 'Functionalism' (Warren and

Adman, 1999). Social Relativism is practised in the UK through the approach adopted by the ‘soft’ systems schools and Radical Structuralism predominantly in Scandinavia. Neither of these approaches have made significant impact on mainstream IS practice. The Radical Humanist approach is controversial and has been the subject of academic debate within the IS community with little attempt being made to develop practice within this paradigm. Difficulty lies in linking theory to practice (Wilson, 1997). One argument being ‘how can practitioners operating in a functionalist paradigm, with all the historicity that it entails, adopt a different paradigmatic position?’. Critique by IS academics can only be hypothetical and lacks the reflexive dimension of the practitioner (Wilson, 1997). However, this is not to deny the merit of such work. The historical context of each paradigm and the skills emergence of the practitioner can be seen in Figure 2-2.

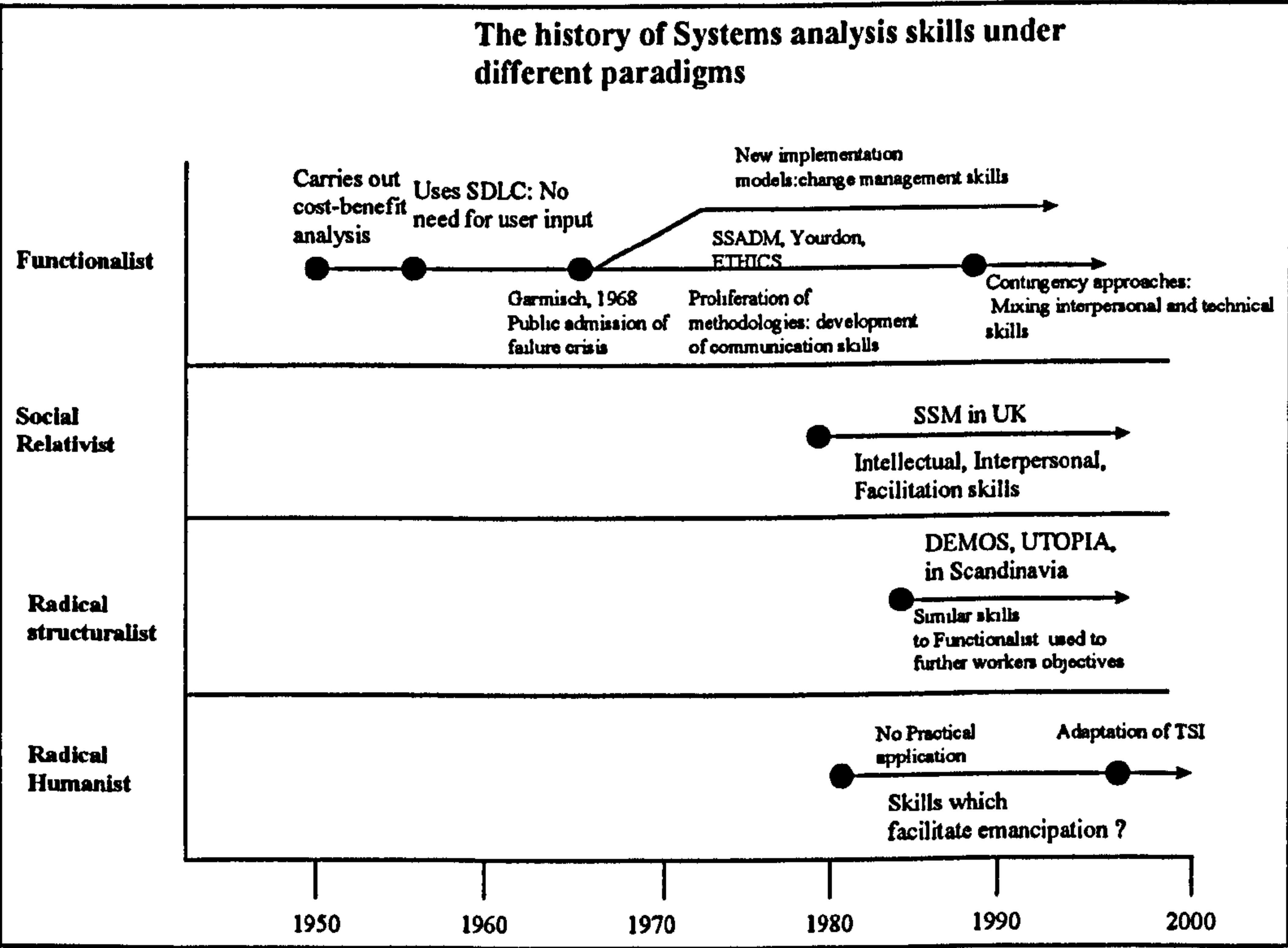
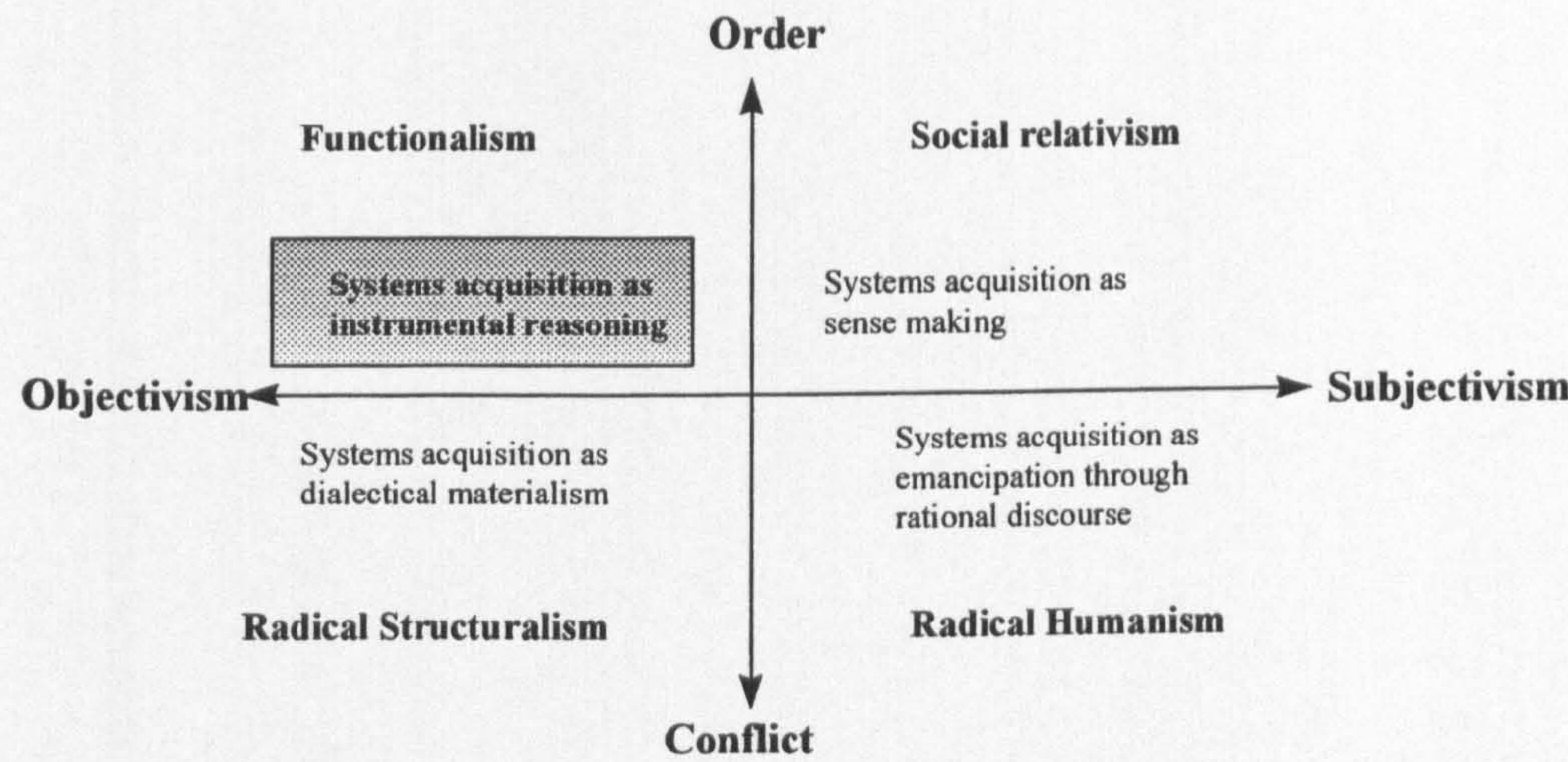


Figure 2-2 An historical perspective of the four paradigms of systems development

Figure 2-2 is intended to show the paradigms in relation to their historical context and is not definitive. The functionalist paradigm has the longest history almost dating back

to World War II where an engineering approach to systems development was thought to be the most appropriate. Marked on Figure 2-2 are some of the more interesting developments which have affected the way practice has developed. The other paradigms shown in Figure 2-2 have only become relevant in response to a general dissatisfaction with the functionalist approach. However, even today the majority of practising systems analysts still adhere to the functionalist paradigm and this will be explored in the next section.

2.3 The systems analyst as a functionalist



The functionalist approach to information systems implementation is still the most accepted way forward for many researchers and practitioners (Warren and Adman, 1999). Burrell and Morgan (1979:26) define functionalism as an approach which “*seeks to provide essentially rational explanations of social affairs*”. It simply takes a scientific approach to acquiring knowledge and believes this can be done independently of the subject or the observer. The vertical dimension of the matrix divides theories of regulation from theories of radical change. Theories of regulation assume that modern society and their organisations are characterised more by order than by conflict. Attention is therefore focused upon existing mechanisms for preserving and strengthening social order thus maintaining the status quo of those in position of authority (Alvesson and Willmott, 1996).

There is a great deal of evidence to support the view of systems analysis and the individuals who practice the skills as being instrumental in developing systems which re-inforce the social order within organisations. The role of the systems analyst as a functionalist or 'expert' at the centre of IS acquisition has been continually re-enacted over time (Brooke, 1995) and evidence of this can be seen by considering an historical exploration of the systems analyst to the present day. The review will examine important issues which have impacted on the role of the systems analyst such as the introduction of methodologies and implementation models.

2.3.1 The history of the 'expert' analyst

Although a very detailed historical account of the development of computerised information systems is given by Friedman and Cornford (1989) which is highly insightful into the development of the IS profession it does not give a real understanding of the systems analyst per se.

Systems analysis in the IS field really started with the growth of commercial computing in the 1960s when systems were intended to be developed according to models which had their origins in engineering (Friedman and Cornford, 1989:91-107). Probably the earliest implementation model used within the context of IS was the Systems Development Life Cycle (SDLC) which has come to describe an ordered set of activities which must be carried out in a particular sequence to produce a computer-based system. The origin of the SDLC was through the Operational Research literature and through reports describing how various systems analysts had used it in the context of 'live' projects (Friedman and Cornford, 1989).

Although there is no general agreement on precisely what should be included in the SDLC, Table 2-1 shows how it has developed over time in response to the growing

concerns of users and the lack of success in using it e.g.

	Classical Life Cycle (Davis 1975)	Structured Systems Life Cycle (Enger 1981)	The IS Life Cycle (Duffy and Assad 1980)	The DSS Life cycle (adapted by Friedman (1989 p182) from 1984 Society for Information Management University of Minnesota.
	STAGE	STAGE	STAGE	STAGE
1	Information analysis	Requirements analysis (survey)	Preliminary analysis	Planning
2	Feasibility assessment	Logical design (analysis)	Feasibility analysis (Organisational)	Application research
3	Systems analysis and design	Structured physical design	Information system planning	Analysis
4	Procedure and program development	Top-down implementation	Feasibility analysis (project)	Design
5	Conversion	Acceptance test generation	Project planning	System construction
6	Operation and maintenance	Quality assurance	Information analysis	System testing
7	Post-audit	System operation	Systems analysis	Evaluation
8			System design (physical design)	Demonstration
9			Programming and procedure development	Orientation
10			Testing	Training
11			Conversion	Deployment
12			Operation	Maintenance
13			Maintenance and modification	Adaptation
14			Post-audit/review	

Table 2-1 The Evolution of the Systems Development Life Cycle

Traditional texts suggest that the early models were intended to be used by systems analysts and developers to bring a control dimension to the IS projects and were constructed by IS specialists for their own specific use. The SDLC has evolved over time but even today is still the accepted ‘traditional’ model for systems development (Curtis, 1998; Flynn, 1998). Unfortunately in the late 1960s and early 1970s IS failure began to appear in prominent research (Ackoff, 1967; Lucas, 1975). The inadequacy of the SDLC was not brought into question. However, research focused upon the IS practitioners and how they practised.

In the UK in the late 1960s concern about the nature of systems analysis and the requisite skills began to manifest themselves with the National Computer Centre

(NCC) leading the practitioners. The NCC undertook a major research project (Crawley and Morris, 1970) of which the main objectives of the study were to prepare a detailed description of the work of the systems analyst, discover factors affecting their work and also to devise a selection procedure for the recruitment of systems analysts. This study had major implications for years to come as it set the mould for analysts. 95% of the systems analysts interviewed were men who had predominantly been educated to 'A' level or had attended university and had come through a programming career route. This profile was believed to be representative of the population of systems analysts at that time (Crawley and Morris, 1970). As systems acquisition was through development, they viewed themselves as the main architects of new information systems. Their status within organisations was high as they were part of high level decision-making:

"Before a feasibility study is carried out, a decision has to be taken about the area of work to be investigated with a view to computerisation. This decision is arrived at by consideration of the systems analyst's own ideas and suggestions put forward by senior staff in the organisation" (Crawley and Morris, 1970:10)

User liaison and fact finding was generally by lengthy interviews with selected staff, often management, which *"can take over a year to complete"* for complex systems. Where the analyst met resistance *"the systems analyst has to define the requirements himself"*. Crawley and Morris (1970) suggest that end user issues were becoming problematic and this was possibly related to the attitude of systems analysts towards users:

"Some systems analysts try to convince the user that their own (the systems analyst) ideas are right, holding the belief that users should accept their superior knowledge of computer systems. Systems analysts usually make some attempt to rationalise and improve existing systems, and, because of the inherent resistance to change, this gives rise to many of the difficulties associated with user liaison." (Crawley and Morris, 1970:12)

Crawley and Morris (1970) state that the most difficult task for the analyst was the installation and change over as they were required to work more closely with user departments and this was where friction occurred. Where operating procedures had changed due to computerisation users began to discover how the system would affect them and consequently resistance could develop.

Crawley and Morris (1970) concluded that the systems analyst appeared to enjoy the creative side of systems design and a degree of autonomy in their work. However, their communications skills were under-developed and in particular found difficulty communicating with user departments. It is this final aspect of the systems analyst profile that the NCC believed was inadequate and needed addressing. Unfortunately, managerial attempts at controlling and monitoring IS professionals more closely was tempered by skills shortages which began to manifest themselves during the 1970s. IS staff resisted unpopular management strategies by changing jobs (Knights and Murray, 1994).

2.3.1.1 *The functionalist approach to users relations*

Much of the early emphasis on implementation was on overcoming user resistance to new computerised information systems and systems objectives were never in doubt. The problems were largely perceived as lying with the users and not the analysts (Davis, 1974) and this gave rise to two attitudes towards implementation by systems analysts:

- Overcome resistance by salesmanship. Convince the users that they would be better off with the new system.
- Ignore the problem. Users were viewed as troublemakers who had to accept the system (Sackman, 1971).

From the mid-1970s user participation and communication was emphasised more in the literature. The one way communication from 'expert' to user (Schultz and Slevin, 1975) was gradually overtaken by calls for a two-way process of communication - a

mutual learning process (Boland, 1979) in order to improve the effectiveness of the systems being delivered. However, theory and practice were mutually exclusive in the 1970s. Research by Mumford (1972) would indicate that systems analysts and users had very little communication and she concluded:

“This reluctance on the part of computer men to use a democratic approach may be due to their wish to retain command over the situation in which they are operating. They appear to believe that if they can do this their system will go in essentially as they have designed it. There will be no need to compromise by having to accept what are to them the misguided opinions of the user” (pp 142-143).

Lucas (1973,1974,1975) an influential researcher working in the USA in the implementation area, clearly believed that user-controlled systems design was the way forward. Like Mumford (1972), Lucas saw the ‘democratic’ approach to systems design as a solution to failure. He advocated users taking part in the process of developing systems though the systems objectives may not necessarily have been determined by them. His, however, was very much a minority view until the 1980s and systems development continued to fail.

Other researchers had different solutions to the ‘user problem’. For example, Argyris (1971) and Keen and Scott Morton (1978) believed that difficulties arose through lack of mutual understanding between users and developers and so if there was an education of users in the development process and developers in the business the situation would be improved. Another recommendation in the literature was to create specialists in implementation (Carlson et al., 1977). They proposed that the skills needed for implementation are different to those for programming and analysis and what is needed is an ‘integrating agent’ - a skilled intermediary who knew the system in detail. The integrating agent (usually female) acted as:

1. An ‘enlightener’, who explained the system to the user
2. A crusader, who ‘sold’ the system, largely through personal enthusiasm

3. A confidante, who built up users' self-confidence and acted as advisor; and
4. A teacher, who provided personalised instruction.

Keen and Scott Morton (1978) were sceptical that such an integrating agent could be easily found as the requirement of mix of technical and business skills would be too exacting.

In all of this literature the user is perceived as subservient to the IS analyst/specialist and much of the critique has been ignored by practitioners as it has been produced by behavioural and social scientists who are not 'insiders' and who may publish in journals they do not read (Friedman and Cornford, 1989:223). Even today this is still an issue as much of the critical evaluation of IS theory and practice is being done in academic journals which are not accessed by IS practitioners using traditional approaches to development (Benbasat and Zmud, 1999).

IS failure has continued to dominate both the public press and research agenda. Systems failure in the 1980s and 1990s have been, in some instances, spectacular (Markus, 1983; Collins, 1992; National Audit Office, 1996). These failures cannot be ignored as they can give insight into where IS research and practice is itself failing (Sauer, 1993). From their analysis of the literature, over a twenty year period, Lyytinen and Hirschheim (1987) classified twelve of the main reasons under four groupings (the IS, the IS environment, the IS development, the IS development environment). This is shown in Figure 2-3.

Features of the Information System	Features of the IS environment
<i>Technical and operational reasons</i> (Markus, 1983;Kling and Scacchi, 1982)	<i>Inadequate understanding of human and behavioural reasons</i> (Markus and Robey,1983; Keen and Scott-Morton, 1978; Argyris, 1971; Zmud 1979 etc) <i>Organisational reasons</i> (Markus, 1983; Pettigrew, 1973; Bjorn-Anderson and Eason, 1980 etc.) <i>Environmental reasons</i> (King, 1978; McFarlan and McKenney, 1983; Earl 1987, etc.)
Features of the ISD process	Features of the ISD environment
<i>Methods reasons</i> (Ross and Schoman, 1977; Gane and Sarson, 1979; DeMarco, 1978; Yourdon, 1982; Mumford, 1983 etc.) <i>Decision-making reasons</i> (Rockart, 1979; Alter, 1980; Sprague, 1980; Keen and Scott-Morton, 1978; Mintzberg, 1973 etc.) <i>Nature of work reasons</i> (Leavitt and Whistler, 1958; Mintzberg, 1973; Hirschheim, 1985) <i>Contingency reasons</i> (Davis, 1982; Mc Farlan, 1981) <i>Implementation reasons</i> (Zmud and Cox, 1979; Ackoff, 1967; Ginzberg, 1978,1979, Keen 1981 etc.) <i>Systems assumptions reasons</i> (Keen and Scott-Morton, 1978; Keen 1976; Boland and Day, 1982; Markus, 1984; Franz and Robey, 1984; Hirschheim, 1983 etc.)	<i>Systems developer reasons</i> (Mumford and Pettigrew, 1975; Klein and Lyytinen, 1985; Markus and Robey, 1983 etc.) <i>User education reasons</i> (Lucas, 1973; Earl, 1978; Alter, 1980; Ginzberg, 1981 etc.)

Figure 2-3 Reasons for failure (Adapted from Lyytinen and Hirschheim 1987)

The failure reason classes listed are not as distinct as Lyytinen and Hirschheim (1987) suggest. The reasons can occur concurrently and can interact. It can be seen, however, that often the reasons for failure typically involve organisational behaviour and have a social dimension. Many of the reasons fall in the domain of the systems analyst and in the area of Information Systems Development (ISD) as illustrated in Figure 2-3. In looking at this specific literature it appears that although theory and practice had evolved it was still not preventing IS failure. Analysts were being overwhelmed with a proliferation of new methodologies which claimed to use specific modelling techniques or tools and were expected to develop new skills to match these methodologies to improve interpersonal and communication skills.

2.3.1.2 The Functionalist methods, methodologies and models

Functionalist methods and methodologies tend to concentrate on specific aspect of the development process and do not address the process as a whole from conception of the idea to use of the information system within the organisation. From this literature several 'schools of thought' can be identified for example: functional requirements specifications (DeMarco, 1978; Gane and Sarson, 1979) data analysis (Davenport, 1978; Olle et al., 1982) prototyping (Harker, 1988; Earl, 1978; McCracken and Jackson, 1981; Beynon-Davies et al., 1999) socio-technical (Mumford, 1983; Land et al., 1980) contingency (Avison and Wood-Harper, 1990; Avison and Fitzgerald, 1996).

ISD methods in this tradition are also characterised by tools and techniques which assist the systems analyst in carrying out the tasks. Techniques such as dataflow modelling, entity relationship diagramming, normalisation have been introduced and are common to many. These techniques assume that there is an objective reality to capture and are applied in a scientific, sometimes quantitative manner.

From the systems analyst perspective dataflow diagramming is a good tool which used '*..sensibly can provide an immediate and understandable model of the essential inputs, outputs and processes of the system*' (Benyon and Skidmore, 1987:3). Tools such as CASE (Computer Aided Software Engineering) may be used to automate some of the processes involved. However, many are difficult to use by the analysts themselves and are often alien to end-users within most organisations (Wastell, 1996).

A further development to the acquisition of IS process has been the growth of off-the-shelf software and the microcomputer industry. This growth has allowed more IT into the user domain with the result that many are no longer intimidated by it and are able to challenge the IS staff and their control over services such as systems analysis (Knights and Murray, 1994). Procurement of new systems within organisations has become a politically sensitive area as IS staff reluctantly relinquish their dominant hold

on the service provision or procurement (Robson, 1997). However, despite the increasing involvement in IS by non IS professionals it is overwhelmingly those IS professionals who decide on IS acquisitions. In fact Green-Armytage (1994) points out that less than 20% of acquisitions will involve non-IS professionals.

Concern about the procurement of information systems is not new and in 1982 the NCC were involved in the STARTS initiative originally aimed at encouraging the adoption of software engineering methods and tools for the development and procurement of real-time systems. In 1987, the Initiative was extended to the commercial sector. The intention of the project was to promote “best practice” amongst purchasers when procuring a system. Unfortunately the guide (DTI, 1987) reads like a project management manual and breaks down the procurement into manageable steps based on the SDLC. It is written for the systems analyst and though acknowledging that users should be involved in the process it once again re-inforces the ‘expert’ status of the systems analyst. Clegg (1995) is extremely concerned with the power that has been invested in certain IT professionals within the IS procurement process. These are often not systems analysts but technical experts and he believes their attitudes can actually damage the business. Clegg (1995) believes there is a much greater role for users to be involved in procurement of systems and until the balance is redressed business will continue to waste money.

The search for other approaches to implementation in the functionalist tradition has continued. Whereas there are a wealth of methodologies for the systems analyst to utilise, targeted at the analysis and design phase of the Systems Development Life Cycle (SDLC) there is not the same quantity of holistic models which address implementation as defined by Lucas (1990). Examples of some of the generic IS models have been mapped by the author against the traditional SDLC in Figure 2-4.

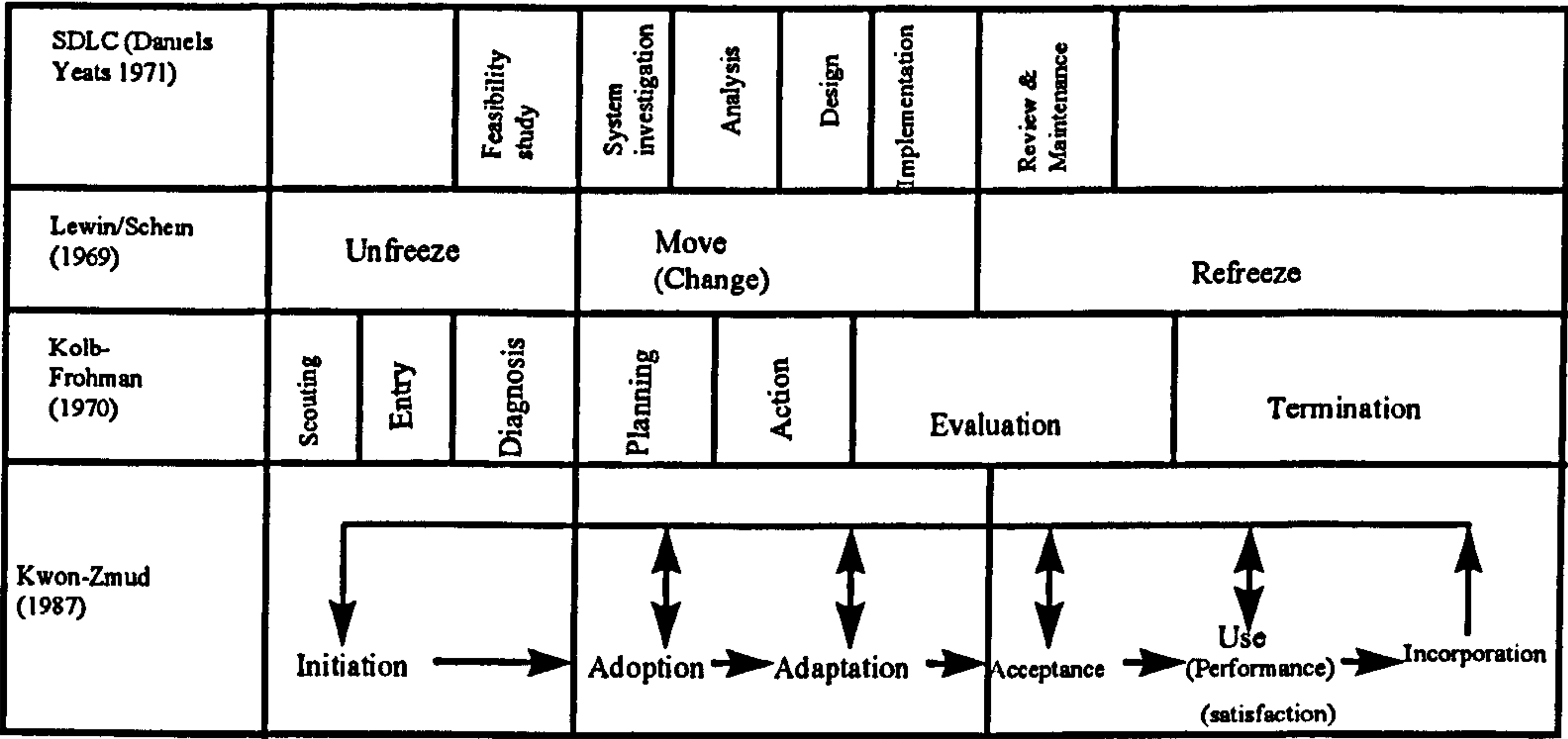


Figure 2-4 Implementation models

The models outlined in Figure 2-4 are typical of the process model genre which characterise implementation in terms of generic phases that have to be managed sequentially in order for the system to be eventually successful.

[It is interesting to note at this point that the Lewin/Schein model and the Kolb-Frohman model initially were used in other contexts e.g. the Lewin model related to bringing about change in individuals undergoing therapy and the Kolb-Frohman (1970) model related to the consultancy process.] The Lewin/Schein model (1969) assumes that systems analysts/implementers are ‘change agents’ and the users/members of the proposed system are resistant to change and hence need some social force to ‘unfreeze’ them from their current state moving them to the next. The Kolb-Frohman model (1970) emphasises a more participative approach with the consultant acting as change agent/facilitator. This model also adopts a ‘stage’ approach with limited feedback for organisational learning. Kwon and Zmud (1987) take the Lewin/Schein (1969) model further but pay scant attention to the ‘initiation’/ ‘unfreeze’ stage and its affects on the rest of the process. This seems at odds with their assertion that implementation success occurs when the early stages are handled well.

More recent work by Orlikowski and Hoffman (1997) has attempted to develop the ‘Move/Change’ stage of the Lewin/Schein (1969) model. They believe that a new change approach is needed for current and future business environments as well as the new information technologies. Their model begins with the acquisition of IT and explores the ‘improvisational’ nature of change.

2.3.1.3 A critique of the functionalist approach to IS acquisition

Critique of the functionalist methods and models has mainly come from two areas - within the IS discipline and from social scientists who are not necessarily practitioners. If the IS literature is examined first there is a distinct historical theme emerging from it - that of incompetent practitioners continually striving to deliver successful systems and academics struggling to deliver theory. Early literature began this by examining the nature of failed IS (Ackoff, 1967) and the Garmisch conference of 1968 publicly acknowledged that there was a software crisis. To ward off criticism much research has been done on providing new models of the SDLC, implementation and a plethora of methodologies. Many of these methodologies, developed in the 1970s and 1980s, have evolved over time from aspects of 'good practice' (Fitzgerald, 1996) and have eventually incorporated forms of user participation in recognition of the social dimension of IS. Some methodologies even claim an underpinning philosophy which, in some instances, has changed since its inception (e.g. compare ETHICS: Mumford and Weir, 1979; with Mumford, 1996). The critique provided by Fitzgerald (1996:18) describes a profession in crisis that is finding it difficult to persuade critics that its practice is more than a 'black art'. Wastell (1996) has a different perspective on this 'black art'. He believes that everyone needs to feel secure in what they do and avoid painful experiences. Systems analysts are no different when involved in IS development or acquisition. They need the 'warmth and security' of the model or methodology and use them as social defence against the acute anxieties of developing systems. Through the methodology they can avoid conflict and power battles and when things go wrong transfer blame to the methodology.

However, within IS research there still remains no generally accepted theory of systems development, nor has there been a systematic investigation of evidence of the deficiency of methodologies in use (Bubenko, 1986; Lyytinen, 1987a,b; Wynekoop and Russo, 1995, 1997). It still does not prevent the emergence of new functionalist methodologies e.g. Dynamic Systems Development Method (Carr, 2000). Easterbrooke (1993) questions whether the situation will ever improve within a functionalist paradigm as IS staff cannot stand outside their own personal identity and professional culture. He does not believe that IS professionals can deal with the

politics of IS development where there are sources of conflict and where traditional approaches to development are through the suppression of this conflict or its management. Easterbrooke (1993) highlights situations where single user perspectives are adopted, leading to a false consensus, discarding of useful ideas and lost good will of the originators of those ideas.

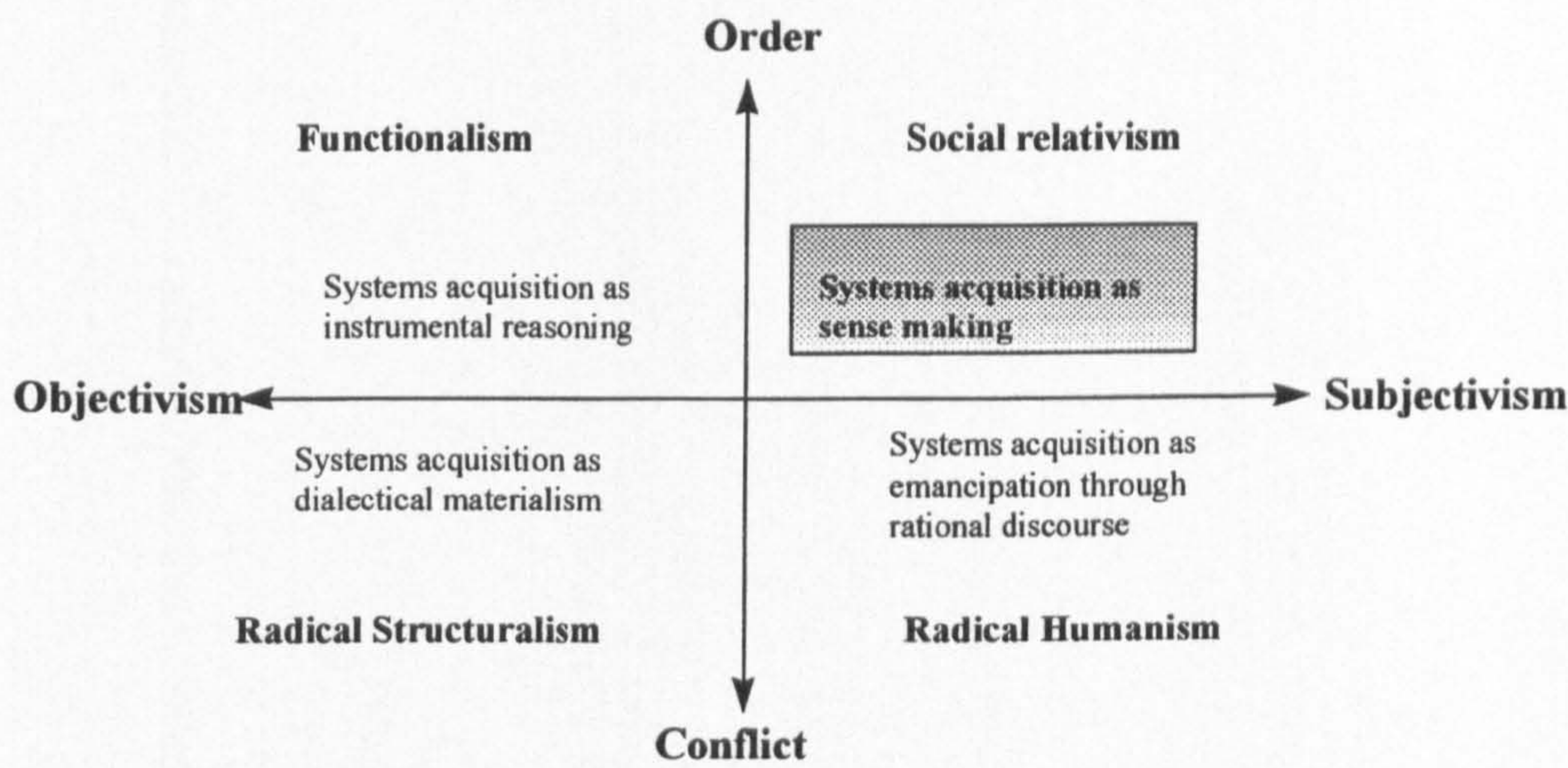
From a social science perspective Elkjaer et al. (1991) view methodologies as being used to bring change to organisations, replacing old systems with new ones yet maintaining the status quo by reproducing institutional, political and socio-economic relations of management. These early models take little account of or show understanding of social and organisational conditions within the process.

Elkjaer et al. (1991) view this as the beginning of the 'commodification of expertise', where bodies of knowledge are constructed and commodified by these analysts to convey and sustain an image of 'professionalism' and 'expertise'. It is important to explore these practices and bodies of knowledge as they are the foundations upon which analysts make claims to be taken seriously by others. Elkjaer et al. (1991) are scathing about the replacement of 'old' failed traditional models by new 'progressive' models which allow a closer relationship with the users. They cite ETHICS as an example where the underlying philosophy appears to be 'get users involved to guarantee success'. However, this approach does not recognise the asymmetrical power relationships which can affect communications between users and managers and users and analysts. This criticism has given rise to the suggested possibility of more 'socially responsible' methods which recognise that meaningful dialogue and participation may be impeded or distorted by unfavourable material and ideological conditions.

Murray and Willmott (1993) view the inclusion of user participation into IS development methodologies as an attempt to bring technical rationality to what is in fact a social process. From their perspective user resistance to change is not dysfunctional and occurs when a new IS is likely to bring '*reorganisation of work associated with a loss of control of valued material and/or symbolic resources*' (Murray and Willmott, 1993:172).

These criticisms still have not deterred organisations in both the public and private domain from adopting functionalist methodologies to aid the development of complex information systems. In fact this has been positively encouraged (Edwards et al, 1989). SSADM (Ashworth and Goodland, 1990; Downs et al.,1988) is the preferred structured methodology of the NHS and is used by other Government departments.

2.4 The systems analyst as a social relativist



The second paradigm of Social Relativism is concerned with understanding how people construct their world through the use of symbols such as words and gestures. Researchers in this paradigm view organisations as little more than a network of assumptions and intersubjectively shared meaning (Alvesson and Willmott, 1996:56) Thus IS researchers working in this paradigm challenge the functionalist approach to systems analysis. This alternative approach is held to be of increasing value by the academic community but from a practitioner perspective has still to penetrate in any real depth the mainstream of systems analysis or development (Boland, 1985; Walsham 1993a).

“Social relativism recognises that knowledge about human means and ends is not easily obtained because reality is exceedingly complex and elusive”
(Hirschheim and Klein ,1989:1204)

2.4.1 The History of the analyst as a Sense Maker

In recognition of the deficiencies of the functionalist paradigm of systems analysis and development a new approach to this field began to emerge in the early 1980s. The underpinning epistemology was interpretivist where the role of the systems analyst is that of sense-maker or facilitator. In the interpretive tradition *"there are no correct and incorrect theories but there are interesting and less interesting ways to view the world"* (Walsham, 1993a:6).

Interpretivism argues that a blend of theory and practice may be more valuable to an individual practitioner than practice alone and that explicit theories may aid the synthesis of implicit practical knowledge and equally important may provide a means to communicate this knowledge to others. Boland (1979, 1985) uses phenomenology and hermeneutics as the theoretical basis for his research in this area:

"..the use, design and study of information systems is best understood as a hermeneutic process...In using an information system, the available output is a text that must be read and interpreted by people other than its author. This is a hermeneutic task. In designing an information system, the designer reads the organisation and its intended users as a text in order to make an interpretation that will provide the basis for a systems design. This is also a hermeneutic task. In studying information systems, social scientists read the interaction during systems design and use in order to interpret the significance and potential meanings they hold. Hence, doing research on information systems is yet another hermeneutic task. (Boland, 1985:195-196)"

Work in the interpretive tradition of ISD is typified by Winograd and Flores (1986) and Walsham believes his own work (Walsham, 1993a) complements this approach. He views the systems analyst as an 'IS implementer' who is a link throughout an implementation process and is endowed with various skills - political, personal, facilitating- which can help with the organisational implementation. Walsham (1993a) envisages this 'implementer' intervening in the process but he reflects that this could bring ethical and moral dilemmas. This is in direct contrast to the traditional role of the

functionalist systems analyst and this model of the systems analyst would be completely alien to those schooled in the functionalist approach.

2.4.1.1 Social Relativist Methodologies

The approach in the interpretive tradition which has had the biggest impact on the information systems development process particularly in the UK is the Soft Systems Approach. The work of Churchman, Ackoff and Checkland in Operational Research is held to constitute the core of Soft Systems thinking (Churchman, 1971, 1979; Ackoff, 1979a,b; Checkland, 1981). What grew out of this work was Checkland's Soft Systems Methodology (SSM) which was a response to the frustration experienced by consultant systems analysts trying to use hard systems methodologies in 'soft' problem situations (Checkland, 1981; Checkland and Scholes, 1990). The methodology is said to facilitate a social process in which "appreciative systems" are held up for examination and possibly changed. The analyst and the various actors may then agree upon changes which should be both systemically desirable and culturally feasible. Checkland has refined this methodology over a number of years by consultancy with organisations and research student consultancy. It has been used in many contexts including manufacturing and the NHS (Checkland, 1981; Checkland and Scholes, 1990; Wilson, 1990; Lewis, 1994; Checkland and Holwell, 1998).

Checkland's methodology emphasises the subjectivity of systems analysis and the importance of an iterative approach to the process. He stresses that there are many different, valid views of a problem situation and these should all be considered in turn before arriving at a 'root' definition of the perceived problem. It is a methodology which requires time with the 'stakeholders' and can be intellectually challenging. Hybrid work has developed from the functionalist approach to information systems development (ISD) and that of the social relativist. This is typified by the work of Avison and Wood-Harper with the development of their Multiview methodology (1990) which attempts to examine both the human and technical aspects of ISD. Lewis (1994) has developed 'interpretive data analysis' and work is currently on-going to interface SSM and IDEF0 (NHSME, 1996; Colquhoun et al., 1993).

2.4.1.2 A critique of Social Relativism

The value of SSM, it is claimed (Checkland, 1981) is in its capacity to model the diversity and complexity of the interpretive frameworks of actors and thereby to facilitate a process of dialogue by enabling different groups to appreciate how others see the world. In the case of ISD it should lead to an understanding between the users and the developers. Thus by engendering this greater mutual understanding, consensus will be reached on the nature of the problem and how it is to be effectively solved (Alvesson and Willmott, 1996). SSM also claims a political and ideological neutrality and the ideas therein, it is argued, are available in principle to any interest in society as methodologies do not serve any particular group or class (Checkland, 1985).

However critics of SSM (Thomas and Lockett, 1979; Jackson, 1982; Ulrich, 1987) believe that the existing structures of power and authority are favoured when using the methodology. Willmott (1989) goes on to argue that when this shortcoming is acknowledged attaining consensus between different groups is likely to require a radical transformation of these relations.

Jackson (1985) challenges the view that stakeholders will enter into a free and open discussion about changes to be made. He suggests that privileged stakeholders (in terms of wealth, status or power) will not risk their dominant position in a systems design.

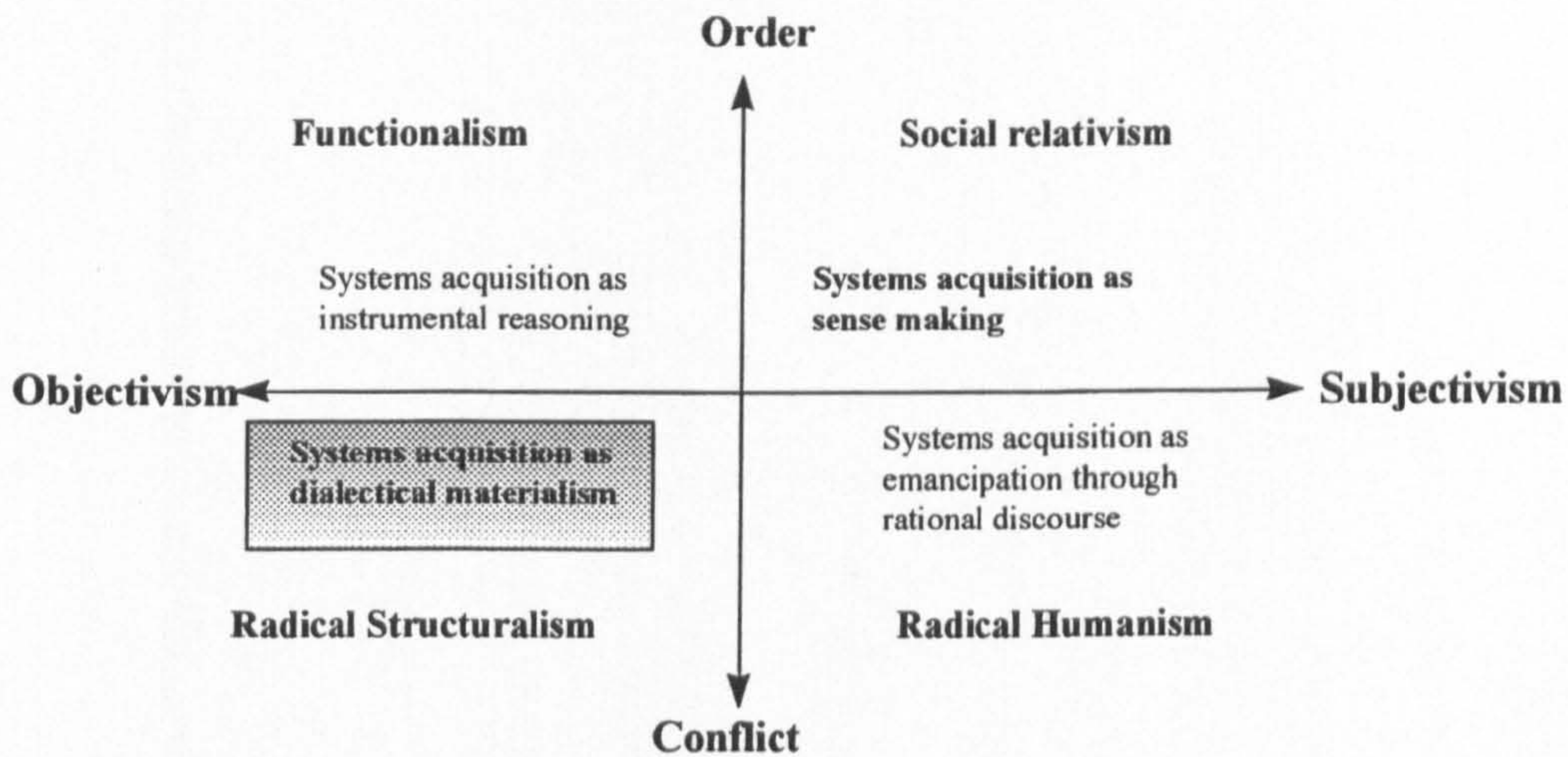
Jackson (1985:129) pursues this argument further by asserting:

"if validation is to depend upon the achievement of a true consensus among participating actors care will have to be taken that the discussions that take place are free and understated?"

Finally, the discussion should take place free from a framework of domination. Can an analyst be totally neutral in the intervention force? Who invited them in and who holds the overall power in the system under investigation?

As researchers trying to use SSM, Clegg and Walsh (1998) found the language of SSM restrictive and the methodology difficult to learn especially for users. They felt SSM to be conservative in the results it facilitates and had problems dealing with powerful stakeholders. This would appear to confirm the comments made by Jackson (1985).

2.5 The systems analyst as a Radical Structuralist



The Radical Structuralist paradigm is predicated on the belief that society is full of conflict yet there is an objective economic reality. Hirschheim and Klein (1989) explain the economic reality in terms of the interdependent unfolding of the conflict between shareholders of the organisation and the working class (the labour). Organisational behaviour is understood to be conditioned and possibly determined by structures of domination, in particular the institutionalised exploitation of workers within the capitalist framework of production. Researchers within this paradigm believe that individuals do not operate freely and are conditioned more by structural forces than by their own conscious will. Radical structuralism like Functionalism has an objective philosophy of science. However, it is different in that it assumes there is a latent force within the established structures which makes the reproduction of domination highly unstable (Alvesson and Willmott, 1996). That is why capitalist society needs secret service agencies, mass media and compulsory state education to ensure the continuity of the social order.

2.5.1 The history of the Analyst as an ally of the Workforce

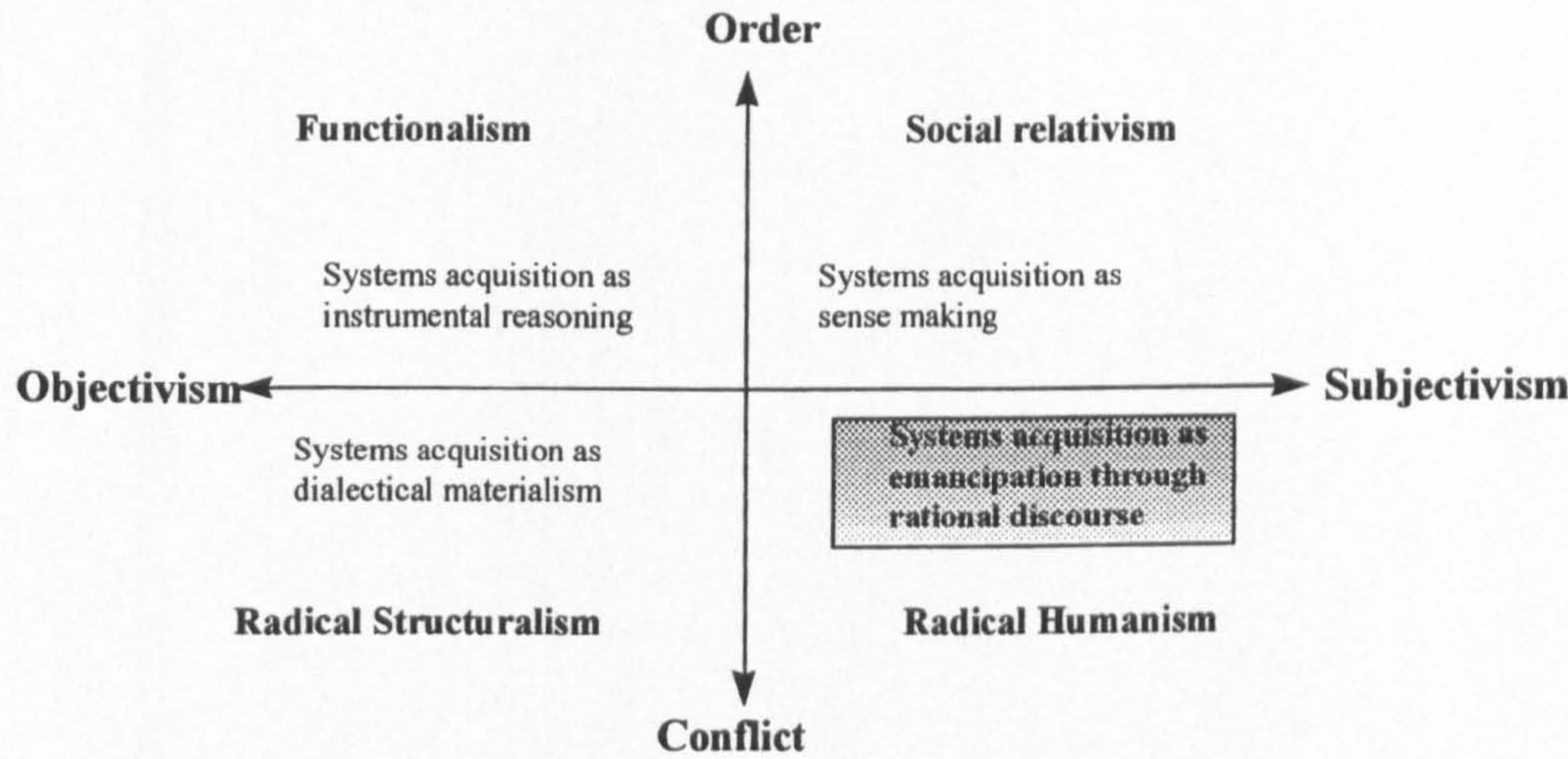
Within this paradigm the systems analyst operates in the same way as the 'functionalist' but instead of accepting the objectives of the dominant group, normally the shareholders or management which are inclined to mitigate against the workforce, the systems analyst becomes the agent of the workforce and pursues their interests. Thus ways and means of making work more rewarding and enhancing the workers skills and crafts are the objectives of the systems analysis activity.

Practice within this paradigm has been influenced to some extent by the socio-technical systems approach and has been strongest in Scandinavian countries. Here there have been government-sponsored IS research projects undertaken under the label of industrial democracy. There was some disillusion with the research in particular from the trade unions when changes were only made at shop floor level. The socio-technical approach was then superseded by 'the collective resource approach to systems design' (Friedman and Cornford, 1989). The focus of these socio-technical approaches to systems development have tended to favour the workers' interests above those of management as the political and industrial relations climate in Scandinavian countries has been more supportive of industrial democracy. In fact laws have been introduced to protect working environments and ensure co-determination in business organisations.

Hirschheim and Klein (1989) point to DEMOS and UTOPIA (Ehn and Sandberg, 1983, Howard 1985) as examples of IS development under this paradigm which can be seen in operation in some parts of Scandinavia. In the case of UTOPIA the systems analyst became part of a project team of union representatives and typesetters within a newspaper company. Management had no input into the design of the new information system and the systems goals included the primacy of typesetters interests. This avoided de-skilling of the workforce and introduced new methods of working which enhanced the typesetters skills and productivity.

This paradigm is not one which has been popular within the UK. During the 1980s and early 1990s when the power of Trade Unions has been seriously undermined ‘worker power’ has been associated with discredited and now fallen Communist states.

2.6 The Systems Analyst as a Radical Humanist



The Radical Humanist paradigm combines a subjective philosophy of science with a radical change theory of society. This paradigm understands social order to be a product of coercion, rather than consent (Alvesson and Willmott, 1996).

‘One of the most basic notions underlying the whole of this paradigm is that the consciousness of man is dominated by ideological superstructures with which he interacts, and that these drive a cognitive wedge between himself and his true consciousness...’ (Burrell and Morgan, 1979:32)

Hirschheim and Klein (1989) are eager to point out that though the other three story types can actually be observed in real world systems acquisition cases this particular scenario is hypothetical and has been constructed from theory. They believe it has great potential for system development and acquisition but has yet to emerge.

2.6.1 The future of the Emancipatory Analyst

Hirschheim and Klein (1989) see the role of the systems analyst as someone who can facilitate rational discourse. They argue that by introducing a new system organisational life is changed but the rationality of this change is constrained by the organisational ideology which affect all actors within it. Communication is used to share meanings and through this a complex culture evolves which cannot be simplified into two dimensional conflicts between say management and users or users and system developer. They develop their dialogue with reference to Habermas's 'knowledge interests' by stating there are three fundamental domains around which society and other forms of social organisation are founded:

- ***The concept of work***: This is related to the knowledge interest of technical control where better knowledge is required to exercise control over nature and people and thereby rationalise work.
- ***Mutual understanding***: Aimed at understanding one's culture and at understanding other people with whom interaction takes place.
- ***Emancipation***: This is concerned with social criticism and applications of the Technical knowledge interest and shared understandings to remove all unwarranted constraints to personal growth and social freedom.

(Hirschheim and Klein, 1989:1208)

Knowledge needs to be acquired about each of these domains. It is in the area of emancipation that they begin to articulate ideas which they believe can improve the system acquisition process for all concerned. What the analyst does in this scenario is by interacting with the organisational actors acquires a shared understanding of the obstacles to human communication and their different viewpoints. The analyst must take an active part. Typical obstacles may be:

- Authority and illegitimate power -where people withhold or distort information for self-preservation.
- Peer opinion pressure - this could be departmental or group loyalty which reduces the validity of judgements and does not allow individual

contribution or critique.

- Time, space and resource limitation - this could include motivation to participate due to lack of time or lack of organisational resources to affect decisions.
- Social differentiation - organisational actors come from different educational and social backgrounds.
- The bias and limitation of language use - the use of technical jargon can distort perception.

Hirschheim and Klein (1989) believe all of these can inhibit understanding of the relevance and implications of the new system across the organisational boundaries. If this approach is to be adopted then a number of issues must be considered: All systems acquisition would proceed with the three knowledge interests in mind. In order to address the technical knowledge interest (related to work/tool making) then the functional approach would be adopted. The practical knowledge interest which aims at shared meaning and mutual understanding would be accommodated and there would be a comprehensive set of features to support emancipatory discourse. This would allow discussion of system objectives as a legitimate end and facilitate the possible agreement of shared objectives. It could in certain conditions correct distortions caused by individual bias by facilitating an 'ideal speech' situation. Although stressing that this story type does not exist yet in the real world they hold out hope that it may arise but there must be ways of overcoming the barriers to emancipation. They suggest organisation of the system acquisition to motivate people to participate, share and elicit information; there could be networks to overcome the limitations of time and space; conferencing systems to motivate people to contribute their expertise; proper security controls to protect individuals from powerful individuals who want to dominate the project.

Although theoretical this work (Hirschheim and Klein 1989) is inspiring in its attempt to bring a more radical thought process to systems acquisition. The authors recognise the limitations of their work and urge a more creative approach to this process which considers its philosophical foundations and not to rely on serendipity for successful

outcomes.

Suggested ways forward to facilitate rational discourse could be

- Changes to the systems development methodologies to encourage participation in order to share and elicit information.
- Electronic networking to help overcome time and space
- Conferencing systems
- Highly interactive object -oriented designs to overcome educational differences.
- Security controls on conferencing systems to protect individuals and allow them to communicate and criticise by 'shielding them from the threats of the powerful'. (Hirschheim and Klein, 1989:1209).

2.7 Summary

This chapter has begun the journey of emancipation and explored the traditional roles of the systems analyst through use of the Hirschheim and Klein (1989) framework which they adapted from Burrell and Morgan (1979). The difficulty for the researcher, who is also the researched, is trying to understand and appreciate the different perspectives from which the various arguments are emerging. It is the difference from 'being inside looking out' and 'being outside looking in'.

The chapter has not tried to develop further theory within the functionalist paradigm but has pointed to the difficulties both researchers and practitioners have had trying to operate under this paradigm. It has then briefly explored alternative paradigms before focusing upon the Radical Humanist perspective which is to provide the theoretical underpinning for this thesis. Recognising these various perspectives and being able to be critical of practice has been the first step in emancipation from the dominant ideologies. Exploring alternative theory which pays regard to the interests of others in terms of *their* freedom from control and domination takes the next step.

Chapter Three provides further insight into emancipation by considering the Critical Social Theory of Jurgen Habermas which has been influential in offering an alternative theoretical underpinning to the discipline of IS.

Chapter - 3

3. Critical Social Theory and its relevance to Information Systems Research

3.1 Introduction

The previous chapter began the emancipation of the researched/systems analyst by exploring and critically analysing selective IS theory related to implementation practice. This chapter continues that process by examining the Radical Humanist approach of Critical Social Theory (CST) which has been advocated by a number of IS researchers who believe it has relevance to implementation of information systems - in particular the work of Jurgen Habermas (Lyytinen and Klein, 1985; Hirschheim and Klein, 1989, 1994; Ngwenyama, 1991). Lyytinen (1992) specifically refers to the critique of scientism and relationships between theory and practice which have been particularly influential. However, the concern of this research is how CST might inform the role of the systems analyst undertaking a paradigm shift from Functionalism to Radical Humanism within the context of an integrated IS implementation and through this understanding lead to a changing of practice.

Thus, this chapter examines the social theory which has begun to inform information systems (IS) research and specifically focuses on the contributions of Jurgen Habermas. The chapter then looks to specific management theory which is beginning to critique practice in other disciplines and considers the more recent work of Alvesson and Willmott (1992a, 1996) which advocates Critical Management Theory as a way forward. Finally the two related disciplines of Operational Research and IS are examined for further insight into their application of Critical Social Theory.

3.2 Definition of Critical Social Theory

The terms '*critique*' and '*critical*' have evolved over time particularly in the context of philosophy. In everyday language the word '*critique*' has a very negative sense and when criticising something it reveals the negative features of that object. However, as

Fuenmayor (1990) points out the etymology of the word would indicate it has other meanings and this is also historically dependent. Fuenmayor (1990) in the first of three papers on critical philosophy begins by examining the Greek word *Kritike* which means a lifting and separating of an object in order to examine its properties - an act of explicit distinction. He continues by considering the meaning of the word '*critique*' as inherited from Kant as '*an examination of the possibilities and limits of our way of experiencing that something*' (Fuenmayor, 1990:526) and explores how the meaning has evolved in response to further insight. It is not the purpose of this thesis to debate the role of individuals within the context of modern philosophy only to acknowledge that '*critique*' and '*critical inquiry*' are not products of recent history but have evolved over many years. Thus critical inquiry is a challenge to a particular aspect of theory which can enlighten or give new insight to those who participate and those to whom it is disseminated.

Critical Social Theory (CST) is the name given to a school of thought which originated in the 1930s from certain scholars associated with the Institute of Social Research at the University of Frankfurt - Horkheimer, Adorno, Fromm and Marcuse and more recently Habermas (Lyytinen and Klein, 1985). Lyytinen and Klein (1985) argue that:

“ CST has as a fundamental concept the belief that any dynamic social theory must view society and its parts as highly dynamic - it can be changed by its members”.(p220)

Horkheimer, an early influential figure within the Institute of Social Research, was very clear that there was a need to change the way theory was developed and wanted to pursue a theory that '*was wedded to practice in the service of a more just organisation of life in society*' (Crotty, 1998:130). What he wanted to see was philosophy and science informing each other in a dialectical manner. He was interested in empirical social findings as a basis for this theory in order to move away from the theory of society which is pure ideology. He wanted to encourage critique and the development of critical reasoning which he believed society was losing.

In the context of modern day society human beings have over time used their powers of critical reasoning to change established ideologies, practices and institutions -

slavery, religious domination and the denial of universal suffrage to name but a few (Alvesson and Willmott, 1996). One problem with the powers of critical reasoning is that they need to be actively encouraged and stimulated if they are not to be suppressed or lost. Therefore, in the context of modern management and work practices, Alvesson and Willmott (1996:13) argue that CST must encourage people to reflect critically upon oppressive practices and thus '*facilitate the extension of domains of autonomy and responsibility*'. Autonomy in this context means the ability of human beings to make informed judgements without them being influenced greatly by wealth, power and knowledge. Responsibility relates to social responsibility which appears to some to have almost disappeared in modern society. Here people recognise that they have a responsibility for each other and a collective responsibility for society. As a consequence of autonomy and responsibility a purer form of democracy can emerge and CST is committed to applying critical reason to expose and overcome domination which prevents this. Habermas argues:

(CST) takes up a partisan position in the controversy between critique and dogmatism, and with each new stage of emancipation it wins a further victory. In this kind of practical reason (as contrasted with technical reason), insight and the explicit interest in liberation by means of reflection converge. The higher level of reflection coincides with a step forward in the progress toward the autonomy of the individual, with the elimination of suffering and the furthering of concrete happiness. (Habermas, 1974: 254)

Before considering how CST is relevant to management studies and hence IS research it is worth reflecting in a little more detail on the evolution of CST through the theoretical work of Jurgen Habermas. However, this is not to deny the importance of the contributions of Horkheimer, Adorno, Marcuse and Fromm to CST. Rather IS, from a critical perspective, has been greatly influenced by Habermas and it is some of his work that has provided the theoretical foundation for this thesis.

3.3 The Critical Social Theory of Habermas

Although brought up in Nazi Germany Habermas did not begin his work in CST until the late 1950s where he worked with Adorno and others. Since this time his efforts have been directed to the 'remoulding' of CST. Much of his work is in German and steeped in German traditions and it is difficult to get at their true meaning in translation. People may be selective in their understanding of his work and IS research could be guilty of this (Wilson, 1997). Habermas sees his objective as an attempt to develop a theory of society with a practical intention: the self-emancipation of people from domination. It is through an assessment of the self-formative processes of the human species, Habermas's critical theory aims to further the self-understanding of social groups capable of transforming society (Held, 1980). His main concerns have been with the spread of instrumental reason to many areas of social life - the definition of practical problems as technical issues - justifying a particular class interest in domination. (Held, 1980)

The work of Habermas is relatively well established within the management studies field (Alvesson and Willmott, 1996) and increasingly is becoming known in the IS field. In the IS field of study the Critical Social Theory of Habermas has been developed from two perspectives both of which express a common connection between Critical Social Theory and IS research (Lyytinen, 1992):

1. A critique of scientism and relationships between theory and practice
(Knowledge and Human Interests, Habermas, 1972)
2. The nature of social action and the type of knowledge it is based upon. (The Theory of Communicative Action, Habermas, 1984, 1987)

3.3.1 Knowledge and Human Interests

'If emancipation is to remain a project for humanity, if a 'brave new world' is to be avoided, it is essential to counter the influence of 'scientism' in philosophy and other spheres of thought. Scientism means that we no longer

understand science as one form of possible knowledge, but rather identify knowledge with science' (Habermas, 1972:4)

The critique of scientism and the relationship between theory and practice can be found in Habermas's Theory of Knowledge-Constitutive Interests (1972) and is the core of his whole work (Mingers, 1992a). It deals with the problem of epistemology - the question of the validity of our knowledge of the world. Before the Enlightenment valid knowledge was based upon religion and myth but since then knowledge has been judged in terms of reason and rationality. In particular, the great success of natural science culminated in the idea of 'positivism', that the only valid knowledge, indeed the only meaningful thought at all, was that which matched the principles of the scientific method i.e. universal laws based on objective and value free empirical testing (Held, 1980:300). Habermas challenges this supposed monopoly of positivism by arguing that there are different domains of knowledge with their own criteria of validity. He justifies this by showing that knowledge is never 'pure', for itself, but always serves some deep-rooted interest of the human species. The particular interest leads to or constitutes the form of knowledge in a particular domain - hence 'knowledge-constitutive interests'. Habermas identifies three interests which have arisen within the development of the human species:

- **Technical** - in the control and manipulation of the physical world. The need for physical survival leads to the development of knowledge about and control over the environment.
- **Practical** - in communicating with and understanding other people. In humans, the development of language led to new domains of communicative and social interaction. Here the necessity is for understanding - making sense of what others mean - and through discussion and argument, reaching agreement and consensus. This leads to the interpretive or cultural sciences such as hermeneutics.

- ***Emancipatory*** - in developing and freeing ourselves from false ideas and to have open communications within the conditions that enable these to take place. It describes what ought to be the aim of the study of social systems and of social action (Lyytinen and Klein, 1985). Habermas argues that humans have an interest in self-development and autonomy based on revealing the true from the false: to be critical of the prevailing orthodoxy and develop a genuine autonomy rather than a false one based on illusion and untruth. This requires 'critical science' which operates in both the other domains. Within the natural sciences it must reveal the positivist illusion of objectivity and within the cultural sciences it must critique the distortions in language and communication, the ideologies that reinforce existing power structures.

Following his critique of epistemology Habermas has expressed concern about how the technical knowledge interest has come to dominate society through technocracy (Alvesson and Skoldberg, 2000:115). By technocracy Habermas means that expertise and social engineering, supported by a narrow positivist view of science, have been handed the task of solving an increasing number of society's problems. This has been at the expense of political and ethical debate. People in society are no longer encouraged or, in some instances, able to engage in independent debate as their ability is undermined by a technical rationality to which industry and government leaders subscribe. Examples of this can be seen in present day society where public scrutiny of euthanasia and genetically modified foods has been handed over to 'expert committees' to decide on the outcome. Habermas (1972) argues that there is a need to restore man's ability to engage in critical reasoning and not to let ourselves be steered by ideas and values which we have not subjected to scrutiny. To do this there is a need to develop communicative competence.

3.3.2 The Theory of Communicative Action (Habermas, 1984)

Habermas has developed theory in a number of areas but only some of his work has been selectively applied to management and its related disciplines. For example, IS researchers have applied Habermas's theory relating to the nature of social action and

the type of knowledge it is based upon (Lyytinen and Klein, 1985). The main thrust in this area has been to adopt his taxonomy of social action to gain a more refined understanding of the nature of social action associated with 'the design, delivery and usage of information systems. In the Theory of Communicative Action, Habermas (1984) outlines primary action types in which an actor might engage during any organisational activity. Habermas derives his action theory from the human species efforts to achieve success and understanding in its ordinary life (Habermas 1979,). The activities that accompany these efforts he calls work and social interaction.

Actions which are directed towards achieving success are called 'purposive-rational' action. If purposive-rational action is an intervention in the physical world and is achieved through following technical rules it is referred to as instrumental action. The success of instrumental action is derived from empirical technical knowledge.

Purposive-rational action is strategic if it is turned towards rational opponents and follows decision rules to maximise individual interests. Strategic action is associated with a knowledge of social situations and social values and it can be sub-divided into open strategic action and covert strategic action. Lyytinen and Klein (1985) see strategic action as possibly being part of a continuum with strategic action at one end and communicative action at the other. Truthfulness is not taken for granted within strategic action and its purpose is to influence people to act in a particular way.

Another form of social action is communicative action. This takes place through language and it aims to achieve mutual understanding. It focuses upon agreement, a common understanding of customary behaviour, meaning and values and on maintaining social relationships (Habermas, 1979). In communicative action people reach understanding through having a common background of assumptions about the world. Habermas believes that 'universal pragmatics' - 'rules for using sentences in utterance' (Held, 1980:331) are embedded in the very structure of communication and these pragmatics assumes an '*ideal speech situation*'. Habermas is concerned to go further than simply uncovering meaning. He argues that it is necessary to understand how meanings are constituted and in particular, how power is involved in that process. Habermas distinguishes between the 'ideal speech situation' and the 'distorted communication'. In an ideal speech situation people are able to communicate freely

and reach consensus on the basis of their shared understandings. In systematically distorted communication, power and influence are used to generate a 'false consensus'. Alvesson and Deetz (2000) also relate the concept of systematically distorted communications to that of suppressed conflict and discursive closure. Discursive closure exists wherever potential conflict is suppressed. There may be several processes involved. First, disqualification of certain groups or participants from the discourse. Second, denying people the right of expression or access to speaking forums. Third, asserting that there is a need for expertise in order to speak and fourth not providing the right skills so that people can speak adequately. So it is not sufficient simply to understand how people see the world and reach consensus but it is vital also to be able to understand how certain forms of meaning have been generated through the manipulation of power.

Agreement which is achieved through communicative action is based on underlying assumptions. When an agreement between a group of actors about a shared background can no longer be taken for granted, the actors embark upon discursive action. Here various assumptions concerning the communication background are subjected to careful analysis and their validity is tested. Discursive action is thus oriented towards the co-operative search for truth, the clarification of unclear message content, the analysis of the intended use of the messages and so forth.

The four criteria of clarity, truthfulness, sincerity and social acceptability defines the validity of communications in the same manner as effectiveness is used to measure purposive-rational actions (Habermas, 1984):

- **Clarity:** Can what is being said be understood by the receiver?
- **Veracity:** Is what is being said truthful?
- **Sincerity:** Is what is being communicated done with good intent?
- **Appropriateness:** Is the communication in-keeping with the values and norms of the receiver?

Discursive action is aimed at justifying any or all of the four claims should one become the subject of doubt. This requires that all actors respect certain 'ground rules' when

claims are made for and against raised claims in the pursuit of rational justification (Habermas, 1979). This would require organisations to be transformed towards a structure where all actors have a chance to express opinions, to enter or leave the discourse, and to honour what Habermas (1979) calls the 'force of better argument'. Habermas recognises that the conditions of the 'ideal speech situation' represents an ideal but this does not of itself undermine its significance. He argues that each time a theoretical or practical argument is pursued with the intention of reaching a rational agreement an ideal speech situation is presupposed (Held, 1980). From Habermas's perspective the analysis of the ideal speech situation shows it to involve assumptions about the institutional context of interaction and the end point of this argument is that the structure of speech is held to involve '*the anticipation of a form of life in which truth, freedom and justice are possible*'. Thus, Habermas argues that Critical Social Theory is grounded on a normative standard that is not arbitrary, '*but inherent in the very structure of social action and language*' (Held, 1980:345).

One social action which is intrinsically bound to modern society is that of management which is often represented as a predominantly technical, neutral activity escaping the domains of power and politics (Alvesson and Willmott, 1996). The intent of CST within the context of management studies is to challenge this view and expose oppressive structures and practices.

3.4 A Critique of Critical Social Theory

Much of the research in Critical Social Theory is theoretical and is open to critique because it has not really impacted upon society and the repressive social and ideological conditions therein. The main issues identified are concerned with intellectualism, essentialism and negativism:

Intellectualism: Fay (1987) argues that CST credits individuals with ability to respond to rational critical arguments and act in a way which enlightens and emancipates them. Fay (1987) believes that in reality people can become desensitised to the world and situations may be tolerated because they have become the norm. Human beings are

also historically constituted and this can mediate against emancipation especially if it affects the emotional stability of the individual. Alvesson and Willmott (1996) point out that the emotional aspects of human action have often been neglected by CST and critics of CST have articulated this criticism. Critics argue that continual doubt about what you are doing and self-reflection can often lead to depression and paralysis of action instead of a new social order. Alvesson and Willmott (1996) suggest that if this is recognised then researchers will be less occupied with Grand Theories and be prepared to look for more local incremental improvements within organisations.

Essentialism: Alvesson and Willmott (1996:165) highlight CST for being essentialist and this is directed at *'its inclination to advance all-embracing frameworks that necessarily reduce or totalise the complexity and heterogeneity of phenomena so that they fit into a single integrated vision'*. Poststructuralists (a group of individuals who have extended and critiqued structuralism) have been the main instigators of this argument. They have also challenged the idea of the 'autonomous subject' where *'under the alienated, fragmented surface of human consciousness there is an autonomous individual striving to get out'*. Alvesson and Willmott (1996:165) Alvesson and Willmott (1996) believe that a critical management theory must accept these criticisms and recognise that organisations and management are dynamic and do not consist of single coherent entities but 'shifting networks of power relations and struggles'. This would lead to a more realistic approach to critical research and a chance to make improvements at a local level.

Negativism: Alvesson and Willmott (1996) believe that negativism can be levelled against CST as it not only critiques conventional beliefs and assumptions but often lacks constructive suggestions of ways forward to improvement. Researchers using this approach and excessive critique can become marginalised and their work neglected by the people for whom it has most relevance. Alvesson and Willmott (1996), arguing from a critical management perspective, believe that researchers who want to change management practice must engage with management theory and not dismiss it outright as there may be progressive elements which could challenge traditional theory and begin to 'win hearts'. This can be applied in many more disciplines including IS. It is

the quest for a more critical approach that can inform practice which is beginning to occupy a number of researchers and some insight is being provided by certain researchers within the general management discipline and Operational Research.

3.5 Critical Social Theory and Management Studies

This section examines the way Critical Social Theory (CST) has been integrated into management theory and specifically relates to the work of Alvesson and Willmott (1992,1996). Their main arguments and concerns can be summarised:

- *Management is a social practice and its theory and practice are derived from the historical and cultural relations of power (e.g. patriarchy) that enable/impede its emergence and development.*
- *Traditional mainstream management theory represents its practice as objective, impartial, scientific and in doing so mystify the power relationships that shape the formation and organisation of management.*
- *Tensions exist in the work place because of the reality of management as a social, political process and the theoretical representation of the practice as being neutral scientific techniques for co-ordinating resources.*
- *Critical studies in management seek to examine these tensions and challenge practice. They exist to address power relations which can give rise to suffering through reflection on traditional embedded theory and practice. They have an emancipatory intent. (Alvesson and Willmott, 1996:38)*

Alvesson and Willmott (1996) argue that the concept of emancipation is at odds with traditional management theory where the role of the manager is associated with survival/growth/profitability of the organisation. They believe that anyone working in the field of management may find CST difficult to understand, irrelevant and remote as it does not offer the solutions to problems or relate to any of the main stream organisational or management theory. Yet, there has been a growing body of

management literature that is concerned with the quality of working life but not necessarily true to CST principles. This humanistic management theory contains concepts such as 'managing people in a caring manner' and 'participation and empowerment'. This could be interpreted by some as implying emancipation but Alvesson and Willmott (1996) state:

'For CST, emancipation is not a gift to be bestowed upon employees but, rather, is an existentially painful process of confronting and overcoming socially and psychologically unnecessary restrictions' (p162)

Alvesson and Willmott (1996) recognise that CST is flawed but has potential for practitioners within business context. This theme has been taken up by others such as Reynolds (1998, 1999) who argues for a more critical management pedagogy to be developed and introduced into mainstream management education:

"The function of management education should not be to help managers fit unquestioningly into the roles traditionally expected of them but to assist them in engaging with the social and moral issues inherent within existing management practice and to become more conscious of the ideological forces which constrain their actions." (Reynolds, 1999:182)

Rather than becoming pre-occupied with critique and negativism Alvesson and Willmott (1996) suggest a way forward for CST researchers through the 'reconceptualising of emancipation' which has relevance for the practitioner also.

3.5.1 Micro-emancipation

The Utopian ideals of Habermas have tended to discourage researchers in the management field from trying to explore some of the concepts further and this too can be levelled at the discipline of IS. Yet, Critical theory has much to recommend it to practitioners who want to adopt emancipatory practice. Alvesson and Willmott (1996) agree in principle with the concept of emancipation. However, they argue that this

concept of emancipation can be cut down in size so that it ‘*avoids making excessively or exclusively grandiose claims*’ (Alvesson and Willmott, 1996:171). They argue that micro-emancipation emphasises limited temporary movements that pull away from the various forms of oppression rather than consecutive moves towards a fixed state of freedom. With micro-emancipation there is no movement from ‘false’ to ‘true’ but a continual struggle to critically reflect on practice which constraints individual freedom and expression of interest.

Emancipation is not without cost and could result in a trade off between certain gains and losses. However these issues need to be brought out into the open and discussed rather than being dismissed as irrational.

The types of emancipation and its focus have been articulated by Alvesson and Willmott (1992b,1996) through a matrix that distinguishes between the type of emancipatory project and the focus of the project’s interest. The matrix can be seen below with the foci of the emancipatory intent on the left side of the matrix with the type of project along the bottom.

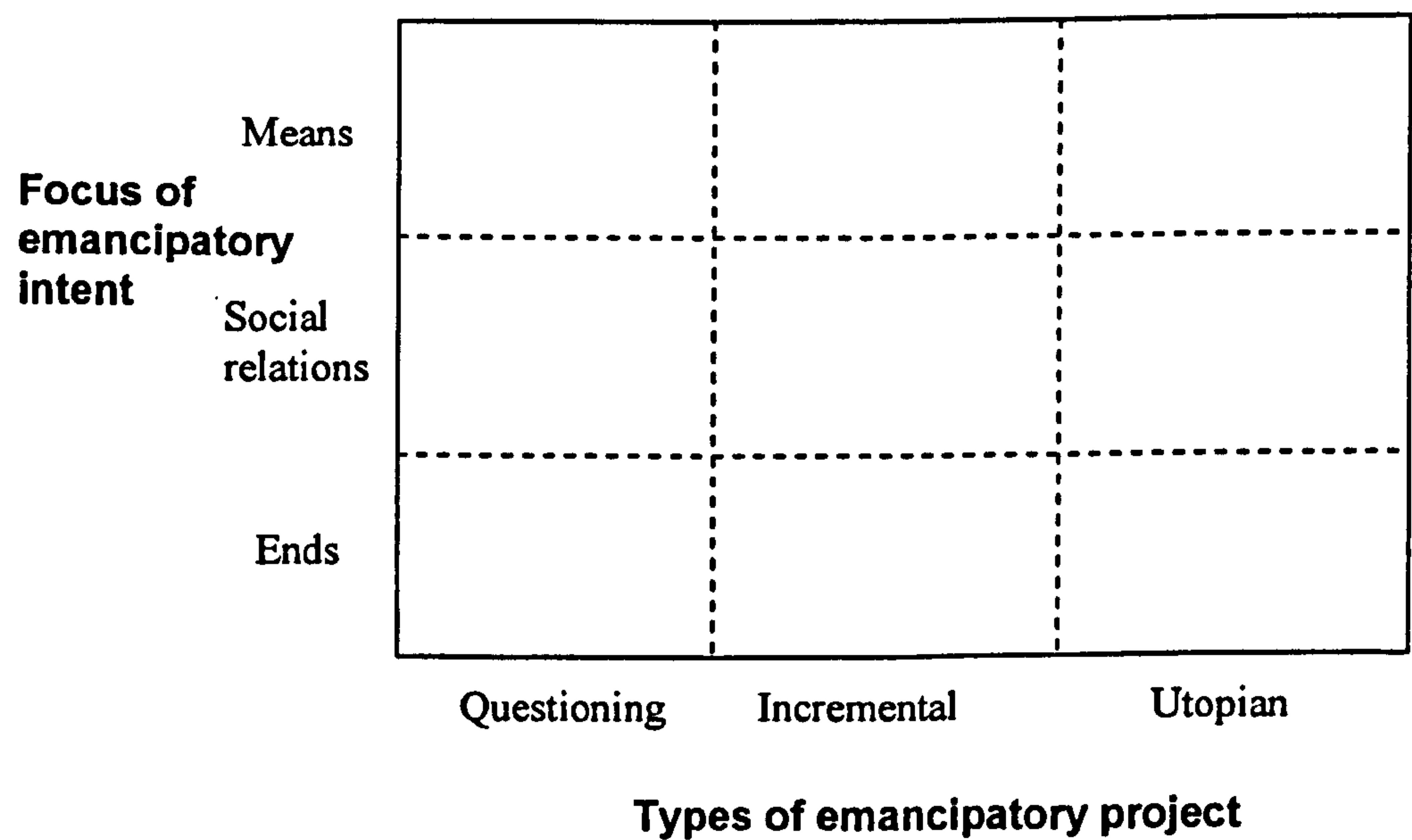


Figure 3-1 Types and Focus of emancipation (Alvesson and Willmott, 1996:177)

According to Alvesson and Willmott (1992b) *Means* are:

“..discourses, and practices that are valued for their supposed ability to make ends achievable. Projects that address means challenge the necessity and value of established methods of organisation, such as hierarchical and fragmented division of labour, certain leadership styles, or technocratic modes of control that have been questioned by humanistic as well as radical analyses”(p450)

Alvesson and Willmott state that *Ends* refers to :

“.. the purpose of organisational and managerial activity. The emancipation of ends is concerned with unfreezing institutionalised priorities and, thereby opening up debate about the practical value of economic growth, consumption, the quality of life and so on” (p450)

Social Relations as a focus of emancipatory intent is described as:

“Finally, the inclusion of social relations as a focus draws attention to the distributions of equalities/inequalities in terms of privileges and power. Of course, social relations cannot be divorced from either means or ends, but the focus on social relations moves beyond overall ends that dominate the organisations and the particular means utilised for achieving these ends.” (p450)

Considering the columns of the matrix, a *questioning* type of project criticises whatever is the given order without offering an alternative. At the other end of the scale is the *Utopian* type of project which would ignore the status quo or by-pass it in favour of an overall vision. Set between these two is the *incremental* type of project which aims at liberation from particular forms of oppression or domination.

Much of this critical management theory appears to be irrelevant to many in the Operational Research (OR) and IS research community possibly because it has been

developed from an organisational behaviour perspective. An exception to this has been the work of Kendall and Avison (1993) which has taken a number of IS research projects and mapped them to the Alvesson and Willmott (1992b) matrix. These projects did not necessarily begin from a CST perspective but in the view of the authors demonstrate 'social responsibility' and hence emancipatory potential. Alvesson and Willmott (1996) counsel against focusing projects into particular segments of the matrix (Figure 3.1):

"Emancipation, even in a micro-version, should encourage thinking and acting that transcends a singular type or focus, whether it is 'means', 'social relations' or 'ends'; 'questioning', 'incrementalism' or 'utopianism'. The narrow targeting of a specific space within our matrix is to be avoided because it fragments and subverts the idea of emancipation, which is to open up, challenge and transcend constraints" (p179-180)

Thus the socially responsible systems analyst could operate within this framework by focusing on specific aspects, questioning them and possibly facilitating incremental change. This could be the 'accepted' methodologies used for systems analysis, the nature of analyst-user relationships, the organisation of work which privileges some at the expense of others. It may also involve the micro historical and political conditions which may affect the situation.

3.5.2 Critical Social Theory and Operational Research

A management specialism running parallel to IS and often crossing the boundary between the two has been Operational Research (OR) where a critical stream has emerged in response to traditional approaches (Mingers, 1992a). The history of OR and its development in the area of Critical OR is discussed by Mingers (1992a) and Alvesson and Willmott (1996) where it can be seen that there has been different developments in the US and UK. OR in the US is typified by technical and mathematical research whereas research in the UK has been much more pragmatic. Mingers (1992a) states that few people realise that many of the founders of OR were socialists or communists who wanted to harness science for the common good.

However, many of their ideas were 'hijacked' by state and industry and used for their particular objectives which often included the pursuit of capitalism. OR thus became the packaging of techniques to solve increasingly complex problems adopting a functionalist approach.

A response to this functionalist approach of OR where implementation of solutions began to fail was a paradigm shift towards a subjectivist approach - soft OR. Checkland (1981) was one of the key individuals at the forefront of this movement and his Soft Systems Methodology has been applied both in OR and IS. However, it must be pointed out that similar to IS this paradigm shift has been at the level of the intellectual and academic and not at the practical level in industry.

Research into Critical OR has developed various approaches to applied systems thinking. Mingers (1992a) states that there are two broad strands to this development - a Marxist-based critique within OR and more recently a CST-inspired development within systems. The debate eventually turned towards whether there could be a critical approach to OR, a subject area which is basically concerned with taking action and solving problems. It was Jackson (1985) who first explicitly argued the case for Critical Systems Theory to be applied to OR. Jackson (1985) stated that many situations in organisations were characterised by inequalities in power and resource distribution, control and domination. He related this to the work of Habermas (1974) in a discussion of the organisation of theory and praxis.

This work has been continued into what Mingers (1992a:99) calls a '*contingency approach*' to applied systems. Jackson and Keys (1984) and Jackson (1987, 1988) developed a 'systems of system methodologies' which classifies problem contexts relating the would-be problem solvers, the system within which the problem lies and the set of relevant decision makers, in terms of two dimensions, the complexity of systems involved and the relationship between participants e.g. Table 3-2.

Systems Type		
Participant's relationship	Mechanical (M)	Systemic (S)
Coercive (C)	M-C Methodologies yet to emerge	S-C Methodologies yet to emerge
Pluralist (P)	M-P (heuristic) Methodologies: 1. Dialectical inquiring systems 2. Double-loop organisational learning	S-P (purpose seeking) Methodologies: 1. Interactive Planning 2. Checkland's Soft Systems Methodology
Unitary (U)	M-U Methodologies: 1. Classical OR 2. Systems engineering 3. Systems analysis 4. Living systems process analysis 5. Management cybernetics	S-U (Purposive) Methodologies: 1. Organisational cybernetics 2. Sociotechnical systems thinking 3. General systems theory 4. Modern Contingency theory 5. Living systems process analysis 6. Systems design

Table 3-2 Problem Contexts and Systems Methodologies (Flood and Jackson, 1991: 178)

Jackson and Keys (1984) applied Ackoff's terminology when classifying problem contexts as either *Mechanical* (systems exhibiting simple, easy problems) or *Systemic* (systems manifesting difficult problems). The other dimension of the relationship is the nature of the decision makers. A problem context will be *unitary* if they all agree on the systems objectives. The context of a set of decision makers is *pluralist* if they cannot agree on a common set of goals and make decisions which are in accordance with differing objectives. In some instances a set of decision makers might bring about a *coercive* context where one or more groups exercise power and domination over others to bring about their own goals. In each of the sections of the matrix in Table 3-2 Jackson and Keys (1984) suggest methodologies which might be used within the specified contexts. However, they argue that even though Systemic-coercive contexts are likely to be the majority of problems '*they are unlikely to succumb to the remedies of problem-solving methodologies*' (Jackson and Keys, 1985). They argue that the use

of OR/systems methodologies in systemic-coercive contexts can prolong the existence of systems which benefit some groups at the expense of others.

Mingers (1992b) raises questions about the work of Jackson and Keys and contingency approaches which have not considered a deep theoretical analysis. He also comments upon the 'pigeonholing' approach which leads to uncritical acceptance of the pigeonholes themselves and unreflective and mechanical selection of approaches.

Mingers (1992) sees the main task of OR as bringing about effective action and change and linking practice and theory. Work has been developed in the area of coercive relationships and two approaches to emerge are Critical systems heuristics (Ulrich, 1983) and Total Systems Intervention(TSI) (Flood and Jackson, 1991). The potential of these will be discussed in Chapter 4 when the practical application of CST will be explored in relation to the role of the systems analyst.

The final section which follows will examine developments in IS theory which have applied Critical Social Theory.

3.6 The application of Critical Theory to Information Systems

Even today the application of CST has had modest impact on IS research and Lyytinen (1992:168) categorised this in three ways. Firstly, the criticism of the underlying instrumental rationality bias in IS and their 'management ideology'. Secondly, the criticism of the dominating research canons and the imperfections of the 'scientific' programme. Thirdly, classification and criticism of existing 'technology-driven' development models and the exploration of alternative approaches to develop and use IS.

1. The criticism of the underlying instrumental rationality bias in IS and their 'management ideology'

Lyytinen (1992) has discussed some of the first work in computing and IS which introduced a critical dimension to the subject area. He points to work by Weizenbaum (1976) which critiques the assumptions of Artificial Intelligence and Winograd and Flores (1986) analysis of decision-making and language theories applied in the design

of computerised IS. Neither of these pieces of work are specifically related to CST but were radical at the time in that they challenged the dominant theory and were produced by highly regarded computer scientists. Lyytinen (1992) states that critique in IS is still active to date and has received the most attention from a CST perspective.

2. The criticism of the dominating research canons and the imperfections of the 'scientific' programme

Much of Lyytinen's own early work falls into this category (Klein and Lyytinen, 1985; Lyytinen and Klein, 1985). The papers reflect on Habermas's work on *Knowledge and Human Interests* and *Practice and Theory* and using arguments therein critique current IS research. By doing this they have opened up research methodology to debate within IS to include issues relating to ontology, epistemology (Mumford et al., 1985; Nissen et al., 1991). Habermas's theory has also been applied by several other authors in discussing and evaluating the dominant research paradigm (Lyytinen and Klein, 1985; Ehn, 1988; Ngwenyama, 1987, 1997). The main focus of this work has been the practical interest and how mutual understanding is necessary if we want to develop an understanding of how organisational actors actually use information systems in making sense of their environment (Boland, 1985). The discussion of emancipation has been less frequent and only Lyytinen and Klein (1985) and Klein (1984) observe that the concept of autonomy and responsibility should also be taken seriously into account in IS research and that IS should serve the values of the widest possible audience, and that they should encourage criticism and reflection.

3. Classification and criticism of existing 'technology-driven' development models and the exploration of alternative approaches to develop and use IS.

The focus of this particular research project, presented within this thesis, lies in the last category and although the first two categories are important, it is with the last one that the next sections are concerned. Critique and questioning have their merits but IS implementation is a highly practical subject in need of alternative approaches which are not informed by positivism and which are more socially responsible (Willmott et al., 1990).

Lyytinen (1992) argues that the majority of approaches in the IS field share an interest in technical control despite IS acquisition affecting three areas of human activity - technology, symbols and organisation. By treating all three areas in the same way and believing that knowledge of these areas can be acquired using similar means leads to IS failure in a large number of instances.

Much of the work of a critical nature which has emerged in relation to IS acquisition has been largely hypothetical and in most cases untried (Lyytinen, 1992). This includes the work by Hirschheim and Klein (1989) which has inspired this research. However, some research has moved the debate on into considering a research methodology congruous with a critical approach (Ngwenyama, 1991). Ngwenyama (1991) is highly critical of much of the work which has gone before (e.g. Hirschheim and Klein, 1989; Klein and Lyytinen, 1985; Lyytinen and Klein, 1985) firstly because the use of jargon within their work serves to create barriers to free and open participation in the debate - if they want to change minds they need to communicate with the readers of their research. Secondly, their use of reductionism separates practice from theory and because they have narrowed the debate to theory, Nygwenyama (1991) believes they have 'sinned' against the philosophy of CST. Nygwenyama (1991:274) suggests what is needed is an appropriate research methodology and believes that Action Science may be an appropriate one as it shares similar core assumptions to CST which are:

- *Critique of the status quo and a search for alternatives*
- *Collaborative action for learning and fundamental change*
- *Free and open participation by individuals in creation of their social world*
- *Critical self-reflection as a methodology for improving self-awareness and transformation*

Although not giving any real world examples and relying heavily on hypothetical scenarios Nygwenyama (1991) does however advance the debate into the realm of practice. He suggest the approach is a collaborative process in which the 'scientist' and participants of the action situation of interest enquire into problems of social practice in a learning context. This could mean deconstruction of current practices and learning

about alternative ways of reconstruction. It will involve an action learning cycle of public critical reflection and experimentation-in-action e.g.

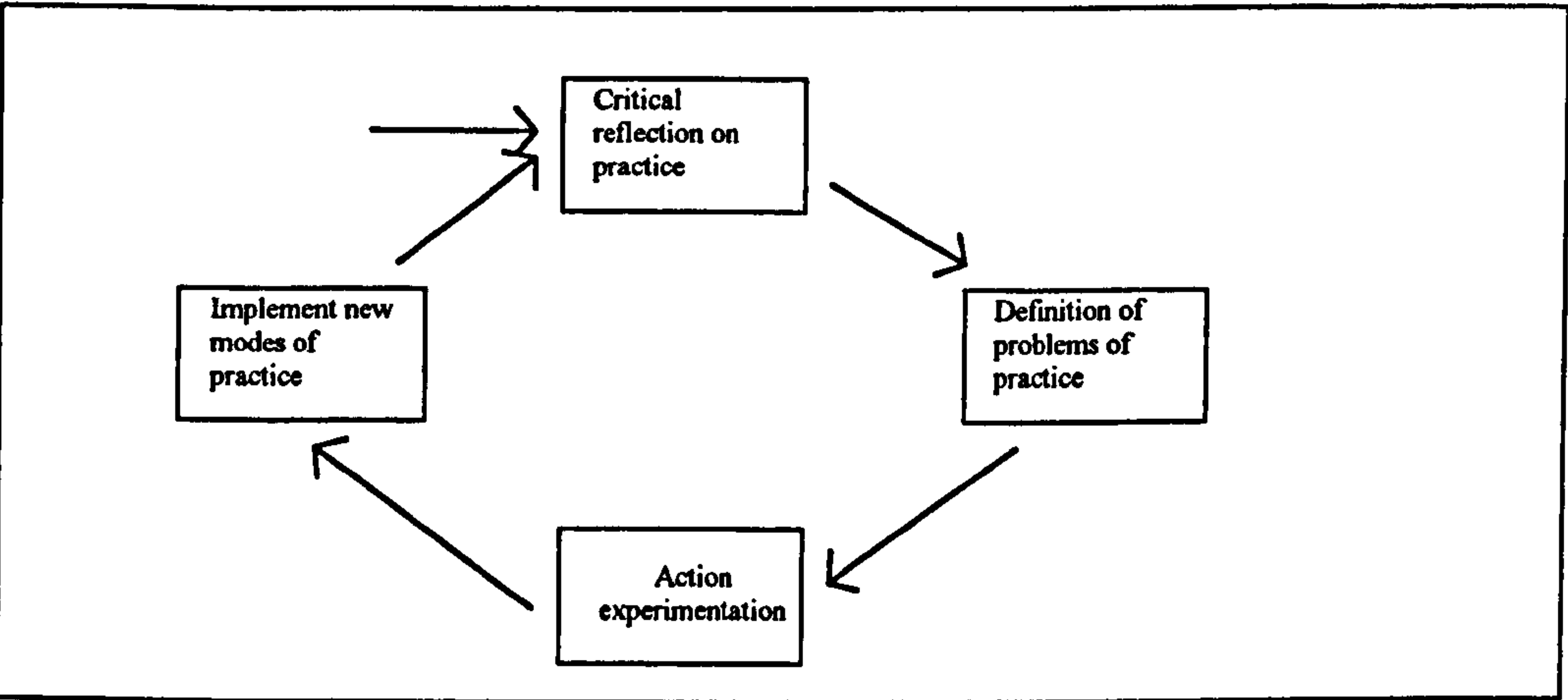


Figure 3-2 The action learning Cycle (Nygwenyama, 1991:275)

The primary source of data for inquiry and analysis is communicative action. Participants are encouraged to select the problems for study which are relevant to them, take responsibility for data collection and participate in data analysis. Strategies for collecting data include participant observation, audio and video taping, interviews, ‘action experiments’ and participant writings or communications. Nygwenyama (1991) does acknowledge his failure to address the practical aspects of IS research in this work but hopes that he has given some indicators to future practice.

3.7 Summary

This chapter has discussed briefly the origins of CST and in particular the work of Habermas which has informed research in the field of management and specifically the disciplines of Operational Research and IS. Unfortunately, much of this research is theoretical in nature and only speculates on moving theory into practice. However, this theoretical underpinning is vital if the researcher/researched is to fully understand the principles upon which practice may be built.

The difficulty for any researcher who wishes to use a CST approach in a practical IS context is the lack of a practical research platform on which to base their work. As has already been stated much of the IS research in the area of CST is not only highly theoretical but shrouded in jargon. Nevertheless, the potential of CST to help the systems analyst to address some of the issues within complex coercive IS implementations is great and it is essential that research is carried out to explore ways forward.

Much of the Critical Theory within the context of management and organisational studies has been concerned with critique of current ideology and practice and very little insight into alternative approaches. However, the work of Alvesson and Willmott (1996) and the concept of 'micro-emancipation' may be able to be taken further to explore how the systems analyst can be 'critical' within the context of 'questioning' and 'incremental' projects.

Chapter - 4

4. Towards a theory of emancipatory practice for the systems analyst

4.1 Introduction

The previous chapter explored Critical Social Theory (CST) as the possible theoretical underpinning for a paradigm shift in which a systems analyst might develop emancipatory skills and techniques in the domain of systems acquisition. However, there is still a need to relate theory and practice as systems acquisition is a highly practical task which is becoming less of a technical and more of an organisational exercise involving many actors. This chapter is about how this practice might be developed. A general insight into developing practice is given by Mingers (1992a) who suggests that any approach informed by CST should be based on the critical methodology from Habermas's (1974) discussions of the systematic organisation of theory and practice.

Thus, the chapter begins with a discussion of Habermas's relevant work on the practical organisation of theory and practice. It then explores how emancipatory practice can be operationalised within the context of the broader subject discipline of management and specifically Operational Research. The chapter then explores how far critical IS research has moved into the practical domain since Hirschheim and Klein (1989) envisaged the role of the systems analyst as an emancipator. Finally, a heuristic framework is proposed, synthesised from the preceding literature which is intended to guide the systems analyst trying to develop emancipatory practice.

4.2 Critical Methodology

Many academics have been attracted to the work of Habermas. Yet much of his work is highly theoretical and has been criticised because of its lack of engagement with the practical (Held, 1980). Habermas has provided little guidance for those wanting to advance emancipatory action and change but Mingers (1992a) suggests that the only way forward is to be guided by Habermas (1974) which outlined three stages of a critical methodology which might direct practice. These stages involve:

1. The development of critical theories about the nature of the social situation in terms of the position and true interests of the actors within a social structure.
2. Use these theories to enlighten concerned actors as to their position. This may lead to 'authentic insights' and changed attitudes. Mingers (1992a) argues that it is only success at this stage that provides the validation of the theories.
3. The enlightened social group choose tactics and strategy to be adopted in the actual political struggle.

Laughlin (1987) used these stages to guide the approach he adopted in exploring accounting systems. First of all the researchers examined in detail how the systems arose, their historical context, technical and other pertinent issues. They then discussed this with the 'researched' and then explored with the group how changes could be made.

Mingers (1992a) points out that on the surface this approach seems reasonable and rational from a CST perspective. However he questions 'who are the researched and how were they "chosen"? Why would they want to use a critical methodology if they are the people with power who may have initiated the research? Mingers (1992a) questions why an organisation would allow itself to be researched in this way- surely if they are the dominant group they would be interested in maintaining the status quo.

Also if the researched are a group without power then it is not clear that the methodology could ever begin.

This then asks the question 'is the methodology driven by the needs of the researcher rather than the needs of the researched ?

Finally Mingers (1992a) believes that the methodology as used by Laughlin (1987) has a general lack of attention to the political and structural aspects of the situation and particularly to the issue of power. The exercise of power - conscious and unconscious continually shapes the process of inquiry and action.

Mingers (1992a) concludes that although a number of researchers have attempted to develop a critical approach no substantive one has emerged because of a lack of real attention to the issue of power. Habermas too has not addressed this issue and has views on the nature of the process of bringing about change which Mingers (1992a) contends is overly idealistic. For example, the ideal speech situation is described but how it could be brought about is given little attention. Mingers (1992a) concludes, however, that the theoretical analysis of power is not important for itself but it should be recognised, conceptualised and actions taken as part of an action oriented methodology.

4.3 Emancipatory practice in management and organisational studies

Having considered an approach to linking theory and practice as advocated by Habermas it is important to examine guidance from management and organisational theory. Alvesson and Willmott (1996) believe that action in the field of management can be taken almost immediately if Critical Management Theory is allowed to penetrate business education and for business schools to include it in their curriculum. Having access to many of the business community through programmes such as the MBA there is the opportunity to develop reflective practitioners. They propose that the Action Learning approach to management education of Mc Laughlin and Thorpe (1993) could have a critical element added to the framework which could be used in the day to day work of these managers. This is illustrated in Figure 4-1.:

	Conventional action learning	Critical action learning
Worldview	<p>The world is somewhere to act and change</p> <p>Self-development is very important</p> <p>Curriculum defined by the manager or organisation</p> <p>Managers should be facilitated by a tutor to solve problems</p>	<p>The world is somewhere to act and change</p> <p>Self-development and social development are interdependent</p> <p>The interdependence of beings means that no individual or group can gain monopoly control of the curricula</p> <p>Managers are potentially receptive to, and be facilitated by, the concerns of other groups, in addition to individual tutors, when identifying and addressing problems.</p>
Modus operandi	<p>Experts are viewed with caution</p> <p>Models, concepts, ideas are developed in response to problems</p>	<p>Received wisdom, including that of experts, is subject to critical scrutiny through a fusion of reflection and insights drawn from critical social theory</p> <p>Models, concepts and ideas are developed through an interplay of reflection upon practice and an application of ideas drawn from critical traditions.</p>

Figure 4-1 A Framework adapted from Mc Laughlin and Thorpe (1993) by Alvesson and Willmott (1996)

In terms of research Alvesson and Willmott (1996) suggest more ethnographic studies which emphasise the critical aspects set within the historical and existential context within which the subjectivity of those studied is constituted. However, they do warn against these studies focusing on negative aspects which alienate the readers who potentially might learn from the insights. They commend the work of Forester (1992) in the field of organisational studies as being appropriate. Alvesson and Willmott (1996) also suggest that the work of Payne (1991, 1992) and Ulrich (1987) in relation to Habermas's theory of communicative competence have much to recommend them.

4.3.1 Change agents and emancipatory practice

Systems analysts have also been referred to as agents of change (Walsham, 1993a) as they assist in bringing new information systems into organisations. Bradshaw-Camball (1990) as cited by Payne (1992) sees the role of the Critical Social Theory (CST) change agent as an individual who tries to help articulate alternative possibilities that may lead to opposing or reconstructing the dominant organisational ideology. An alternative reality is generated through a dialectic between the consultant and the

organisation members and that:

“traditional power bases that come from being the ‘expert’ quickly disappear... Being open to public debate and criticism is an essential skill for the change agent committed to the radical humanist paradigm. This is threatening at times but if modelled for all organisational participants will set a norm of self reflection which will strengthen and enable the change process to continue (Bradshaw-Camball, 1990:255 as cited by Payne, 1992:246)”

Carrying out this approach informed by CST does have its difficulties. Gray (1989) describes encounters which may arise where strong conflicts surface “ *over race, gender, organisational mission and ideology, distribution of power and concepts of leadership*” (Gray 1989:394)

Payne (1992:247) argues that change agents working towards emancipatory practice need to develop or have other skills besides systems related knowledge. He believes that without a high level of creativity and a high level of communications skills then they will not be able to operate in a *‘variety of situations where they will be faced with many difficult personal challenges’*

Payne (1992) suggests a way forward might be the use of ‘participatory action research’ and the concepts of Whyte (1989) which might facilitate the early sensitive stages of the “*social contracting process*” between consultant and key actors. The consultant must also prevent an ‘expert driven’ approach and constantly reflect on and explore their ‘expert status’.

Taking this further McKay and Romm (1992) and Romm (1995) see the critical change agent as someone who:

- Critically educates staff
- Develops skills within an organisation to ‘level the playing field’
- Widens participation to include all stakeholders

However, Payne (1996) debates whether external change agents can facilitate deeper awareness and risky actions while their contracts are temporary and limited in scope and power. He also questions how easy it would be to establish trust with key players to begin emancipation. He goes on to raise the issue of what happens if the intervention sets a radical chain of events in place or it goes totally wrong. This could be extremely unpleasant for the organisational actors. Finally, Payne (1996) speculates on the possibility of negative feedback at an early stage of an emancipatory intervention. Would this lead to pressure to modify the process by dominant forces away from critical emancipatory ideals to the ideals of the main dominant force ?

Payne (1996) does suggest a way forward and sees the linkage of popular organisational concepts to emancipatory intent. For example the use of 'Total Quality Management' for improved organisational effectiveness - for quality 'outcomes' (goods, services) quality must be built into the processes. Thus there is a need to improve interpersonal relationships with key organisational stakeholders which could involve improving trust between them. Payne (1996) suggests ethics education and employee skills development could facilitate emancipation in the context of TQM. He also believes that the micro-emancipation ideals of Alvesson and Willmott (1996) which advocate incremental change could be a way forward. He offers to the critical change agent the opportunity to reflect on their own use of language. For example do they use language that alienates the organisational leaders ? Alternatives are suggested in Table 4-1:

Emancipatory language	Alternative phrases
Oppression	Ethics development
Emancipation	Fairness, integrity
Empowerment	Social responsibility

Table 4-1 Alternative phrases (Payne,1996)

Payne (1996) sees the need to address language issues which act as a barrier to communications as a vital role of the critical change agent. The systems analyst acting in an emancipatory capacity would also need to consider other aspects of language as much of the technical jargon associated with practice is a barrier to effective communication. However this technical jargon permeates many specialist areas of business and not just IS.

4.3.2 Operational Research (OR) and emancipatory practice

In terms of developing the practical intent of Critical Social Theory there are two main areas of research in OR which have bearing on the practice of the systems analyst. The first is the work of Ulrich (1987), Critical Systems Heuristics (CSH) and the second is Total Systems Intervention (Flood and Jackson, 1991).

4.3.2.1 Critical Systems Heuristics (CSH)

In CSH there is an attempt at a form of 'practical discourse' which provides the necessary mediation between reason as an '*intellectual ideal*' and practice as an '*experiential reality*'. Underpinning Ulrich's (1987) practice is Habermas's concept of the 'ideal speech' situation and his theory of Communicative Competence. Using CSH Ulrich subjects 'experts' claims to extensive scrutiny by seeking to expose and debate their normative basis:

"Critical Heuristics of Social Systems Design is a new approach to both systems thinking and practice philosophy... It does not seek to prove theoretically why and how practical reason is possible but rather concentrates on providing planners as well as affected citizens with the heuristic support they need to practise practical reason i.e. to lay open, and reflect on, the normative implications of systems designs, problem definitions, or evaluations of social programmes." (Ulrich, 1987:105)

Ulrich explores the role of the 'expert' and their use of 'justification break-offs' which tend to occur when people claim to expertise in decision-making and do not provide any rationale or defence of their claims. Ulrich's CSH framework contains a checklist of twelve questions which are intended to enable people involved to query the content of any plans and challenge 'boundary judgements'. The checklist facilitates debate and reflection concerning the issues shown in Figure 4-2:

Checklist of boundary questions Ulrich (1987)	
1	Who ought to be the client (Beneficiary) of the system, S, to be designed or improved?
2	What ought to be the purpose of S?
3	What ought to be S's measure of success ?
4	Who ought to be the decision taker, that is, have the power to change S's measure of improvement ?
5	What components (resources and constraints) of S ought to be controlled by the decision taker?
6	What resources and conditions ought to be part of S's environment i.e. should not be controlled by S's decision taker?
7	Who ought to be involved as designer of S?
8	What kind of expertise ought to flow into the design of S; i.e. who ought to be considered an expert and what should be their role?
9	Who ought to be the guarantor of S i.e. where ought the designer seek the guarantee that his design will be implemented and will prove successful, judged by S's measure of success ?
10	Who ought to be the witnesses representing the concerns of the citizens that will or might be affected by the design of S ?
11	To what degree and in what way ought the affected be given the chance of emancipation from the premises and promises of the involved?
12	Upon what world-views of either the involved or the affected ought S's design be based?

Figure 4-2 Boundary Questions from Ulrich (1987)

These questions invite all involved and affected by a new system to compare their understanding of what 'is' the case with their conception of what 'ought' to be the case. Ulrich (1987) argues that by applying 'polemic' the 'non-experts' can impose the burden of proof or justification on those who try to dominate and control the situation. Alvesson and Willmott (1996) and Tsoukas (1992) raise doubts about the honesty of Ulrich's approach and question whether there are ulterior motives. One argument is that people in authority will feel they have much to lose in such a dialogue and will attempt to protect their status. Is this what Ulrich intends? Alvesson and Willmott (1996) believe that an adequate critical study of management must face up to this type of response and be prepared to work with tensions and contradictions within power relations.

4.3.2.2 Total systems intervention (TSI)

Another methodology which claims to be informed by Critical Social Theory is Total Systems Intervention (TSI) (Flood and Jackson, 1991). Flood and Jackson (1991:322) argue that within TSI critical systems thinking "*can be seen as making its stand on three positions: 'complementarism'; 'sociological awareness' and the promotion of 'human well-being and emancipation'.*"

The TSI methodology has three phases which Flood and Jackson (1991) label as "*creativity*", "*choice*" and "*implementation*". The *creativity* phase involves the use of metaphors to describe the organisation. The outcome of this phase is a dominant metaphor which can then become the basis for the *choice* of methodology using the guidelines of "system of systems methodologies" (Jackson and Keys, 1984)(3.6). The *implementation* involves using the methodology to '*translate the dominant vision of the organisation, its structure, and the general orientation adopted to concerns and problems, into specific proposals*' Flood and Jackson (1991:328).

Flood and Jackson have actually used this methodology in their consultancy work and like SSM it has been modified over the intervening years e.g. TSI: Local Systems Intervention (Flood, 1996). The methodology has drawn its critics who are less than

satisfied with its emancipatory intention. Mingers (1992b:734) observes that Flood and Jackson's *'Creative Problem Solving'* reads *'more like a management consultant's handbook than an emancipatory tool'*

However this methodology has been used in the context of IS by Warren and Adman (1999) when they applied TSI to designing a system for a university IS support service. TSI is intended to be a meta-methodology which facilitates the implementation of a range of methodologies in action research settings (Baskerville and Wood-Harper, 1996). In the above problem ETHICS was used after a 'creative' phase in which the stakeholders identified the system being suited to this implementation approach.

Warren and Adman (1999) discuss how they carried out the methodology and reflect on the process and the result, acknowledging that the system was fairly simple. Warren and Adman (1999) are critical of this type of approach. They point to its academic bias, steep learning curve for users and how it could be accused of being 'expert driven'. This particular problem had very little conflict and power played a negligible part in the process. Warren and Adman (1999) stress a need to explore the critical area further within IS implementation.

The pragmatic approach of Flood and Jackson (1991) tries to solve organisational problems as efficiently as possible and does not appear to allow much time for critical self-reflection. However, other researchers would argue that this aspect is essential to a critical approach.

4.4 The Contribution of IS research to emancipatory practice

Chapter Two discussed in some depth the traditional role of the systems analyst working within the functionalist paradigm and it examined other paradigms in which alternative practice had developed. It also considered a potential paradigm shift into Radical humanism for which there was yet to be practice developed within the context of IS. Hirschheim and Klein (1989) suggested approaches which might be taken but these were all hypothetical and finally concluded that it may be difficult to achieve. The next section examines the IS research which has followed the work of Hirschheim and

Klein (1989) and concludes that although many researchers have been exposing emancipatory potential in various research projects there is little evidence of IS researchers explicitly developing practice underpinned by CST.

4.4.1 Potential ideals for the systems analyst

The application of Radical Humanist principles in information systems acquisition has been developed further by Klein and Hirschheim (1993) by considering various theoretical approaches which might lead to better understanding though not necessarily emancipation. They point to four projects which they believe exhibit emancipatory potential:

Kerola's Reconceptualised SDLC (Kerola, 1985): Here the basic idea is to superimpose the SDLC on the stages of knowledge acquisition and learning in Kolb's (Kolb, 1984; Kolb and Fry, 1975) experiential learning theory. By applying Kolb's theory the systems analyst could aim at developing a better understanding of the various stages of the SDLC within the user community and hence give them a chance to express their concerns. This could develop a more mature workforce better informed about the true nature of systems and their development or acquisition. This of course would require the systems analyst to be trained in learning theories and this type of approach needs to be studied in practice longitudinally.

MARS project (Lanzara and Mathiassen, 1984): Klein and Hirschheim (1993) put forward this project as also taking a learning perspective but one which reflects on working practices. This type of project begins with a critique of all working practices affecting the group concerned. Any type of heuristic tool is advocated to assist the group reflect upon these practices (diagnostic, 'mapping', diagramming). Klein and Hirschheim (1993) argue that this approach appears to include '*socio-linguistics, a critique of relativistic hermeneutics and some critical insights from Habermas*'. However this is still to be developed in the area of systems development or acquisition though the tools and principles appear to work in practice.

UTOPIA project (Ehn, 1988): Here Klein and Hirschheim (1993) argue the emancipatory principles are clearly expressed but the goal of mutual understanding is less clear. The concerns of the craftsman or skilled labour are articulated within this project and issues such as deskilling are brought out into the open. However, as Klein and Hirschheim (1993) observe this approach does not balance the interests of all stakeholders while true emancipation is aimed at ‘*all generalisable*’ interests. A more recent development in the UTOPIA approach has been a focus on co-operative design between all participants which has necessitated the use of tools and techniques to facilitate sense-making and mutual understanding (Kyng, 1991).

SAMPO project (Lehtinen and Lyytinen, 1983): This aims at developing methods and tools which are consistent with both emancipatory discourse and mutual understanding (Klein and Hirschheim, 1993). It uses a model as shown in Figure 4-3.

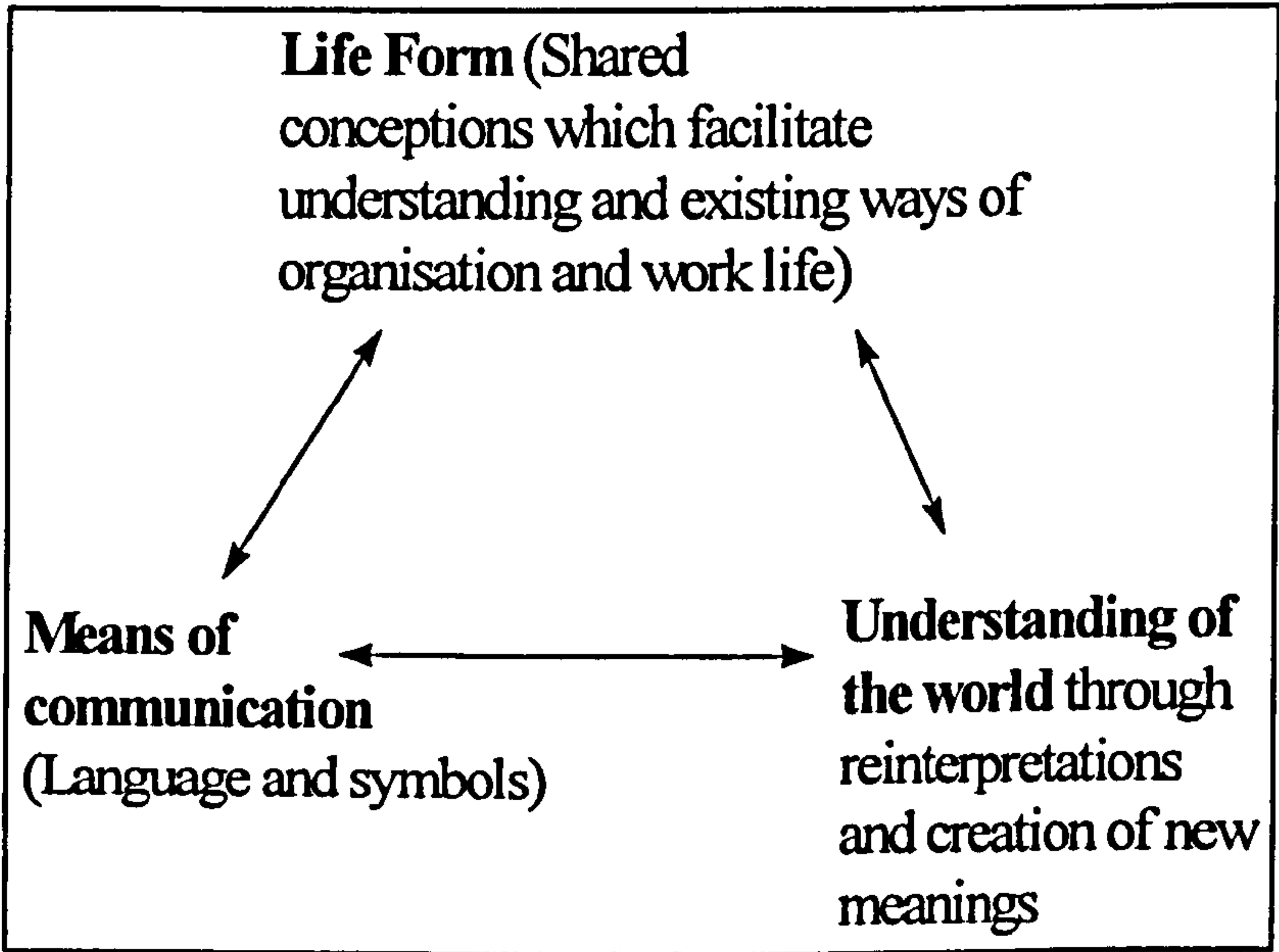


Figure 4-3 The triangular relationship between language, meaning and shared concepts (Adpated from Klein and Hirschheim, 1993:273)

The three notions are believed to be closely linked when developing information systems as in a triangle. It is argued that if one is changed the others change with it. Klein and Hirschheim, (1993:273) explain that the SAMPO project builds on this idea

by viewing IS development as *'a process of normative linguistics - an IS is a rule system for exchanging pre-specified meanings with an artificially contrived language - which requires methods and tools to model organisational discourse'* Speech act theory has been used in this way. This highly intellectual approach has yet to be adapted for practical application by the systems analyst but Klein and Hirschheim, 1993 argue that it does have potential for supporting mutual understanding and emancipatory discourse.

Klein and Hirschheim, (1993) conclude that even though there are no emancipatory IS methodologies and possibly with the weight of evidence mitigating against ISD methodologies (see 2.3.2) then the quest should be for guiding Radical Humanist principles.

'Just as democracy thrives through living traditions and wise practices, so Radical Humanist principles could flourish through emergent traditions and enlightened practices of ISD'. (Klein and Hirschheim, 1993:275)

4.4.1.1 The systems analyst as a 'moral agent':

Walsham (1993b) offers a modification to the 'analyst as emancipator' role and uses the term 'moral agent' which places an emphasis on the analyst's own actions rather than the emancipation of others. The analyst would focus on self-reflection, questioning their motivation within a project and considering how the work will affect others and the interests served by the project. Walsham's (1993b) 'moral agent' would be involved in 'questioning' type of projects (Alvesson and Willmott, 1996) which may have some 'incremental' change. He argues that the Utopian intent of Hirschheim and Klein (1989) could appear unrealistic and consequently be ignored.

Walsham (1993b:283) argues that *'a focus on self-reflection and understanding will normally be related to changed action involving others'*. This could involve questioning the approaches to systems acquisition or the specific goals of the system. By reflection the systems analyst could begin to take action on issues immediately. The introduction of an ethical dimension to the role of the systems analyst would be a

departure from the traditional 'systems expert' role where ethical issues have yet to become pertinent.

Walsham (1993b) continues the debate by arguing that as a moral agent the systems analyst might be able to use existing methodologies in an ethical way. Thus ETHICS (Mumford, 1983) and SSM (Checkland, 1981; Checkland and Scholes, 1990) could be chosen by the systems analyst as a particular approach even though it opposes the interests of powerful groups. By reflecting on the ethical issues the systems analyst acts as a moral agent in a situation of conflict. This does not discount the critique of both of these participative methods (see Wilson, 1997; Jackson, 1982; Flood and Jackson, 1991).

For methodological support for the systems analyst as a moral agent Walsham (1993b) suggests the action research approach adopted by Jonsson (1991). Here the focus was on supporting critical enquiry by the systems analysts themselves with relatively modest goals of micro-emancipation. However the empirical evidence given does not illuminate how the analyst undertook the process of self-reflection and action and the nature and resolution of the moral dilemmas encountered.

Finally Walsham (1993b) highlights number of specific issues which must be considered by an analyst acting as a moral agent:

Producing a requirements specification: During any acquisition a requirements specification must be produced which leads to the consideration of factors such as: different perspectives on the changing nature of the organisation and the uncertainty of what will be useful in practice. Although it should not be taken as a definitive description of the organisations information needs it should give recognition to desirable capabilities as part of an ongoing process. However it does embody the norms and values of the organisation at a particular point in time. For Walsham (1993b) the systems analyst acting as moral agent the question should be 'Whose norms and values?' The systems analyst should reflect on whether the specification sufficiently represents views shared by other stakeholder groups and then decide whether to challenge it.

The process of acquiring the system: This is related to the requirements specification. Any system developed or purchased on the basis of technical specifications are unlikely to ‘*..empower less advantaged groups to be able to exercise adequate autonomy in their working lives or to have sufficient control of their working environment*’ (Walsham, 1993b:290). The moral agent could take the part of the workforce and try to redress the balance or engage in and facilitate critical debate on ethical issues between all interested parties.

The educational process: Walsham (1993b) sees a possible role for the systems analyst as an educator and trainer. First by engaging with users and stakeholders the analyst as a moral agent can enlighten the workforce as to the opportunities that IT and new innovative uses it can deliver. This can be a two way exchange where analysts learn about the various activities which take place within the organisation and can then reflect on potential new opportunities for working. This whole process would involve critical self-reflection on the part of all parties with the opportunity to express concerns and it would not be seen as just another management strategy for change.

4.4.2 Emancipatory Systems Development

Although they discount the use of systems development methodologies (Klein and Hirschheim, 1993) the authors choose to pursue the belief that some actually have some emancipatory principles and can be “re-formulated” to achieve these emancipatory ideals more comprehensively (Hirschheim and Klein, 1994). They see the ETHICS (Effective Technical and Human Implementation of Computer Systems) as developed by Mumford (1983) as having the potential to be re-formulated.

Hirschheim and Klein (1994) believe that the main issue in ISD is the nature of participation. Recognising the chief concerns of the critical schools of management and the nature of participation they suggest that the principal weakness of participation in ISD is the failure to acknowledge a political dimension. They argue that organisations are historically constituted and may not have a tradition or a structure which facilitates participation in the Radical Humanist form.

Hirschheim and Klein (1994:87-88) put forward four conditions which are required for a methodology to be considered emancipatory within the context of ISD based upon Alvesson and Willmott (1992b) and related to work by Forester (1989) and Ulrich, (1983) and then show how ETHICS recognises these conditions:

1. *The emancipatory methodology must support an active process for individual and collective self-determination. Ulrich (1983:257) states that those affected in the planning process "must be given the chance of emancipating themselves from being treated merely as a means for the purpose of others". ETHICS recognises this through its overwhelming emphasis on bottom-up participation.*
2. *It must support a process of critical self-reflection and associated self-transformation. Ulrich (1983:260) expresses this as "...for socially rational planning it is essential that the planner initiates a process of emancipatory self reflection on the part of the affected" ETHICS does not have this but could be modified to include self-reflection.*
3. *It must encompass a broader set of institutional issues relating particularly to social justice, due process and human freedom. Forester (1989) distinguishes two types of communicative distortions: those that are "socially ad hoc" (e.g. "wilful unresponsiveness" by an individual) and those that are "socially systematic" (e.g. "information inequalities resulting from legitimate division of labour"). ETHICS realises these issues by giving recognition to employees' ethical needs, quality of working life, personal autonomy, and the linkage between participation and democracy in general.*
4. *It must incorporate explicit principles for the critical evaluation of claims made through the systems development process e.g. by questioning the knowledge and beliefs upon which these claims are based. Ulrich (1983:261) states "A source of guarantee is presupposed in each design effort (including any designs for inquiry..". In critical social theory rational discourse is proposed as the guarantor which should reveal fallacious evidence and other forms of misinformation. ETHICS realises this by an explicit pluralist model of inquiry.*

However, ETHICS (Mumford, 1983) as originally conceived was a 'hard' methodology accepting as given the management objectives for the future system and the user focus was on getting them to accept the system. Wilson (1997) is concerned about advocating the adoption of a variant of ETHICS as some of the suggestions in the Hirschheim and Klein (1994) work appear to be anti-emancipation. For example they describe the use of facilitators to ensure *"that everyone contributes and is listened to"* (Hirschheim and Klein, 1994:93) and the *"emancipatory methodology"*

will be used to overcome “*wilful unresponsiveness by an individual*”. These menacing overtones are at odds with Habermas’s ideals of a future unalienated and uncorrupted society and ‘betray’ the authors historicity which all IS researchers face when trying “*to place their own project on a footing that is different*” (Wilson, 1997:202).

4.4.3 The ethical systems analyst

In terms of emancipatory practice and the increasing use of IT to deliver systems which have the potential to impact heavily on the societal organisation of work, Wood-Harper et al.(1996) urge the systems analyst to have a greater awareness of ethical theory. They argue for an explicit analysis of the implications of design decisions using a basic understanding of ethical theory. Normative ethics is the set of premises used to decide whether an action or decision is right or wrong. In general normative ethics can be divided into two classes: deontological and consequentialist. They outline four of the many ethical theories which they consider pertinent to IS as shown in Table 4-2 below.

Label	Beneficiary	Objective	Good
Deontological	Not considered	Follow the rules	Following the rules
Individual Consequentialist (egoist ethic)	Individual	Maximise good for individual	Happiness, well-being, fame, riches
Group consequentialist	Group (social group, organisation, nation)	Maximise good for the group	Survival, autonomy, ascendancy
Utilitarian	Society as a whole	Maximise good for human race (or all sentient beings)	Life, liberty, standard or living.

Table 4-2 Normative Ethics theories from Wood-Harper et al. (1996: 70)

Wood-Harper et al.(1996:73) suggest that an ethical analysis should be carried out and define a number of steps:

- 1. Identify the stakeholders in the situation who possess ethical perspectives*
- 2. Identify the dominant perspective or the most dominant perspectives as different stakeholders*
- 3. Construct an ethical conflict web, mapping different perspectives.*
- 4. Identify those strands of the web where no significant conflict may be assumed to exist. These may be removed from the model.*
- 5. Concentrate on those strands where conflict does exist. Use a technique of conflict resolution to achieve the “good” for the system.*

Wood-Harper et al.(1996) believe that this approach could be very successful in the NHS to assist systems analysts define requirements where there may be conflicting ethics between groups such as Government, hospitals, business managers, nurses, doctors and patients. They have begun preliminary studies with a Community Healthcare group using it in a feasibility study alongside SSM with some promising results. However, it has yet to be used within an implementation.

4.5 A framework for practice -The systems analyst as an emancipator

The previous sections have explored the possibility of linking theory from CST to practice within the context of IS. What emerges from the literature are many theories and suggestions that need to be explored in a practical situation.

From Chapter 2 it has been demonstrated that historically the systems analyst has developed through a highly technical route. However, present day systems analysts would be expected to demonstrate good interpersonal skills which include good communication skills. In general methodologies may have been somewhat discredited (Wynekoop and Russo, 1995,1997; Wastell 1996; Fitzgerald 1996) but some aspects of them may as Hirschheim and Klein (1994) suggest could be used in an emancipatory way. Alvesson and Willmott (1996) also argue that emancipation can take place where

practitioners confront traditional theory and try to improve practice through action which improves the situation for the actors involved - they refer to this as micro-emancipation.

The theory linked to practice which has been examined in this chapter can be interpreted in a manner which could provide a framework for action on the part of the systems analyst/researcher to explore further and is represented in Figure 4-4. Alternatively, the framework may be used as a heuristic in order to inform practice and be improved upon in response to new and better understanding.

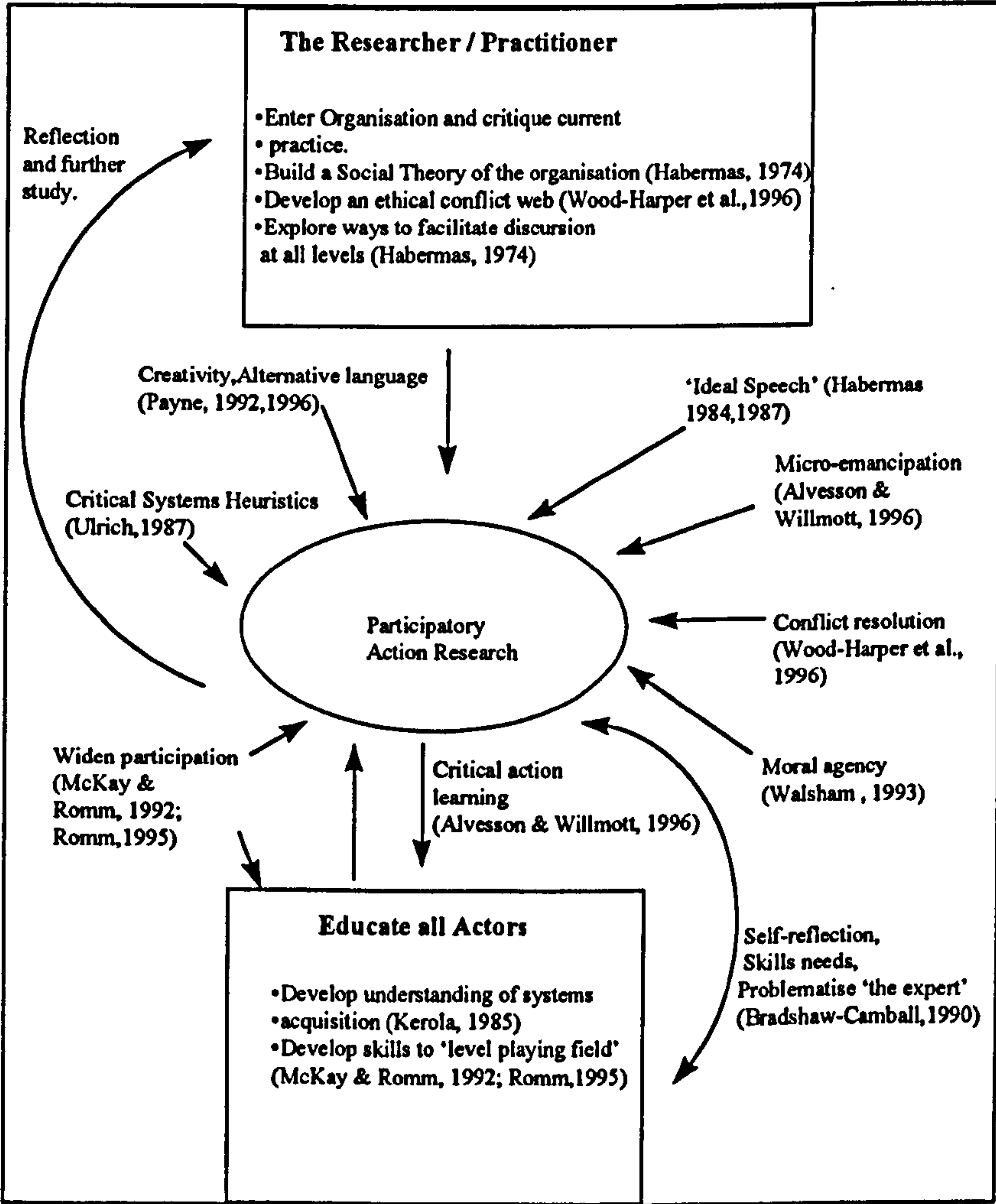


Figure 4-4 A Framework for Emancipatory practice

The journey into emancipatory praxis from the perspective of the researcher/researched systems analyst is done against a background of functionalist theory and practice and a Critical Social Theory of Habermas which has not engaged practice as such. The framework in Figure 4-4 has as its starting point Habermas's Critical methodology which guides all action. However, Habermas did not move his theory into practice and, therefore, other authors' theory considered appropriate is integrated into the framework. At no point is the framework intended to be prescriptive and in reality the various contributions may depend upon the actors (including the researcher) involved and whether they want to move the project into action. The intention of the researcher would be to develop practice which would incrementally move towards micro-emancipation for all concerned.

The literature has indicated that emancipation begins by developing reflexive skills within an organisation from which a social theory about that particular organisation will emerge through analysis of the collected data and personal experience. From this it should be possible to establish where there is conflict and there needs to be an exploration of the nature of the conflict and why it has occurred. Opportunities for discursion must also be investigated prior to any intervention.

In parallel with this reflexive period for the systems analyst it is essential to begin to engage as many 'relevant' actors as possible in the implementation. Integrated projects can impinge on many peoples' lives and they need to be involved in the process. Only when this has been done can the systems analyst begin discussions about the project and how it might be taken forward by all of the actors. Actors may need some form of education in order to participate. This will be determined within the context of the action research.

4.6 Summary

This chapter brings to a close the first stage of emancipation of the researcher/systems analyst. Yet, it is not as simplistic as suggested since it is very much an iterative process. The systems analyst must continually reflect on theory in order to evaluate practice. However, this thesis, as part of an on-going process, has examined the pertinent literature which can inform practice where emancipation intent is the objective of the study. There are very few examples of true emancipatory practice but this should not discourage the researcher from attempting forms of incremental improvement. The practice of systems analysis could benefit from insight into Critical Theory and learn from other disciplines where practice is more developed. Having synthesised the relevant literature it is now possible to take the critical framework forward to the primary research stage and the next chapter details the research methodology adopted for the study.

Chapter - 5

5. The Research Methodology

5.1 Introduction

Three major international conferences have raised philosophical issues associated with doing research in information systems as well as concern for the plurality of methods that are available to IS researchers (McLean, 1980; Mumford et al, 1985; Nissen et al., 1991). The debate has centred around the continuing tendency to use or rely on the classical scientific method and general empiricist methods despite the problem and the research contexts being non-amenable to forms of reductionist controlled experimentation. Although a variety of research methods are now acceptable to IS research (Cornford and Smithson, 1996) the legacy of the past traditions still dominates especially in the USA. (Orlikowski and Baroudi, 1991; Benbasat and Zmud, 1999).

Disillusioned by, and in conflict with, the positivist approach to research a number of prominent IS researchers (Checkland, 1981; Lyytinen, 1987a,b; Klein, 1986; Boland and Day, 1982) have turned to alternative epistemologies to validate their knowledge of the social, organisational and human dimensions of IS research. One such approach draws on Critical Social Theory and in particular the work of Habermas on the three knowledge constitutive interests. It is this work that has guided the research methodology adopted in this thesis.

The chapter has been structured using a framework adopted from Crotty (1998) and applied to this research. It begins by outlining the nature of the framework and is followed by an explanation of the rationale which underpins the primary research. The actual methodology is then detailed and that is followed by an explanation of the framework of analysis.

5.2 The Research Process

Crotty (1998) argues that before trying to answer a particular research question the researcher must examine carefully the assumptions about reality that they bring to the work. By taking time to consider this researchers will then consider their theoretical perspective which will influence the methodology and hence the methods chosen for the research. Crotty (1998:3) argues that there are four elements of any research process:

Methods: techniques or procedures used to gather and analyse data related to some research question or hypothesis.

Methodology: the strategy, plan of action, processor design lying behind the choice and use of particular methods and linking the choice and use of methods to the desired outcomes.

Theoretical perspective: the philosophical stance informing the methodology and thus providing a context for the process and grounding its logic and criteria.

Epistemology: the theory of knowledge embedded in the theoretical perspective and thereby in the methodology.

These are linked as shown in Figure 5-1:

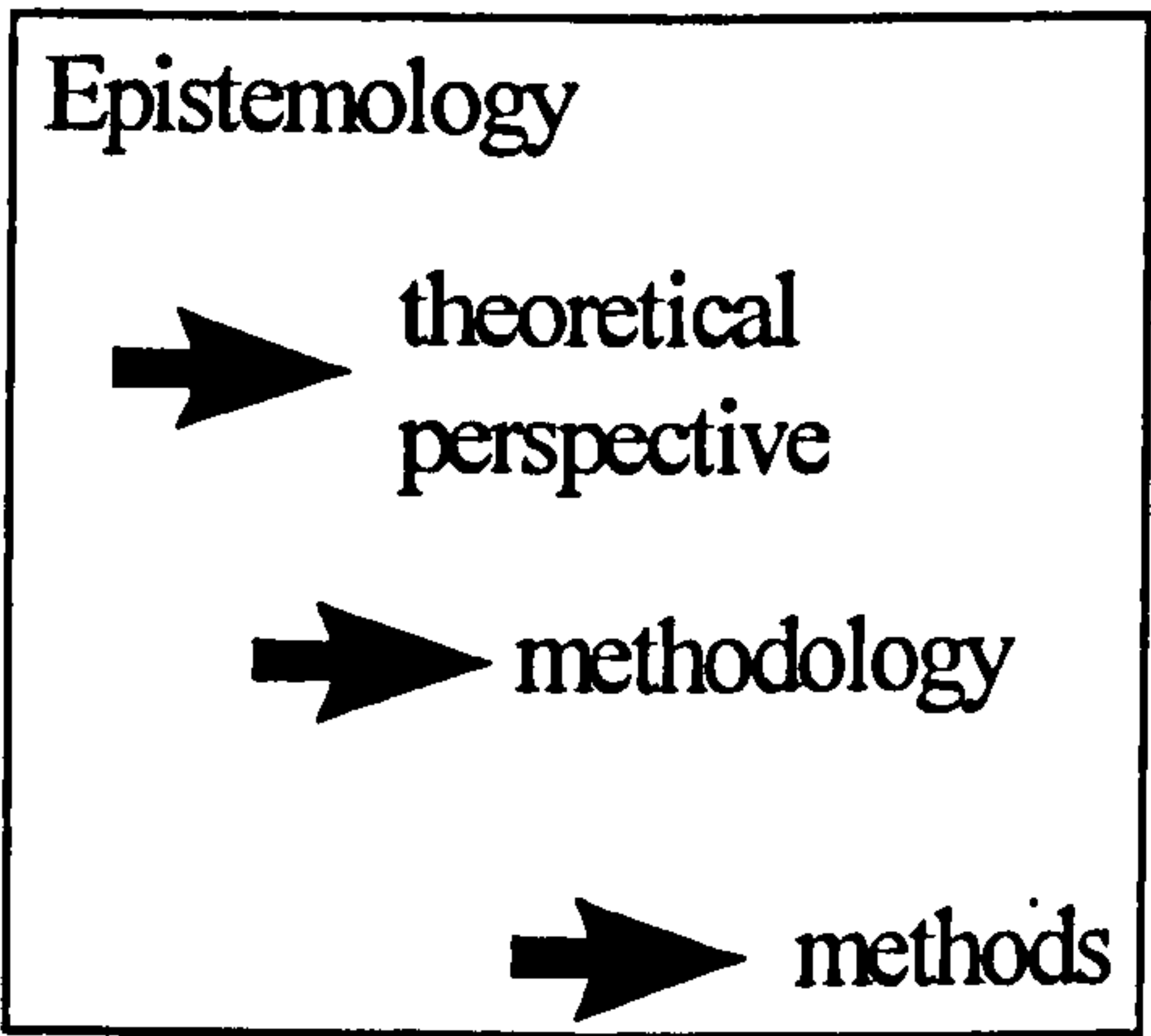


Figure 5-1 The elements of the research process (Crotty, 1998:5)

In the case of the research presented here the following framework, Figure 5-2, will be used to structure the discussion of the rationale which underpins the work.

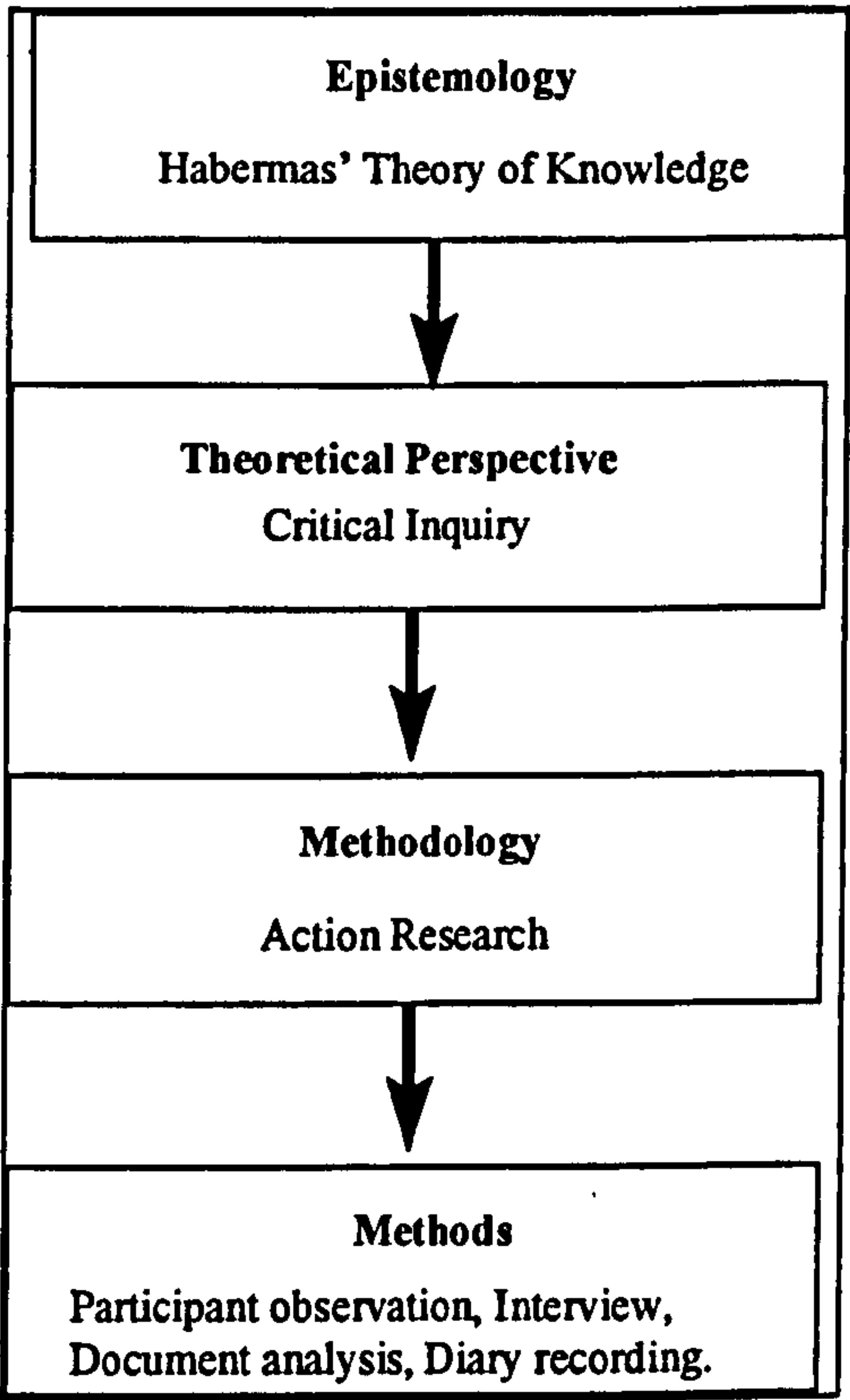


Figure 5-2 The research process adapted from Crotty (1998)

5.3 Epistemology underpinning the thesis

In examining the role of the systems analyst undertaking a paradigm shift within integrated IS projects this particular research is concerned with a social rather than a scientific problem and thus an appropriate epistemology is needed. Although many research projects within IS use a positivist approach (Orlikowski and Baroudi, 1991) and even latest research on systems analysts (Jiang and Means, 1999) have used the traditional approach, I believe that it is inappropriate for this research.

As has been discussed in 3.4.1, Habermas' *Knowledge and Human Interests* deals with the problem of epistemology - the question of the validity of our knowledge of the world.

"Since Kant, Habermas argues, epistemology as the critique of knowledge has been progressively undermined. As a result, science can no longer be comprehended by philosophy; science can no longer be understood as merely one category of knowledge. For the rise of scientism resulted in a radical de-emphasis of what has been the traditional concern of the critique of knowledge - inquiry into conditions of possible knowledge as well as into the meaning of knowledge as such." (Held 1980:296)

Habermas believes that human beings constitute their reality and thus organise their experience in terms of cognitive interests. He identifies three interests which have arisen within the development of the human species which have to the most part been dealt with in 3.4.1: *Technical, Practical and Emancipatory*. The emancipatory knowledge interest deals with *'the relations of dependence that ideology in particular has set in place and that come to appear to us as natural'* (Crotty, 1998:143).

Habermas's work is set in the context of language and through language he develops a theory of communicative competence (1984). Emancipation from 'systematically distorted communication' and where participants involved in the communicative process are able to express their own requirements free from constraints is an ideal that a systems analyst practising in an emancipatory manner ought to address. In order to develop this further it is important to explore the critical perspective which informs the methodology.

5.4 The Theoretical Perspective

The research which is outlined in this thesis is concerned specifically with a theoretical perspective based on Critical Social Theory derived mainly from the work carried out by researchers of the Frankfurt School. Once again much of this critical perspective has been examined in Chapter Three. Crotty (1998) believes that critical

research or critical inquiry differs from interpretative research in the following way:

'It is a contrast between a research that seeks merely to understand and a research that challenges...between a research that reads the situation in terms of interaction and community and a research that reads it in terms of conflict and oppression... between a research that accepts the status quo and a research that seeks to bring about change' (p113)

The theoretical perspective has also been guided by Alvesson and Willmott (1996) and their arguments for 'micro-emancipation'(3.5.1). Thus, this research project sets out to **question** ideas and practice at the local level within an integrated systems implementation in order to challenge the many taken-for -granted approaches, tools and techniques used in the context of systems analysis which promote the domination of some at the expense of others. It sees the researcher as an active participant (*means*) in focusing on *social relations* within these complex projects and exposing the inequalities therein to public scrutiny and critique. However, it does not want to have levelled at it the criticism of 'negativism' and hence intends to outline some '*incremental undertakings*' which will move the project towards an emancipatory transformation.

5.5 Methodology

To investigate the role of the researcher/system analyst as a mediator of emancipatory practice within an integrated systems implementation requires a methodology which is congruent with the theoretical perspective taken by the researcher. Emancipation not only requires critique of existing forces of domination but also action to expose them and free individuals from 'false truths'. As the researcher is also the system analyst and participating in implementation projects the appropriate methodology must give cognisance of this issue. According to Habermas (1984:108):

The object domain of the social sciences encompasses everything that falls under the description "element of lifeworld"... Speech and action are the unclarified fundamental concepts to which we have recourse

when we wish to elucidate, even in a preliminary way, what it is to belong to, to be an element of a socio-cultural lifeworld. The problem of Verstehen (interpretative understanding) is of methodological importance in the humanities and social sciences primarily because the scientist cannot gain access to a symbolically prestructured reality through observation alone, and because understanding meaning (Sinnverstehen) cannot be methodically brought under control in the same way as can observation in the course of experimentation. The social scientist basically has no other access to the lifeworld than the social-scientific layman does. He must already belong in a certain way to the lifeworld whose elements he wishes to describe. In order to describe them, he must understand them; in order to understand them he must be able in principle to participate in their production; and participation presupposes that one belongs.

There is little guidance on how to conduct critical research (Forester 1993, Johnson 1999). Habermas’s (1973) methodology outlines three stages (4.2) and these have been further developed by researchers such as Brown as shown in Figure 5-3.

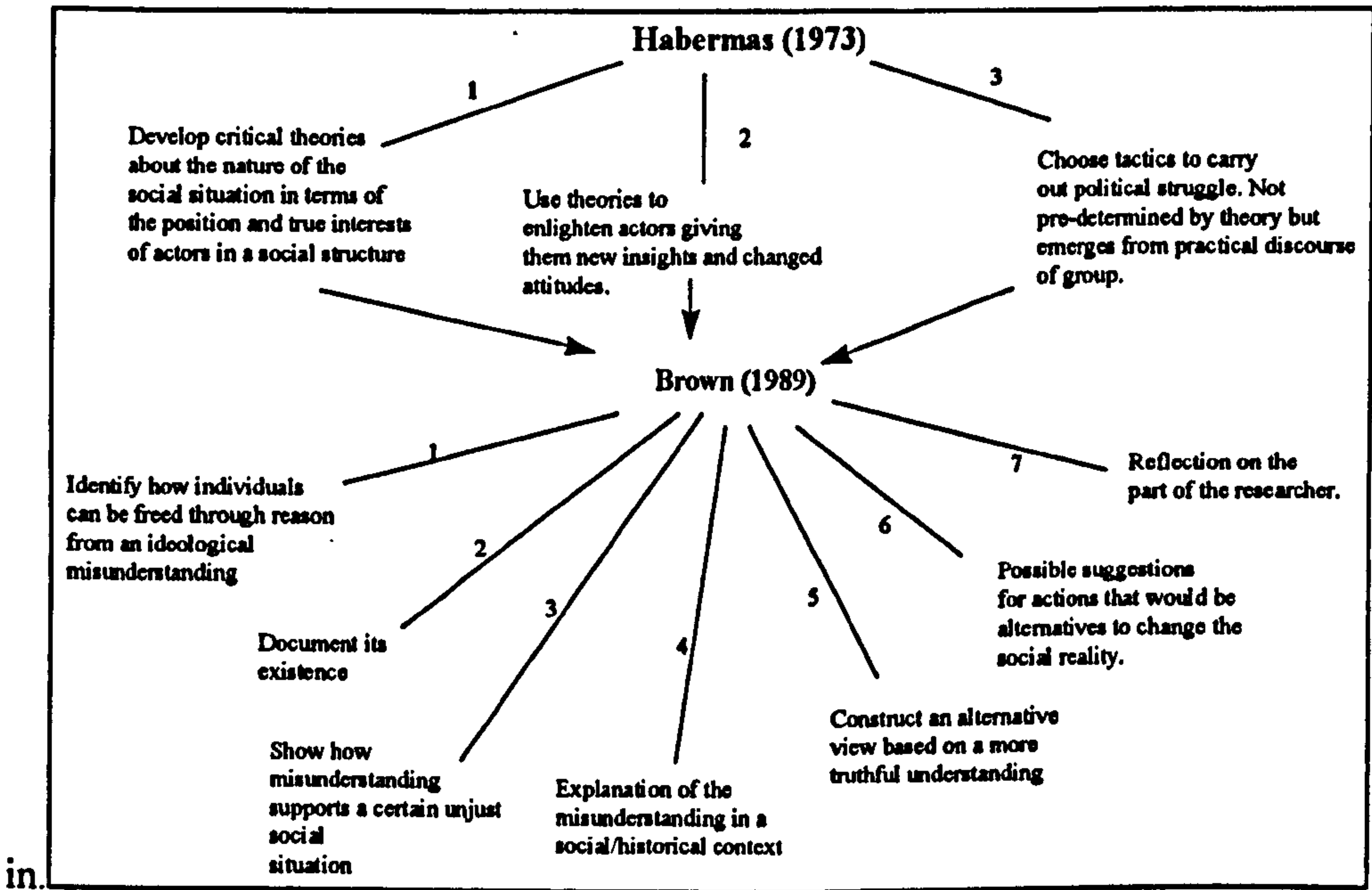


Figure 5-3 The Seven Step Model for Critical Research adapted from Brown (1989)

Johnson (1999) developed her critical methodology through a generic model similar to that in Figure 5-3 and revised it based on feminist research. However, her work has been developed as a researcher/educator questioning organisational practice rather

than as a researcher who is questioning her own practice as well as the practice of others.

In considering systems development, Alvesson and Willmott(1992b:433-434) suggest the following conditions must be observed:

- 1. The emancipatory methodology must support an active process for individual and collective self-determination.*
- 2. It must support a process of critical self-reflection and associated self-transformation*
- 3. It must encompass a broader set of institutional issues relating particularly to social justice, due process and human freedom.*
- 4. It must incorporate explicit principles for the critical evaluation of claims made through the systems development process e.g. by questioning the knowledge and beliefs upon which these claims are based.*

Choosing a suitable methodology is difficult especially where fieldwork needs to be done within organisations. Forester (1992) gives some insight into critical ethnography used to question instrumental action in a planning department. By exploring the means used to specific ends in ordinary practice he focuses on concepts of power and powerlessness, community and autonomy.

To research the process of micro-emancipation Habermas would appear to suggest participation to provide understanding. Morrow (1994) tends to agree with this as does Kemmis and McTaggart (1988) and they suggest action research as a suitable methodology.

“Action research is a form of collective self-reflective inquiry undertaken by participants in social situations in order to improve the rationality and justice of their own educational practices, as well as their understanding of these practices and the situations in which these practices are carried out.”
(Kemmis and McTaggart 1988:5)

Morrow (1994:320) proposes that there are two types of situation which lend themselves to action research. The first involves areas of society where there are a multitude of sources of domination and distorted communications that compete for control. The second situation is where '*highly institutionalised*' domains (e.g. health, education, work, the family, religion, politics) are challenged in terms of '*alternative organisational strategies*' and democratic representation. The need to question practice and explore ways to change it is paramount in the research conducted within this thesis. Therefore, Action Research was believed to be the most appropriate methodology.

5.5.1 Action Research

Action Research has its academic origins in sociology, social psychology, psychology, organisational studies, education and health studies. The term Action Research has been in the vocabulary of research for quite some time now (Lewin, 1946, 1947; Chein, et al, 1948; Blum, 1955) and has continued to gain credence in IS research mainly through the work of Checkland (1981) and others such as Warmington (1980), Avison and Wood-Harper (1990), Jonsson (1991) Baskerville and Wood-Harper (1996) and Avison et al.(1999).

Lewin (1948) described Action Research (AR) as an iterative process in which practitioners plan for action, act and then perform reconnaissance. In his model of AR shown in Figure 5-4 there is a recursive relationship between thought and practice which stands in sharp contrast to standard western educational methods and traditions.

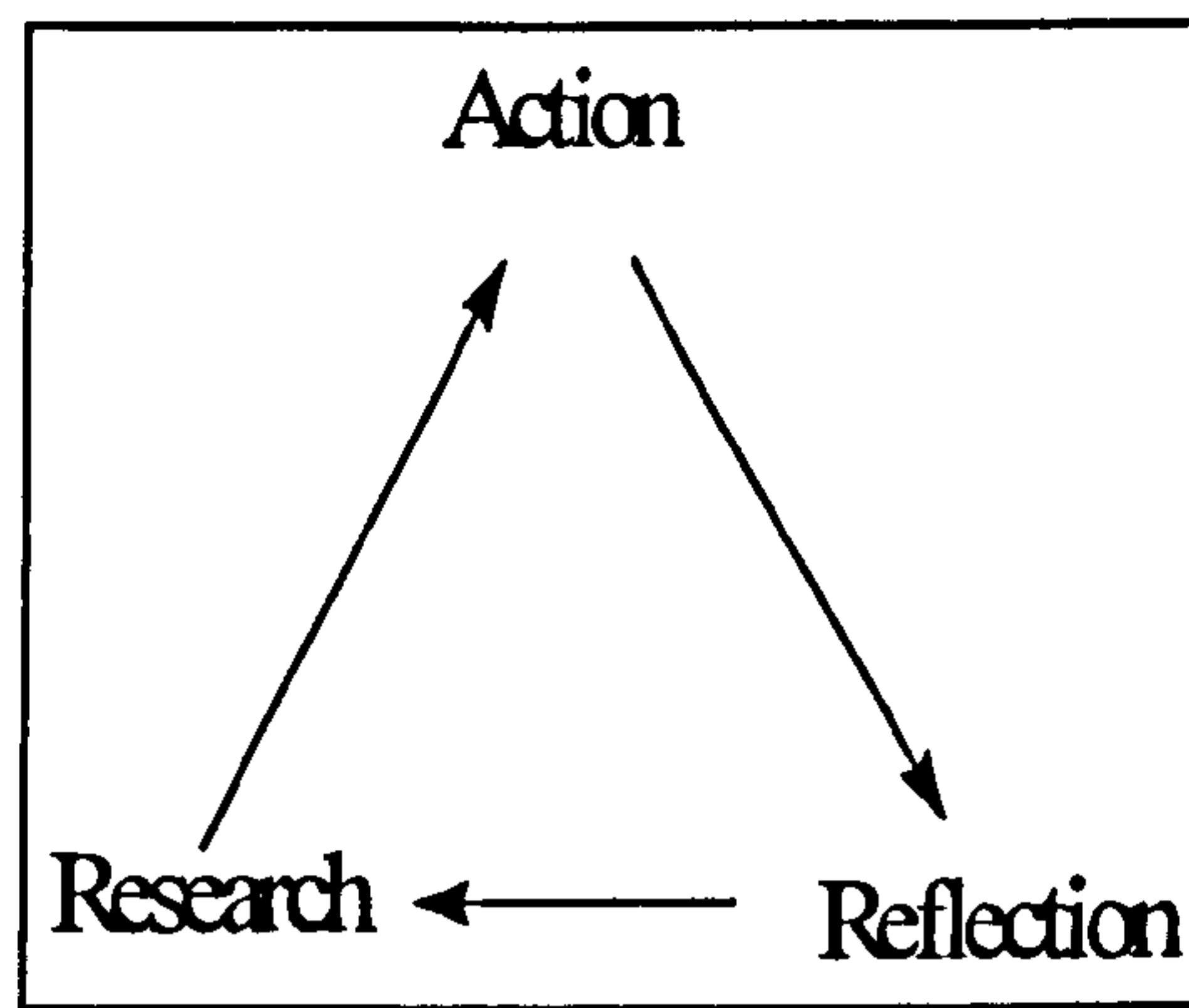


Figure 5-4 Action Research Model (Lewin, 1948)

Action Research can be distinguished from applied research. Researchers working on action-oriented projects, such as in organisational or social planning, have realised that the notion of 'expertise', as pre-supposed by applied research, is highly questionable (see, e.g., Emery, 1981a; McLaughlin, 1987; Rittel and Webber, 1981; Ulrich, 1987). Action-oriented research is said to involve generation of situation-specific knowledge, not mere application of some pre-existing knowledge. A wide range of approaches have emerged on how this can be done (recent overviews by Flood and Romm, 1996; Moggridge and Reason, 1996; Reason, 1994; Dash, 1999) and some of these include Action Learning, Action Science, Action Inquiry and Participatory Action Research.

5.5.2 Action Research and Information Systems

Having considered briefly the historical and academic context of Action Research it is now relevant to examine its tradition in the field of IS.

In the IS literature action research is seen as an interventionist approach to the acquisition of scientific knowledge with foundations in the post-positivist tradition (Baskerville and Wood-Harper, 1996). Rapoport's (1970:499) definition of action research is one which is frequently quoted:

"Action research aims to contribute both to the practical concerns of people in an immediate problematic situation and to the goals of social science by joint collaboration within a mutually acceptable ethical framework"

This is characterised by the immediacy of the researcher's involvement in the action process (i.e. there is a client with a problem to be solved), and the explicit intention of both parties to be involved in change. Rapoport (1970) points to three dilemmas inherent in this particular research process:

- it brings into doubt the ethical/value issues inherent in the process (social sanction/public interest, confidentiality, protection of the respondents, interests of clients versus generic applications i.e. competitors, bias and manipulation of results).
- it attends to the client's interests, but perhaps not to the researchers (dual expectations must be made explicit, sympathy and identification versus detachment and independence, timing of results feedback, fast for client, meticulous but slower for research community in a non-conventional multi-disciplinary framework)
- it locates initiatives too exclusively with the client (initiatives emerge from clients versus internal logics of a discipline, rejection phenomenon of client who is non-passive collaborator).

Rapoport (1970) states that the three dilemmas are generic to any stream of social research with the basic directions leading to action at one extreme (with little theory building and no scientific content) and purist research at the other end of the spectrum (purist/ ivory tower with no relevance to 'real life' problems). A conclusion from this examination of some fundamental dilemmas of the action research process are that the resolution of such dilemmas is an important part of work of the action researcher, the academic community and its clients and sponsors.

Checkland et al. (1984) find that there is an important aspect of action research missing from Rapoport's definition. This is the need for the action researcher to enter into the research with a clear and adequate conceptual or theoretical framework which he applies to the research. Action research breaches a number of tenets of theoretical positive science: that data should be independent of the observer; that the data and research process should be mutually independent; and that experimental conditions

should be controlled. In organisation processes, however, these conditions are rarely attainable. The processes of an organisation tend to be unique; the observer by the nature of their presence becomes an actor; causation is very complex and interactive and it becomes invalid to decompose phenomena into simple parts without losing too much meaning.

The description of the action research method which is most common in the IS field is the one described by Susman and Evered (1978). They consider five phases to be necessary for a comprehensive definition of action research. In practice this ideal approach first requires the establishment of a client-system infrastructure or researchable environment. Then, five identifiable phases are iterated:

These are shown in Figure 5-5 below:

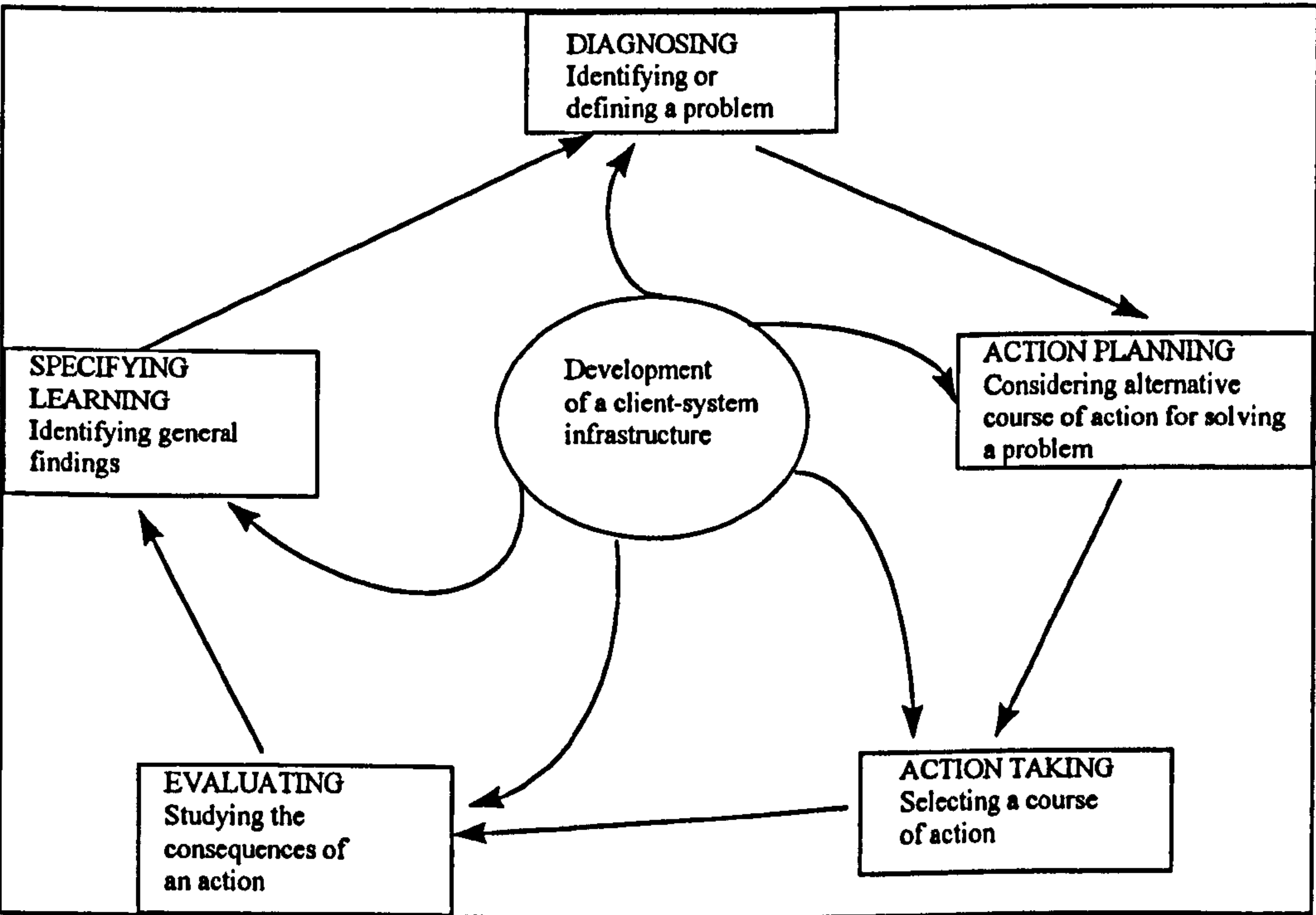


Figure 5-5 The cyclical process of action research (Susman and Evered 1978)

The client-system infrastructure: Baskerville and Wood-Harper (1996) see the client-system infrastructure as the specification and agreement that constitutes the research

environment. Considerations include the boundaries of the research domain, and the entry and exit of the researchers. It must also give consideration to the dissemination of the learning gained in the research. Roles and responsibilities of the client and researcher must be defined within the infrastructure and to each other.

Diagnosing: This refers to the identification of the main problem (s) which have prompted the organisation to seek possible solutions.

Action planning: The next phase is a collaborative one between researcher and the organisational actors where an agreed set of actions are planned to relieve or improve the situation. The plan should be guided by the theoretical framework (Baskerville and Wood-Harper, 1996).

Action Taking: This is where the action is implemented with researchers and practitioners collaborating in the organisation causing some intervention. The nature of the action can take a number of forms i.e. research led, introduced by a change agent or non-directive.

Evaluation: After the action has been taken the researcher(s) and practitioners collaborate on the outcomes and whether the theoretical objectives have been achieved and the problem addressed. There must be some critical component which examines whether it is the actions taken which have brought about the success or some other organisational actions. Where objectives have not been met then the next iteration must be considered collectively and some adjustment of the hypotheses made.

Specifying the learning: Although this is specified as being last in the cycle it should be an ongoing process. The learning has three possible audiences (Baskerville and Wood-Harper, 1996).

1. The organisation - may undertake 'double-loop learning' (Argyris and Schon, 1978) where organisational norms are restructured to reflect the knowledge gained during the research.

2. The researcher(s) and practitioners - where the action was unsuccessful the learning allows for further diagnosing and preparations for new iterations.
3. The research community at large - may benefit from the success or failure of the theoretical framework and may provide more research opportunities in this area.

Much of the Action Research carried out by IS researchers has been interpretative in nature (Checkland, 1981; Checkland and Scholes, 1990; Avison and Wood-Harper, 1990) though Walsham (1993) suggests that the action research described by Jonsson (1991) may be of a critical type. However, the research conducted within this thesis is informed by Critical Theory. Both Morrow (1994) and Crotty (1998) point to Participatory Action Research (PAR) as an approach which is congruent with the critical perspective.

Since the early days of Action Research (AR) the degree of practitioner participation has become the focus of the debate along with the goals of AR. Probably the biggest differences have been the changes in research designs in the late 1960s which required full participation and became referred to as Participatory Action Research (PAR).

5.5.3 Participatory Action Research (PAR)

There are many forms of AR only one of which is PAR. According to McTaggart (1991) for authentic participation to occur participant practitioners must set the agenda of inquiry, participate in collection and analysis of data and have control over the outcome of the research.

Udas (1998) believes that Participatory Action Research (PAR) must be underpinned by some fundamentals. The first, is that PAR questions the nature of knowledge, research and methods. Secondly, the nature of knowledge in PAR is for improvement of practice not for the construction of an abstract theory-base. The PAR assumption of the nature of knowledge is that it is created by local practitioners, environments and historical factors. Thirdly, the findings and value of research are retained locally and

finally the researcher must be prepared to be flexible and creative.

Udas (1998) continues by outlining certain methodological principles which apply to PAR:

- It is participant centred and non-alienating
- Research/facilitators enter a project clear about their own theory of social change and can share this with participants in a democratic way.
- The research methods are based on mutual respect and trust and facilitate collaborative inquiry, potential benefits and acceptance of each party's responsibilities.

Stringer (1993) suggests that an authentic socially responsive methodology must enable participation, acknowledge people's equality of worth, provide freedom from oppressive debilitating conditions and enable the expression of people's full potential.

Participation : Stringer (1999: 35) states that participation is most effective when it:

- Enables significant levels of active involvement
- Enables people to perform significant tasks
- Provides support for people as they learn to act for themselves
- Encourages plans and activities that people are able to accomplish themselves
- Deals personally with people rather than with their representatives or agents.

PAR is inherently political (Udas, 1998:606). He continues:

"PAR is predicated on the democratic notion that oppressed and marginalised people can transform their social realities through education, research and action while forwarding their own value system".

PAR (Udas, 1998) must be aimed towards social justice, involve critical reflection on practice, question assumptions on which practice is based and promote collaborative

collective action. It is a continuing cycle of research activities involving active participation of practitioners. It is anti-positivist. It is not problem solving though it may help to do so. It is a process having value itself. It is a means of self-examination, improvement and emancipation, not an instrument to re-create a status quo.

Udas (1998) argues that the PAR notion of full participation of all systems stakeholders is captured in Habermas's work on the importance of communication in critical theory. The 'ideal speech situation' is based on the need for group or community truth to be arrived at through consensus. This point is also made by Stringer (1999) and he continues by stating that the emancipation process requires critical self-reflection on action and the conditions that create action.

5.6 This study

The critical methodology adopted by this study is underpinned by Habermas's suggested approach (1974) (4.2). Earlier in the thesis I brought to the attention of the reader that the focus of the micro-emancipation was myself, the researcher, who was also a systems analyst, as well as the organisational actors with whom I came into contact. The exploration of the concept of the 'ideal speech situation' and 'systematically distorted communications' within the context of an IS implementation has been the focus of the action research.

My paradigm shift began with a critical reflection on the relevant literature (including NHS contextual literature) which informed my first experience in Hospital X. I originally viewed the primary research as a 'meta' action research project which would consist of a number of stages, each of which would involve action research at the local level (Figure 5-6). At the 'meta' level, I, the researcher, would be developing emancipatory insight after each stage, reflecting upon what has taken place and relating this back to the literature which would then inform my practice in the next stage. At the local level micro-emancipation would take place with organisational actors who were part of the projects in which I was involved. Iterations of action research cannot be anticipated in advance and depend upon the progress made within each one.

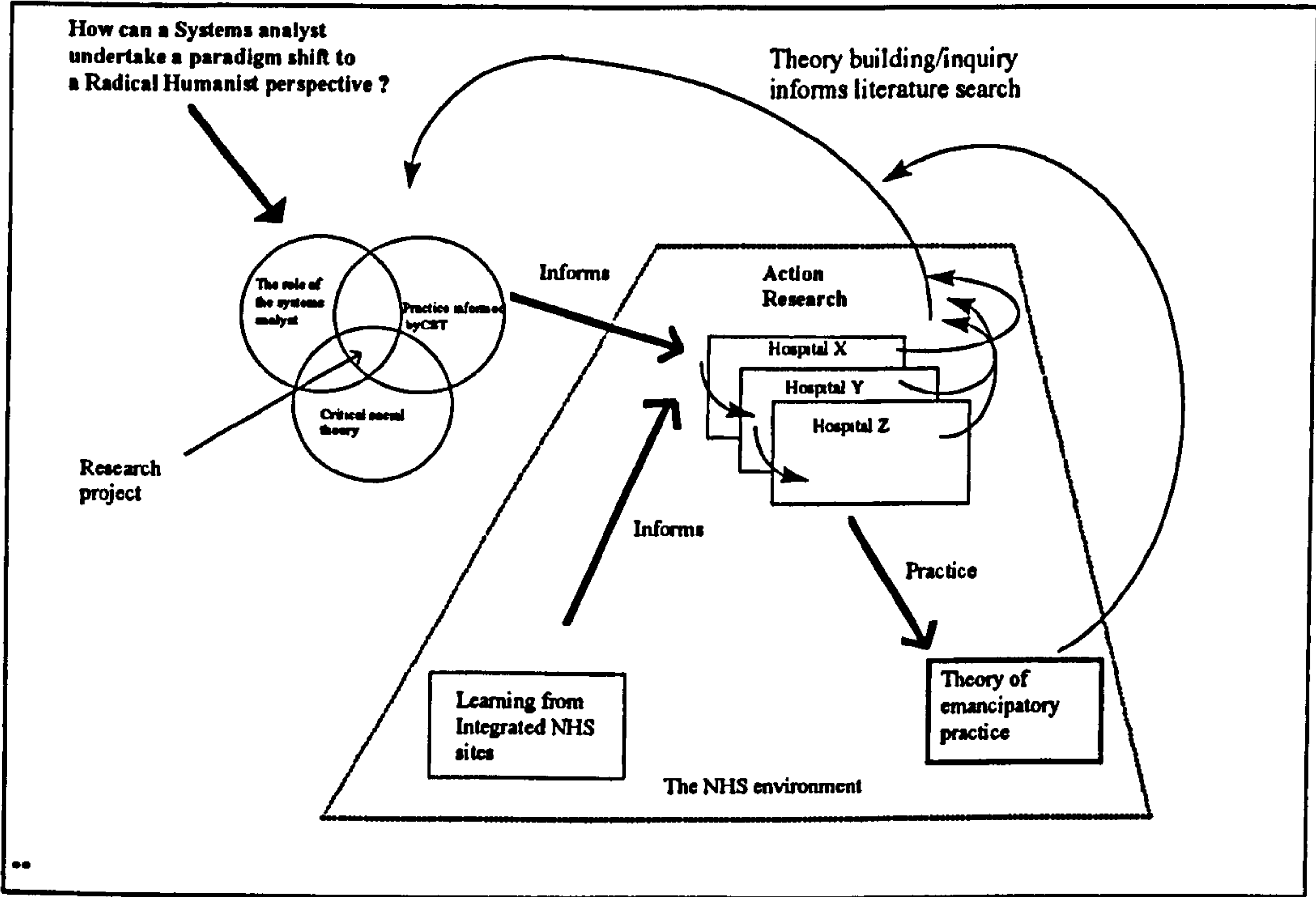


Figure 5-6 The Action Research model adopted for this thesis

The research carried out in Hospital X was used to explore how Habermas's (1973) critical methodology might be put into practice. I did not consider myself an expert in the use of action research or indeed organisational research and felt that I needed to develop more understanding of the practicalities of both. Hospital X provided me with the opportunity to develop a critical awareness of some of the underpinning IS theory and models used in the NHS and practices which appeared to favour some at the expense of others on their HISS project. I was also able to explore the nature of the social situation. In terms of micro-emancipatory intent, Alvesson and Willmott (1996) (3.5.1) would classify this as 'questioning'. Hospital X was also used to explore the potential of the PAR model which would be used at a later stage of the research and this was done within the IT department on one of the projects. The author and IT department members used the action learning model (Appendix B) to carry out a planned piece of work, reflect on the practice, modify and adapt it. This approach on a micro scale attempted to address the social and political barriers erected by power holders within the hospital.

After a period of consolidation and reflection, a second phase of primary research was conducted at another North East Acute hospital. Hospital Y wanted to implement an integrated system which would allow pilot departments to communicate and be involved in GroupWare to allow sharing of information. The role of the system analyst in understanding the difficulties inherent in the concept of the 'ideal speech' situation became the focus of the research with participation of users, management, IT vendors and IS/IT professionals. In Hospital Y critical theories about the nature of the social situation were developed and these fed back to the actors through a report and by the use of a process modelling tool, IDEF0 (Appendix A). The IDEF0 tool has been traditionally used by the 'systems experts' with a 'Hard' systems philosophy. I believed that the tool could be used with and by user staff within the hospital environment in order to explore systematically distorted communications and discursive closure. This phase involved 'incremental' forms of micro-emancipatory work. The PAR model was used more extensively with the organisational actors incorporating the modelling of work processes. Reflection on the work at Hospital Y resulted in a programme of possible incremental steps which I believed could be used in an emancipatory way on an integrated IS project.

At Hospital Z I was given the opportunity, through two projects, to explore all three stages of Habermas's Critical Methodology (1974). I intended to explore the nature of the two social situations to which I was exposed within the context of the IS implementation. I wanted to expose the use of power and politics to participants and, through the concept of the 'ideal speech situation' explore how they could be addressed. I believed that through IDEF0 modelling by the participants discursion could be facilitated and then they would decide how the project would be taken forward. This could not be anticipated in advance.

The formal research agreement (Baskerville and Wood-Harper, 1996) from the three sites is summarised in Table 5-1:

	Hospital X	Hospital Y	Hospital Z
Agreed purpose	<ol style="list-style-type: none">1. Gain experience of a integrated IS implementation2. To test the Action Research model3. To identify the main paradigm for systems development/implementation used in the IT department.4. To critically analyse methods used in the implementation process.5. To develop critical theories about the nature of the social situation in which I was involved.6. To become actively involved in projects and explore the feasibility of adopting an emancipatory approach within the projects.	<ol style="list-style-type: none">1. Gain further experience of a integrated IS implementations within that context.2. To continue to use the Action Research model.3. To build on the learning from the Hospital X in terms of my own practice.4. To use the IDEF0 modelling tool within the user domain to explore the 'ideal speech situation'.5. To evaluate any issues or problems related to IDEF06. Explore an emancipatory framework to take into the next phase of research	<ol style="list-style-type: none">1. To become actively involved in two integrated IS projects.2. To develop an emancipatory approach to the implementation phase prior to procurement of the systems.3. To use IDEF0 to assist in modelling the integration process - a user controlled process recognising the concept of 'ideal speech'.4. To critically evaluate the social situation, issues and problems which arise in the management and clinical domains.
Length of time	4 months	3 months	2 X 6 months
Outcomes	<ol style="list-style-type: none">1. From the research perspective data to develop the theoretical underpinning of the project and to advance the exploration of emancipation within the context of IS development and procurement.2. From the hospital perspective they would get help in understanding the nature of problems that might be involved within integrated systems implementation. They would also gain critical insight into how some of the difficulties might be overcome.	<ol style="list-style-type: none">1. The researcher was able to use the action research model to develop an understanding of the use of IDEF0 within the user domain and to explore difficulties with integration which might not be apparent within the academic literature.2. The hospital gained insight into the nature of the social situation which existed within the pilot departments and discovered political issues not previously recognised in the Trust.	<ol style="list-style-type: none">1. The researcher was able to carry out action research using a method where IDEF0 was used by staff to facilitate communications and to prevent domination by any one interested group. This allowed one IS to be procured and one to be developed.2. Gave critical insight to users on implementation and allowed them to make decisions in their own right.3. The Trust procured an integrated system which was done in a way which allowed them to take control of some of their core systems.4. Through rational discourse the Trust also integrated a clinical department into the hospital.

Table 5-1 Formal Research Agreement

5.6.1 Methods for Data Collection

In each of the three phases of the primary research I was participating in a live project and acting as a system analyst in Hospital X but undergoing a transition in my approach as I moved into Hospital Y and then Hospital Z. Accordingly, the data collected must relate to the research under investigation and must reflect my perspective as an emancipator/socially responsible systems practitioner and also the perspectives of other staff involved in the projects. Evidence must be gathered which can indicate whether staff within integrated projects are in fact undergoing some form of emancipation and freeing themselves from ‘false truths’ ‘domination’ and ‘control’. The research methods are summarised in Table 5-2 below:

Type of microemancipation	Site/project	Data collection methods	Towards a theory of emancipatory practice for the systems analyst
Questioning	Hospital X-HISS Project	Research Diary Observation Semi structured Interview Document analysis Action research - Audit project documentation	
Incremental	Hospital Y - Email Project Action Research	Semi structured Interview Document analysis IDEF0 diagramming Observation	
Incremental	Hospital Z -Payroll/ Personnel, Gynaecology Action Research	Research Diary Document analysis IDEF0 diagramming Semi-structured interviews Observation	

Table 5-2 Data Collection Methods used within the thesis

The methods chosen for data collection also reflect the degree of freedom I had within the individual projects. My choice of methods are reflected upon in the next sections.

A qualitative research diary: As the researched as well as the researcher I kept a research diary as a record of what took place on a day to day basis within the IT department of Hospital X and I recorded conversations with key individuals, meetings, events, discussions with the other system analyst and thoughts and feelings about that

was taking place within the project. This is an accepted method of data collection and has been used in numerous studies (Symon, 1998).

I used the diary from the outset of the research and to all observers it was not unusual to see me writing in it. The focus of my writing was my understanding of the social situation within which I was working and the relationships between and with actors who interfaced with the IT department. Thus to this end I kept details of what people said to me and about their feelings towards the HISS project.

I also noted practice within the department which I believed needed exposure to critical analysis.

Having developed a research diary in the study at Hospital X it appeared appropriate to do so in Hospital Z. I believed that I needed not only to observe participants during the research but as both of the projects were to be over a six month period it was essential to detail my own thoughts on the work. Every time I visited the Hospital I made an entry into the diary and reflected upon my role, my practice, how people treated me and my interactions with others. The diary covered the education process of staff learning to use IDEF0, the feedback sessions and the meetings of different departments to discuss the diagrams.

Semi-structured interviews : In Hospital X there was little opportunity to conduct interviews as the IT manager was reluctant to let me talk to other staff (This will be discussed in Chapter 7). However I did conduct two interviews which informed my approach in Hospital Y. I was also guided by Symons, 1990:110):

“I attach high priority to careful interview technique. Several issues are important to build up a degree of trust between interviewer and interviewee: to ask informants for their personal accounts of situations, being open to whatever is ‘on their mind’; to try not to prejudice responses by using too structured an interview technique; to help in reconstruction of past events by leading up to them with questions over a period of time with more candid, articulate individuals. I took verbatim notes during interviews, and was meticulous about recording data as soon as possible after collection so as not

to forget the details.”

The interviews with the IT manager and the Information manager were specifically targeted at the social and historical understanding they had about the hospital. However, I discovered that unlike Symons (1990) I found great difficulty in concentrating on the interviews and writing accurate notes. After each of the interviews I transcribed the data and then fed it back to the interviewees where the inaccuracies were corrected. This influenced my approach to interviewing in the next stage.

In Hospital Y data collection involved primarily *semi-structured interviews* of key personnel in each department. In all 23 individuals were interviewed with 5 of them involved in two group interviews. The focus of the interviews was their understanding of their social context and on how their business processes operated. After discovering my limitations in Hospital X these interviews were tape-recorded and on average lasted about 1.5 hours each. The interviews were then transcribed and given back to the individuals for verification and correction, if needed. As part of the reflection process for staff involved in the research I used the content of the interviews to begin graphically representing their work processes and information flows using the tool, IDEF0. [For a list of interviewees see Appendix C]

Although I did interview three key individuals from the Payroll/Personnel project (The Project manager, Personnel Officer and the Assistant Director of Finance) the interviews at Hospital Z took place mainly within the context of the Gynaecology project where I agreed to produce a report which highlighted the main issues regarding the interaction of the department and the rest of the hospital. These interviews were conducted with staff from departments which interfaced with the Gynaecology department as well as Gynaecology staff themselves: Admissions, Outpatients, Colposcopy, Ward G, Theatres, Finance, Coding. I interviewed 30 staff in total. I adopted the same approach as that in Hospital Y; tape-recording the interviews, transcribing them and then feeding them back to the interviewees for verification. [For a list of interviewees see Appendix C]

Participant observation : As a member of the IT department In Hospital X for the period of research I was involved in practice as well as observing practice. Therefore, the distinction between the 'complete observer' and 'complete participant' is blurred (Nason and Golding, 1998). The focus of the observation was practice leading to understandings which could be interpreted in different ways and which prevented people from viewing situations clearly. This also related to the power and politics within the organisation. Stringer (1999) argues that observations should be recorded in note form and will depend on the nature of the study. However, they generally include descriptions of places, people, acts of individuals, events and feelings of the observer in response to events people and other activities.

In Hospital Y participant observation was also used in two departments, Outpatients and Medical Records to bring a clearer understanding of work processes there and to observe whether accusations of domination and control within that particular department were justified. This was conducted over a two day period during the busiest times when staff were pre-occupied with patients attending the hospital for clinical appointments. The focus of the exercise was on staff relations, individual activities and events.

In Hospital Z I was involved in a number of meetings on the Payroll/Personnel project and this allowed me to observe people, events such as the demonstration of the proposed system, interaction of staff at meetings and their particular behaviour. In Gynaecology I spent time within the department and was able to observe the consultants and doctor interaction , the interaction of administrative staff with each other and I also visited Ward G on four occasions where I could observe staff interaction with each other and with their patients.

Document analysis (both national NHS IMG and Hospital X Trust documents, IT departmental documents). The researcher should develop his/her own pre-understanding of the participants worldview through a literature review of the historical development of the social conditions, the current organisational culture, structure and issues that may constrain the participants' actions and shape their

understanding (Alvesson and Deetz, 2000). Although I had a reasonable understanding of the macro view of the NHS and its reforms the local documentation gave insight into the context of the HISS project and the pressures under which it found itself trying to conform to new regulations and policy.(Forster, 1994)

A great deal of documentation from Hospital Y was also examined and analysed including historical records, procedure manuals, ward returns, monthly hospital statistics and pathology reports.

I was given access to many documents on both projects in Hospital Z. On the Payroll/Personnel project these included systems specifications for proposed software, internal memos, current procedure manuals and PRINCE documentation developed by the Project Manager. In Gynaecology I had access to Policy documents relating to the recording of cancers, systems documentation, coding of procedures, patient data where appropriate, strategy documents and departmental plans.

IDEF0 Models: According to McTaggart (1991) one criteria for authentic participation is that participants participate in collection and analysis of data.

As part of my reflexivity after the research in Hospital X I began looking for a way to enlighten staff about unjust practices within the context of their working environment. Hirschheim and Klein (1989) (2.6) had offered a number of suggestions but these were unavailable both to myself and Hospital Y. However, in the context of my teaching of systems analysis I did use IDEF0, a process modelling tool, which was intended to be used in a very functionalist manner. My intention in Hospital Y was to use it in a way which might be emancipatory in nature. I used the interview situation with staff to explore their working practices and began to model them. The staff decided what was important to them. I was very much aware that I was still the 'expert' in the modelling but staff were heavily involved in the process. When a set of models were complete from my perspective I returned to the department and met with staff involved in the research to discuss and explore the models.

The research at Hospital Y with regards IDEF0 led me to reflect upon how I could move my role from that of 'systems expert' to that of 'socially responsible facilitator'. It appeared that if staff within an implementation could develop their own models

using IDEF0 then my control or domination of the modelling process would be removed to a certain extent. In Hospital Z, as part of the research, I trained staff to model their own work processes using IDEF0. These diagrams were a source of data as a number of them were produced by the staff involved in the research. The IDEF0 models were their interpretations of their own work processes. They were then used as the medium through which discourse was developed about unjust working practice currently in place and that which might arise through the acquisition of a new information system.

Summary: It is extremely difficult to quantify the amount of data collected within the research project. However, it is possible to give the reader some indication of its size. I have interviewed in total 60 members of staff in the various hospitals and transcribed approximately between 50-60 hours of taped recordings. I have two diaries with entries covering about 10 months. I have copious notes taken in various meetings and while observing practice in certain hospital departments. I have amassed volumes of documents relating to the IS projects with which I was involved. Finally, I have been involved in the iterative process of developing IDEF0 models with the participants in the PAR which has produced ever increasingly complex versions of their systems and their work processes.

5.7 Presentation of the Research Outcomes

This PhD research is exploratory, uses a qualitative research methodology and aims to identify variables and issues related to emancipatory IS research rather than establishing relationships between them.

Stringer (1999:178) believes that action research should present *'richly detailed, thickly described accounts that enable readers to empathetically understand the lived reality of the research participants'*. Stringer (1999) continues by stating that the researcher should describe events, activities and present the context of the research. This could include the actors, too, and their perspective of events. He also believes that *'moments of crises'* or *'epiphanies'* are vital to all accounts and these are seen as moments where there are great insights, personal triumphs or disasters (Stringer

1999:180). Finally headings that reflect the theme of the story should be chosen to determine the structure of the account.

The research carried out within this thesis has conformed to the framework suggested by Lau (1997):

- The category of action research used and its focus
- The tradition and beliefs implied by its assumptions
- The research process, including theme, level of organisation involved, extent of change, and the role of the researcher
- The style of presentation

This particular section now addresses the style of presentation. As Avison et al (1999) state '*action researchers have large and complicated stories to tell*' and because of this the presentation of these stories is important in conveying all of the difficulties met, the feelings and thoughts of the researcher and those involved in the intervention, the solutions, the disasters and the reflections afterwards.

There is no ready framework for description or analysis onto which the research presented in the next chapters can be attached. I have considered a number of suggested frameworks which have been given credibility (e.g. Walsham 1992, 1993a, Symons 1990, Lyytinen 1987a). However, although they can be highly appropriate in contexts which have political and power dimensions they cannot fully accommodate the research I want to present.

The research which I chose to carry out has been performed in what can only be described as pluralist-coercive contexts (Jackson and Keys, 1982). I need to describe the actors perspectives of the work but I also was an actor in the research and thus have formed my own interpretations of what was taking place and how others were reacting across the three phases of the work. This is recognised by Bell (1998) who argues that self-reflection is important in the research process as it helps the researcher recognise their own vulnerability within the context of the research process. The sense

of vulnerability and conflict were abiding feelings I had throughout my work from day one and it was a recurring theme emerging from the research data. This vulnerability also relates to the presentation of the research :

“The notion of good research as being widely generalizable, so often found in traditional science, exercise a strong influence on the way in which studies are written up, and practitioners can sometimes feel embarrassed about the localised nature of their study. The temptation is to attempt greater academic credibility by claiming widespread or even universal relevance or results. This is not only spurious but is not particularly useful; indeed it is almost insulting to the reader.” (Reed and Biott, 1995:197)

Reed and Biott (1995) argue that giving a detailed description of the local research setting allows readers to make an informed choice about relevance and practice in their own particular work.

5.7.1 Process of Analysis

I have chosen to construct the research outcomes of the three hospitals in a manner which reflects not only my personal involvement as the researcher but also my involvement as the researched. Thus the ‘voices’ of the organisational participants in this research (Stringer, 1999) are integrated with mine to produce accounts which give appropriate recognition to their concerns, insights and calls for action. Each account has a structure which gives a social and historical view of the situation, how organisational actors were given insight into their situation and then the action they took to address this situation -the intervention. I have taken much of my guidance on analysis of PAR projects from Stringer (1999:94) where he suggests that complex projects may require strategies which reveal elements such as:

- The history of the social situation -how it came about
- The individuals, groups and types of actors involved
- Interactions and /or relationships among the people involved

- The sequence and duration of related events and activities
- The attitudes and values of the people involved
- The availability of and access to resources, and their use

I have tried to formulate accounts which capture the lived reality and the actual on-the-ground experience of the people involved in the PAR. By adopting this approach, Stringer (1999:179) argues that individual experience is represented more directly as the focus is on events that have significant impact on their lives.

In Chapter Eleven, following the descriptive accounts of the action research at the hospitals, I will bring a degree of reflexivity to the research by problematising my assumptions, interpretations and interaction with the research material (Alvesson and Skoldberg, 2000, Bell, 1998). Theoretical underpinning for this reflexivity will be outlined within the context of that particular chapter. I will also reflect upon the micro-emancipatory practice that was used within the context of these projects and which was developed into a heuristic framework in Figure 4.4. I will critically evaluate whether what I did was underpinned by Critical Social Theory (CST) and how my previous historicity affected my interpretations of situations. As the thesis is exploratory in nature this is not intended to be a chapter which delivers prescriptions or generalisable results. In keeping with the spirit of the emancipatory ideals of CST it will be reflexive both from the perspective of the researched/systems analyst and the researcher.

5.7.2 The role of the researcher

I was the systems analyst in this research as well as the researcher and cannot therefore extricate myself from the research data. The early part of my journey to emancipatory practice has been through the theoretical literature but beyond this point I have become immersed in the primary data and the struggle within the organisations in which the research was conducted. I have been at the centre of some of the conflicts described within the research and have emerged scarred and changed. Therefore, it would be unrealistic not to weave my experience of events within the narrative. Thus 'my voice'

reflects my understanding. Throughout this research I have had to continually reflect on my practice and to question its theoretical underpinning in order to maintain my critical approach. This can be difficult especially when in the middle of an activity. However, I was, on a number of occasions, challenged by participants in the research and this brought immediate reflection and changed behaviour.

The metaphor which fits within the context of the research which would describe much of my role is that of 'diplomatic envoy'. Someone who doesn't take sides, who tries to understand the conflict and tries to bring understanding to each of the factions with a view to assisting them to take action to resolve the conflict.

5.7.3 Sensitivity and the Research Participants

It is important at this point in the thesis to state that a great deal of the data presented and analysed in Chapters 7, 8, 9 and 10 has been contributed by the participants within the PAR projects. Some of the information has been of a political nature and highly sensitive. Thus many of the names contained within those chapters have been changed to protect the identity of the contributors.

5.8 Limitations of the Primary Research Methodology

The primary research, PAR, has been guided by the underpinning philosophy of CST and is encapsulated by Stringer (1999:19) as "*look, think, act*". Yet action research, in general, has yet to be accepted by many academic researchers as a legitimate form of inquiry. The rigor of this project cannot be assessed using traditional criteria for evaluating the rigor of experimental and survey research - objectivity, reliability, validity, and generalisability. Stringer (1999:176) with reference to Lincoln and Guba (1985) suggests a different set of criteria for establishing rigor in this type of project:

- **Credibility** - established by prolonged engagement with participants; multiple sources of data for triangulation purposes; participants check and verify the accuracy of data and information recorded; peer debriefing which allows the

researcher to reflect on research processes with a colleague.

- ***Transferability*** is established by describing the means for applying the research findings to other contexts. This is done by giving detailed descriptions that enable the readers to identify similarities of the research settings with other contexts.
- ***Dependability and confirmability***: the readers should be able to see an audit trail that clearly describes the processes of data collection and analysis.

The actual limitations of the primary research will be discussed in detail in Chapter Eleven. However, one point which I believe needs to be stated is that it has been difficult to clearly differentiate between my role as researcher and the researched and, though I did try, I am not sure whether I succeeded. For example the ‘functionalist’ wants to provide guidelines for further action whilst the ‘emancipatory practitioner’ must be led by rational discourse which emerges from the group. I continue to state that I had emancipatory intent but could I be accused of being too prescriptive in my attempt? Trying to reconcile all of this has provided challenges which I hope will allow the reader insight into the internal conflict which has been inherent since the project began.

5.9 Summary

This chapter has argued for a critical methodology which will facilitate the development of emancipatory practice by the systems analyst when working on integrated systems acquisitions. The methodology chosen was participatory action research which allows participants to be involved in a practical outcome related to their working lives. The critical dimension examines practice which is intended to explore the concept of the ‘ideal speech’ situation in a ‘live’ organisation.

The next chapter begins the rich description of the action research projects with an overview of the macro NHS context at the time of study. It takes an historical approach which provides insight into the social situation.

Chapter - 6

6. The Challenge of IM & T in the NHS - Establishing the Context

6.1 Introduction

When the Conservative Government of 1979 came to power many public sector areas were put under intense scrutiny. The growing public expectations of healthcare coupled with the advances in medical technology and an ageing population were putting financial demands on the NHS which it was finding difficult to meet. There was increasing political pressure for more efficient and reliable hospital operations.

Healthcare is an information-intensive sector which can appear to be growing exponentially. Vast amounts of data are generated everyday in GP practices, hospitals, clinics and laboratories. The information derived from such data can assist clinical and administrative decisions about patient care and resource usage. The conversion of this vast amount of data to information of real value requires a great deal of processing which Government felt could easily be achieved automatically by computers. (Sheaff and Peel, 1995).

Thus began the quest by Government to 'improve' the efficiency and effectiveness of the NHS through radical reform of management and the introduction of progressively more complex computer-based information systems. In 1976 there was only administrative collection of data, through local manual systems. By 1995 the Audit Commission (1995) estimated that the NHS had invested £220m per year from 1990 to July 1995 in information technology (IT) for use by NHS hospitals.

In order to understand the historical NHS context for the primary research this chapter describes the scene in the macro environment of the NHS and explores the progressive use of IT in the NHS acute hospitals sector. Although acknowledging that IT has penetrated many other facets of the NHS the chapter focuses only on the hospital sector and in particular the over-arching need by government to integrate systems. It

begins with a brief consideration of some of the early initiatives and the way they were managed to suppress conflict within the service. It then examines in detail the experience of introducing integrated systems into acute hospitals tracing the growing discontent and disillusionment which emerged regarding the various implementations.

6.2 Information Management and Technology (IM & T) in the NHS

Up until the 1980s most of the data collected in acute hospitals was passed upwards to district and regional levels and from there to the DHSS with very little flowing in reverse (Keen, 1994). However, information was seen as the key resource for informed decision-making of the 1980s and the NHS began developing its own policies to provide the information needed. Some of the more notable milestones along the way to formulating an information policy were the Financial Information Project, the Körner Report, the Griffiths Report and the Resource Management Initiative. Each of these initiatives pre-supposed the development of information systems on computers to support the quest for the relevant data and management information.

6.2.1 Early Initiatives in IM & T

The Financial Information Project (FIP): This particular project was undertaken throughout the early 1980s. Central concern was the development of systems capable of recording the use of resources in the form of manpower, consumables and equipment in the care of individual patients. The FIP project, undertaken prior to the Körner and Griffiths initiatives, but without the scale of their resources, ultimately failed in developing a comprehensive patient costing system and it proposed that the development of departmental systems should be a priority - the order of which should be established by each unit. Each of these departmental system should be linked through a patient identifier and this would be recorded by a patient administration system (PAS). This was one of the first references to an integrated system, although not called such, as PAS contained modules dealing with patient demographics, inpatients, outpatients appointments and some financial data. (Waring and Wainwright, 1995)

The Körner Report (1982 -1984) : The next major initiative was the Körner Steering Group on Health Service Information. The central argument contained within the report was that staff should be provided with information on the cost of procedures within their area of responsibility, in order to support decision making. This type of costing system would also serve the management activities of planning, budget setting, monitoring, control and performance evaluation. However, the main thrust of the recommendations became obscured with their implementation. Rather than becoming central to either evaluation or decision making, specialty costing became an annual exercise in which average specialty costs were calculated or estimated from whatever sources of information were available (Forte, 1986). Research undertaken in 1991 (HSSM, 1992) indicated that NHS staff at ward level were completely dissatisfied with the amount of Körner data they were expected to supply to the regions and the lack of information they received in return.

The Griffiths Report: The Griffiths report, undertaken concurrently with the Körner report but reporting before it, centred upon the creation of a general management function within the acute sector in England. The provision of improved information to management was seen as essential to the success of the initiative, as was the involvement of clinicians in a “ Management Budgeting” system where workload and service objectives could be related to financial and manpower allocations (Griffiths, 1983). Once again Regional Health Authorities (RHA) developed large accounting systems in order to supply Central Government with data. Hospitals submitted returns but gained very little useful feedback. The focus of the systems away from patient care also alienated clinicians who consequently had very little involvement in their use (Bloomfield et al., 1997).

6.2.2 The Resource Management Initiative (RMI)

In 1986, the NHS management executive undertook a review of the progress District Health Authorities (DHAs) had made in establishing management budgeting in

England and concluded that, generally, no worthwhile contribution had been made to the planning and costing of patient care (DHSS, 1986). The existing information systems were not able to comprehensively relate cost data to clinical activities in the way envisaged and crucially, the co-operation of clinicians was very limited. In response to this failure, the NHS Management Executive (NHSME) decided to change the name of the initiative to “Resource Management” (RM) and establish a set of six new pilot sites. Mills (1995) highlights the following issues that RMI was designed to address:

- Deficiencies in treatment cost evaluation which existed prior to the introduction of the initiative such as difficulty in forward planning of patient care
- Lack of control on the part of consultants and nurses with regard to management of resources. The initiative would provide them with more detailed information about patients being treated.
- Lack of quality and timely data by managers required to plan and monitor their hospital’s work.
- Lack of powerful clinical databases that would assist all healthcare professionals to carry out medical audit.
- The need to access the individual nursing requirement of each patient treated.

Central to the RM process was the creation of a database which would serve clinicians in the planning and audit of their work and budget holders in the costing and control of activity. Suddenly hospitals were being encouraged to develop their own organisation-wide computerised information systems with a focus on patient care. The experimental nature of the work being carried out at the pilot sites led to differences in approach (Packwood et al., 1991). All of the designs attempted to capture data on basic, aggregate patient activity from a PAS and also the associated resource usage in theatres, diagnostic departments and pharmacy, together with data on nursing workload. This initially involved attempts to individually link existing departmental systems to the RM database. These links were in some instances technical interfaces, in others downloading data from one system and manually keying it into another. Integral to this IS initiative was the restructuring of the RM acute hospitals into

directorates whereby doctors were 'encouraged' to take managerial responsibility for some aspects of the work of other doctors, and also for the financial outcomes of their clinical practice (Bloomfield et al., 1997). The Griffiths Report of 1983 had asserted that doctors should become regarded as the 'natural managers' (DHSS, 1983:19) within hospitals. However the ideal only began to take form with the RM initiative. The learning which had emerged by this point indicated almost conclusively that the project would only succeed if clinicians were heavily involved. Unfortunately circumstances changed dramatically with the publication of *Working for Patients*. Bloomfield et al. (1997) believe the 'intended' network of 'doctors as managers' (Figure 6-1) was superseded by 'doctors in management' (Figure 6-2) with the introduction of the purchaser provider quasi-market.

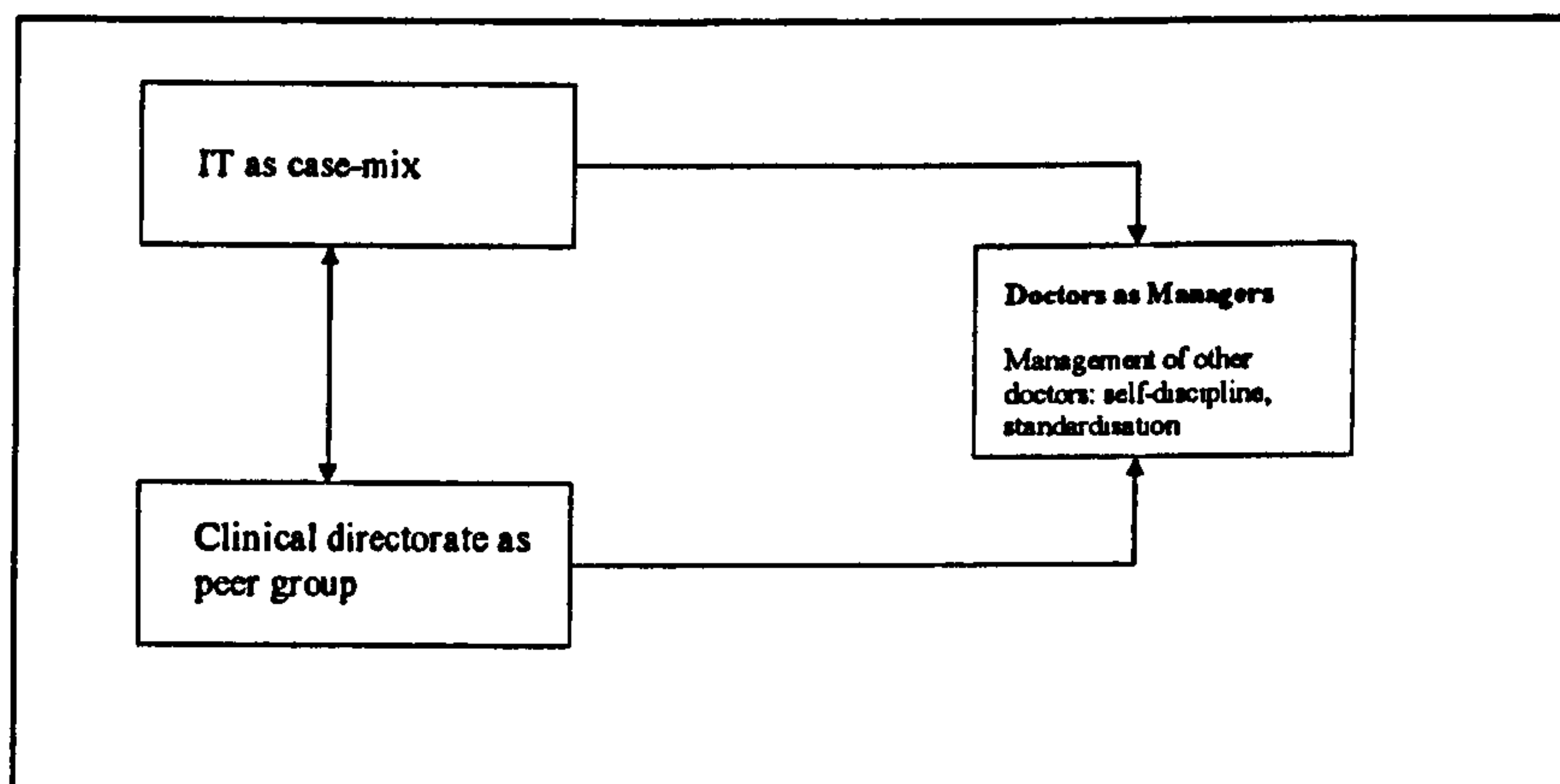


Figure 6-1 The 'intended' network: 'Doctors as managers' (Bloomfield et al., 1997)

This move away from patient care brought doctors into direct conflict with hospital managers with an attendant antipathy to hospital IT systems.

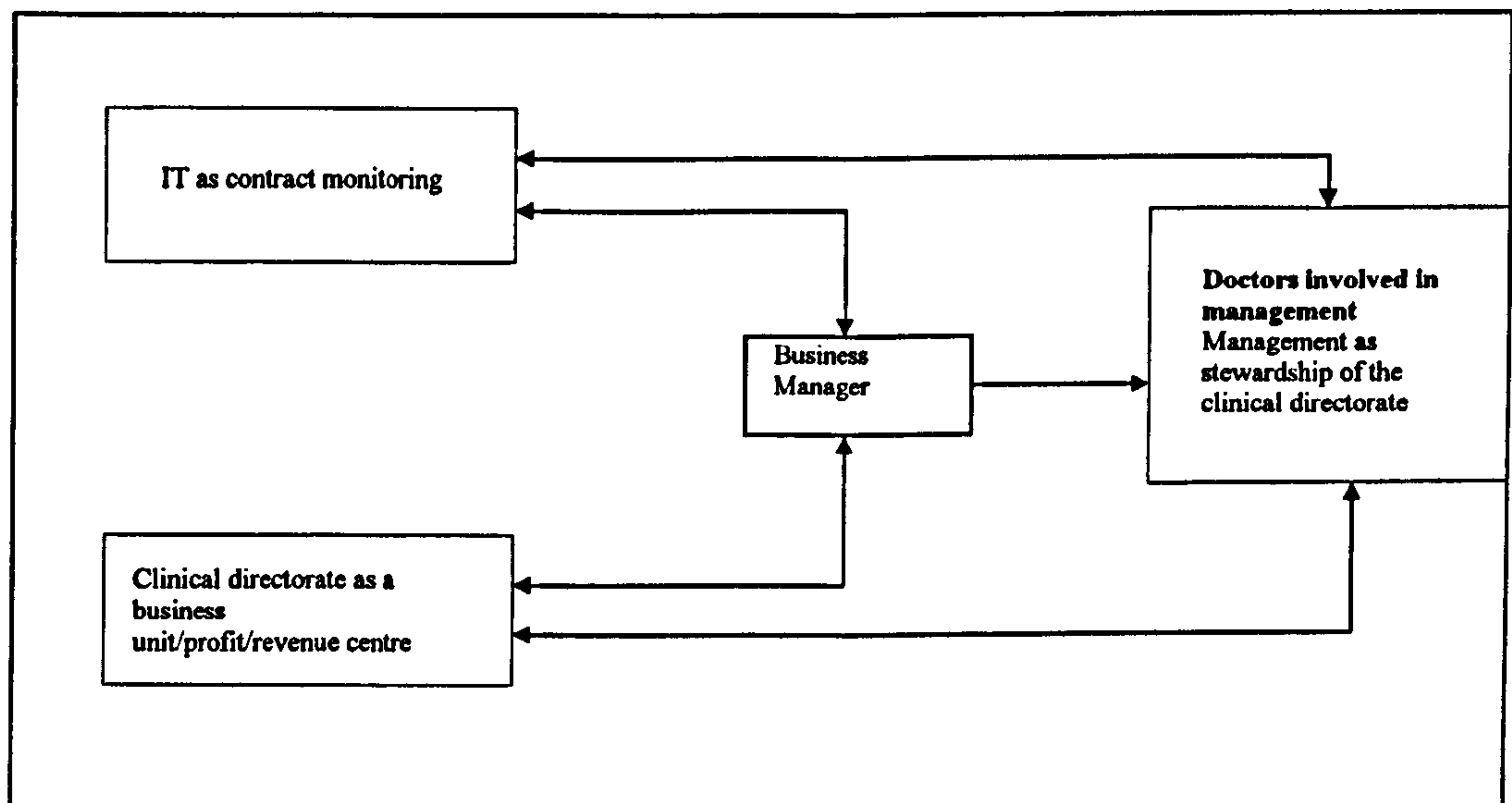


Figure 6-2 The 'realised' network: 'Doctors in management' (Bloomfield et al., 1997)

The government of the time assumed that the RMI had been a success and the way forward for the service involved extensive use of IT and development of complex integrated information systems.

6.2.3 A Critical analysis of the early policy

These early key initiatives introduced by Central Government to control acute hospitals were highly dependent upon the effective delivery of IT to the organisation. Even in these early days there was much evidence from both the private and public sector that implementing information systems was problematic and had been greatly underestimated (Lyytinen and Hirschheim, 1987). Even so because of the speed at which the government demanded ever increasing information it was inevitable that difficulties would arise.

Willcocks and Marks (1989) suggested that a major flaw in the implementation of these IT policies was treating them as 'initiatives' and events instead of evolutionary processes that would grow alongside the organisation and thus promote organisational learning. Hospitals were new to the use of IT at an organisational level and had very

little time to assimilate the lessons before the next initiative arrived. Another problem identified by Willcocks and Marks (1989) was the NHS practice of IT project expenditure being separated into capital and revenue. This meant that all IT project hardware, software and technical costs were subsumed under capital expenditure while other large additional costs such as training, recruiting key IT staff tended to fall under much smaller revenue budgets. This situation caused highly important aspects of implementation to be overlooked with the human resource aspects generally neglected, leading to discontent and disillusionment, especially amongst clinical staff.

However, Willcocks and Marks (1989) were not totally supportive of the clinical staff in hospitals. They suggested that doctors in particular found the introduction of IT systems which impinged on their clinical domain threatening to their power base. They illustrated this with reference to an integrated system PROMIS (Problem-Oriented Medical Information System) which was able to allow interaction with a patient's medical record as well as providing management information. Doctors had been instrumental in rejecting the system arguing that it was time-consuming, compromised patient care and disrupted existing staff relations.

Child (1986) believed the clinical power base came from their expert knowledge which was required if software was to be developed in their field, medical knowledge was difficult to codify in database terms. They also had major responsibility for patients in their care which implied high personal risk as well as having a strong professional body (BMA) representing them at national level. Even at a local level they occupied high positions in hospitals and were able to influence policy decisions as well as IT. Of course integrated systems like PROMIS assume a particular way of working within the hospital which involve healthcare teams of various practitioners all working in a co-ordinated way and communicating with one another (Faulkner et al, 1987).

Unfortunately, hospitals generally are not structured in this way (Packwood et al., 1991) and tend to be hierarchical with rigid lines of demarcation between nurses, doctors and other ancillary staff.

Even in 1986 the DHSS (1986) recognised that financial information systems could not succeed if imposed on clinicians and it became important to understand the

organisation's political processes and structure. Mangham (1979) stated that where people share power and have different views on the way forward, and how a problem should be tackled, then decisions and actions will be the result of a political process. The NHS has not articulated how the political process should be addressed within IM & T projects. Therefore, implementations of IT have been left to technical specialists whose strengths have traditionally not been in inter-personal relationships or communications and have no desire to become involved in the organisational politics (Knights and Murray, 1994).

6.2.4 Hospital Information Support Systems (HISS)

Up until this point discontent with the way the introduction of IT into hospitals had been handled was simmering under the surface. However the situation came to crisis point in 1992 when the NHS Executive published its Information Management and Technology Strategy. This document outlined a vision *'to create a better NHS where staff use information for continuous service improvement and information is shared, handled and communicated securely across the service'*.(NHSME, 1992:4)

The strategic vision for large acute hospitals in the UK as outlined by the NHSME was for them to develop fully integrated , patient-based information systems by the year 2000. To do this they perceived need to introduce Hospital Information Support Systems (HISS). The HISS concept originated in the USA for the private healthcare sector and was intended to provide an infrastructure which would allow separate applications to communicate and share information by working together. As can be seen from Figure 6-3 (NHSME, 1992) HISS is very complex and according to Benson and Neame (1994) the implementation of such a system is not just about installing networks and computers, but is concerned with changing information flows throughout the hospital. This fact has sometimes been ignored with consequent serious implications for everyone working there (Gowling, 1994). In fact it was the NHS Information Management Group (IMG) itself that implied through it's various HISS publications that implementing a HISS was feasible and desirable for all large hospitals regardless of local circumstances.

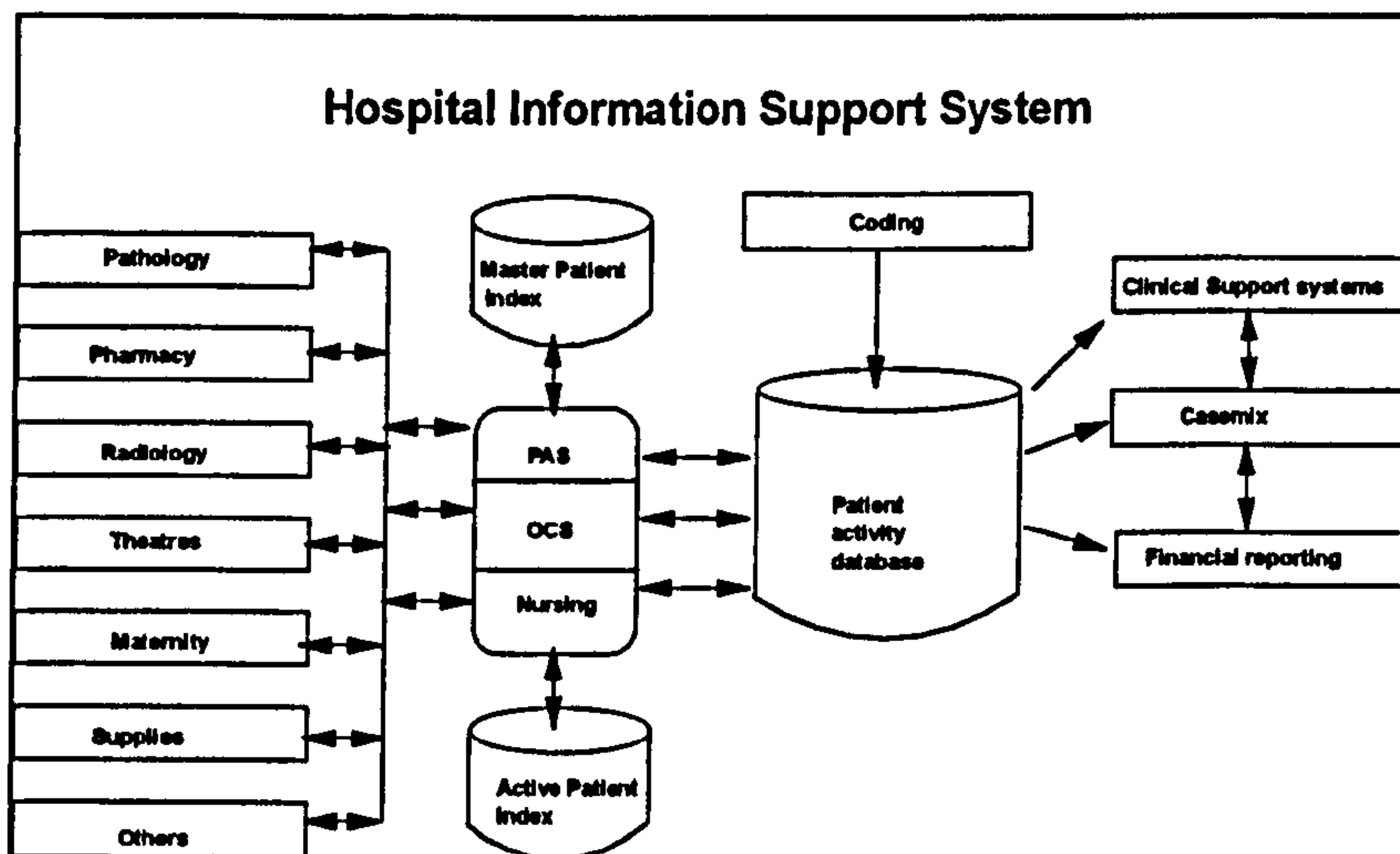


Figure 6-3 Hospital Information Support Systems (NHSME, 1992)

HISS as an integrated patient based environment would enable a record of all activities relating to each patient to be collated e.g. tests requested and results reported. It would encompass PAS, Patient Master Index (PMI), in-patients, out-patients waiting lists, clinical code, accident and emergency, pathology, radiology, nursing care, pharmacy, theatres and maternity. Once again a technical perspective on HISS was imposed from central government. The accompanying documentation implied an easy solution to a highly complex problem. In the early IMG guidelines information on how these systems would be introduced was totally non-existent. What was decided was the establishment of pilot sites to inform the NHS as a whole on how to proceed with implementing integrated systems.

In December, 1988, while the RMI was still yet to report on its outcomes, the IMG established the "HISS central team" based in Winchester. Their brief at that time was to establish HISS pilot sites in England and Wales and then to determine the feasibility of this approach to delivering the required operational and management information for the new markets. Three initial sites were established: Greenwich, Nottingham and Darlington with others joining the study at later dates. Each of the three pilot sites were allowed to define their own individual specifications and requirements and then invite suppliers to tender for the contracts. What actually happened at the micro-level

within the hospitals has only recently emerged with the publication of post-implementation reviews of the pilot studies and other primary research. These were huge projects by NHS standards encompassing the total organisation and crossing many professional boundaries. In fact, in the case of HISS, £32 million of government money went to three hospitals alone (Greenwich, Darlington and Nottingham) without the huge investments of the hospitals themselves. Nothing like this had ever been attempted before in the NHS. In order to try and establish the essential problems it is important to examine the post-implementation documentation in more detail. However it is difficult to make generalities as all sites chose different suppliers and the documentation relating to each has different perspectives.

What does emerge is the lack of communication throughout the projects and the difficulties which arise when crossing professional boundaries. If reference is made to Table 6-1 then it can be seen that the objectives of each of the pilot HISS sites at a national level appeared to be at odds with local objectives. The NHS executive were under pressure from Government Ministers to deliver more information on costs and needed the systems to be in place which could do this. However, at local level patient care was the priority and where objectives came into conflict the implementations began to go wrong. It is clear from the post-implementation documentation that the potential users of the systems were virtually ignored.

Pilot site	Darlington (Coopers and Lybrand, 1994)	Greenwich (Bayswater Institute, 1994)	Nottingham (Brown, 1998; Proctor and Brown, 1997)
Study type	Management consultant report - post implementation review	Sociological study by research institute	Research project carried out by independent researchers
National Objectives	<ol style="list-style-type: none"> 1. Were suitable HISS systems available as package solutions 2. Were costs acceptable to the NHS 3. Was the procurement method suitable for buying HISS systems 4. What lessons could the wider NHS benefit from 	<ol style="list-style-type: none"> 1. Were suitable HISS systems available as package solutions 2. Were costs acceptable to the NHS 3. Was the procurement method suitable for buying HISS systems 4. What lessons could the wider NHS benefit from 	<ol style="list-style-type: none"> 1. Were suitable HISS systems available as package solutions 2. Were costs acceptable to the NHS 3. Was the procurement method suitable for buying HISS systems 4. What lessons could the wider NHS benefit from
Local Objectives	<ul style="list-style-type: none"> • To implement a Patient care System (PCS) to support clinicians in making better management decisions. 	<ul style="list-style-type: none"> • Implementation should be done as quickly as possible • Integration was more important than buying individual departments' choice of systems. 	<ul style="list-style-type: none"> • Computerise every department. • Develop the Common Basic Specification (CBS)
Outcomes for NHS	<ul style="list-style-type: none"> • The HISS solutions from the US were not appropriate for the NHS without extensive modification. • There was an unclear definition of HISS at both a local and national level. • The project became the computerisation of all functions and departments - too expensive to be rolled out across NHS. • Script demonstrations and software testing techniques were seen as successful. 	<ul style="list-style-type: none"> • Not considering the needs of departments can lead to problems in operation and lack of clinical support. • Implementing a system of this size too quickly can lead to stress. • The HISS central team viewed Greenwich as a success. 	<ul style="list-style-type: none"> • Developed a model of a hospital in 'software engineering terms' • Understanding of hospital culture is important to the successful implementation of HISS. • HISS team needs to develop credibility within hospitals.
Outcomes at a hospital level	<ul style="list-style-type: none"> • In August 1994 they still did not have the PCS. • Financial quality and patient care can be achieved from a smaller number of modules. • Poor relationships with suppliers. 	<ul style="list-style-type: none"> • Difficulties with the Order Communications System. • Clinician frustration with system • Old technology • Clinicians expected to assume new roles and responsibilities - no consultation. 	<ul style="list-style-type: none"> • Office automation system went live first - clinical systems given low priority • Problems with software supplier • Difficult political issues arose.

Table 6-1 Summary of Pilot HISS site analysis carried out by author

6.2.4.1 The second Wave HISS sites

Despite the supposed experimental nature of the first three pilot sites the NHS pressed ahead with a 2nd wave of HISS sites. In May, 1991, the biggest single HISS contract was signed for a consortium of hospitals in the West Midlands, £15.7m. Its aim was to test the advantages of procuring as a consortium. A number of other post-implementation reviews (for example Wirral, Burton, Sunderland) have been published -some have even been allowed into the public domain especially where the project appears to have had some success. Whether the systems are being used fully in the way they were intended is difficult to tell and what degree of integration is operational remains to be seen.

6.2.5 What was learnt from HISS ?

At the outset of the HISS initiative it was difficult for the implementers of the integrated systems to understand what integration actually meant in the context of their organisation and what issues would arise as the implementation proceeded. There appeared to be little apprehension for the success of the projects and the pilot sites readily turned over the implementations to vendors and IT consultants. This meant that users had little involvement in determining what actually was needed or what occurred (Brown, 1998). When things began to go wrong and articles began to emerge in the popular press (e.g. Computer Weekly) the HISS Central team became defensive, denying all knowledge of problems. However the National Audit Office (1996) have made public the amount of money spent during the initiative (£100m+) and have heavily criticised the programme. In response to their report the HISS Central Team published their evaluation of the project. From the HISS team perspective- (IMG, 1996) it was recognised that this whole area had been inadequately planned and consistently under-resourced. The HISS central team believed the main problems during the implementation related to the way communications were handled from the first day. Some areas highlighted included:

- Day to day communication of information
- Lack of understanding of integration and the role staff would play (both clinical and non-clinical)
- The purpose of user groups
- Changing line management/ responsibilities
- Management of expectations - this was most apparent with clinicians who may have been promised incentives and benefits to stimulate interest in the system.
- Aligning business and clinical processes

From the NHS perspective, procurement had not apparently improved significantly over the 6 year HISS project. It was still a lengthy process and they were not sure that a better product was achieved. User involvement, though anecdotal, seemed to be key to success. From the study the evidence indicated that the degree of systems integration achieved was important to the use of the system by the clinical consultants.(IMG, 1996)

Although the IMG have never publicly admitted to getting the HISS initiative wrong they have published material that indicates that they have reflected upon some of their previous ideas. For example, their original model of HISS has now changed to take into consideration the complexity of integration (See Appendix D). This second model reflected the more recent NHSME views of the complexity of HISS.

Hospitals were also advised that the 'big bang' approach as advocated in the IM & T strategy of 1992 was possibly not appropriate for all and Trusts should consider adopting an incremental approach (NHSME, 1995). Unfortunately, it was the detail from the local level that was missing in order to understand the human dimension of these integrated systems implementations. There appeared to be little challenge to the integration concept and it was taken as given without any critical analysis. More recent IMG publication have advocated the use of Soft Systems Methodology as a way forward but supporting NHS documentation was not suitable for the un-initiated or the cynical IT manager (See 7.4.3). The IMG has recognised the need for a more human approach to implementation of these integrated systems but have not been able to

supply any method or detailed plan of action. Apart from the insistence on using POISE (Procurement of Information Systems Effectively) methodology prior to procurement and PRINCE (Projects in Controlled Environments) to manage the project there is little guidance available assist in implementation.

6.2.6 The Electronic Patient Record

It is difficult to believe that within the NHS the negative publicity of the HISS experience has not dampened the enthusiasm for integrated systems. Yet the UK NHS Executive have published yet another IM & T strategy which promises total integration of all health information through the *Electronic Patient Record (EPR)* and *the Electronic Health Record (EHR)*. 'Information for Health' - the Strategy in 1998 until 2005' (Burns, 1998) insists that the integrated electronic patient record is essential. It is more likely to be '*legible, accurate, safe, secure and available when required*'. There is also a belief that it would '*better integrate*' the most recent information about a patient's care e.g. from different "departmental" clinical systems in a hospital. However, what it actually aims to achieve is very vague. Even more adventurous than EPR is the **Electronic Health Record (EHR)** which is used to describe the concept of a longitudinal record of patient's health and healthcare (cradle to grave). This necessitates a new and unheralded level of integration between all tiers of the NHS linking up hospitals to general practices and health authorities.

6.3 Summary

This chapter has given an overview of the major national initiatives pertaining to the hospital sector in the area of Information Management and Technology within the NHS. By setting the context the reader should begin to appreciate the lack of expertise within the NHS of implementing integrated systems and the growing disenchantment with IT by many clinical staff. It can also be seen that conflict has been suppressed by the continual change of names of the various initiatives.

Chapter - 7

7. Hospital X

7.1 Introduction

This chapter presents the first phase of critical research within the context of an integrated information systems implementation. The research was carried out in the months leading up to the proposed purchase of an integrated system which Hospital X labelled a Hospital Information Support System (HISS). Although the planned system was complex and would impact on all areas of the hospital it was not a HISS as the IMG would define the concept. It was a Patient Administration System (PAS) linked to a Casemix system incorporating, in the final phase of implementation, an Order Communications System.

The chapter describes the constrained work conditions within the IT department, the asymmetrical social relations between experts and non-experts and political priorities. It also considers how inappropriate behaviour can destroy communications within and between departments and can lead to stressful working conditions. Thus through building a localised social theory of the situation within the integrated information systems project reflection can take place and action taken to address the problems.

7.2 The Role of the Researcher

Before discussing the work carried out in Hospital X in detail it is essential that the reader is made aware of the researcher in relation to the project.

Prior to March, 1995, I approached the Chair of Governors of Hospital X to explore the possibility of a secondment into the IT department. The Chair of Governors was also an academic and I believed that she would be sympathetic to my request. Having discussed my research with her, I was introduced to the IT manager to explore the proposition further.

We finally agreed that the research would begin in March, 1995, and end in July, 1995, and I would become a member of his department for two days a week during this period. The agreement also included that any work done would be free of charge, that I would be treated as other members of his department, given similar work but that everyone would know that I was a researcher.

My expectations at the outset of the project were to have easy access to data and to explore a critical dimension of implementation. In Appendix E I have described the background to the Hospital X HISS project as well as the main groups of actors who were about to play a role in the implementation. The narrative which follows focuses upon the power relations and other expressions of dominance which became evident to me during the period of research. This was my first exploration of building a social theory focusing upon the IT department in relation to other actors. Central to this research was the inner conflict within myself and the conflict between individuals and other groups.

7.3 Personnel in the IT department

Before I begin the critical narrative of my research in Hospital X it is important to become acquainted with some of the staff who worked there and the hierarchical nature of the IT department. Although the department was housed in one large room, we were expected to communicate with the IT manager through our direct line-manager.

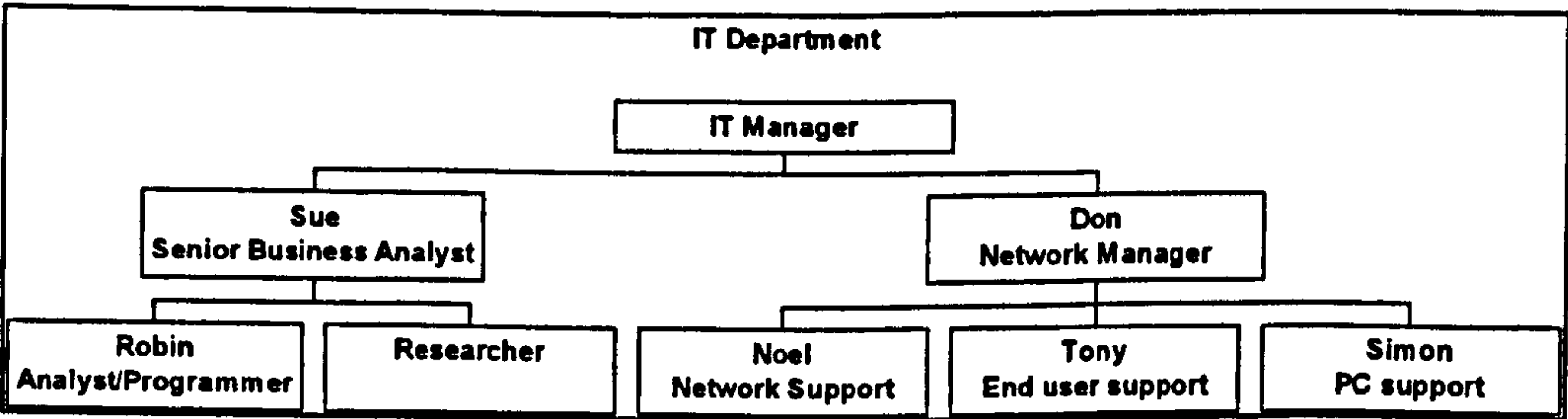


Figure 7-1 Members of the IT department in May, 1995

When I first began my research in March 1994 there was only an embryonic IT department - Tony, Simon and the IT manager. The other members were appointed during the following weeks. Further detail about the department and how it fitted in with Hospital X is also contained in Appendix E.

7.4 The beginning of the project

While researching and working within the IT department of the Hospital X I observed and became involved in many conflicts. At the centre of these conflicts was the IT department with the IT Manager playing a prominent role.

The conflicts were both internal to the department between IT staff and with staff from other areas of the hospital who came into contact with the IT department. The start of the conflicts appeared to begin in December, 1994 when the IT manager organised the 'HISS roadshow' for the benefit of the users. As part of my interview with him he described his first experience of end-user contact within Hospital X.

7.4.1 The HISS Roadshow

In December, 1994, a number of suppliers of 'PAS-like' systems were invited to the Hospital X to demonstrate their products at a 'HISS roadshow'. It had been suggested to the IT manager that staff might like to be involved. A cross section of senior clinical, nursing and administrative staff from the three sites (n= 20) were appointed to an evaluation team and they were told to evaluate the products on '*functionality before technical criteria*'. Various scripts, provided by the Information Management Group (IMG) of the NHS, were used by the suppliers to test their products. Scripts are routines intended to demonstrate that software can address business processes. Afterwards each member of the invited user staff was given a 'Roadshow questionnaire' designed by the IT manager to elicit their opinions and evaluation. As part of my induction into the IT department I was told to read the replies to the questionnaire to appreciate '*what he was up against*'.

The vast majority of Hospital X staff who participated in this exercise had very little idea of the quality and depth of the replies needed and, in fact, had never been given any training in evaluation of software. Only one respondent covered relevant points and gave some indication that the author actually understood what the system was meant to do. The rest of the responses were superficial and had comments such as

‘ I liked the colour of the screen’ or ‘X was the best because it was in WINDOWS’(Author’s research diary, 1995).

It was left to the IT manager to translate these replies into scores which could be included in the Business Case as evidence of the proposed option and supplier. Just under 50% of the Roadshow staff preferred a particular product but there were no further meetings to discuss why just over 50% of those staff preferred another product and how these differences could be reconciled. At that point the IT manager took the decision to select the ‘most favoured’ supplier and consultation with users stopped.

7.4.2 Communication issues

The Trust itself was inexperienced in relation to large information systems implementations. Although management in the Trust initiated the HISS project they had little visibility within it and devolved responsibility to the IT manager. Thus began the difficulties in communications as they never articulated what the HISS was or what it was trying to achieve. At no time was I involved in discussions about HISS and there was no attempt to develop an understanding of the integrated system and how it would impact on the Trust. There was only one model of HISS available, an entity relationship model, and this was held by the Information manager. Consequently the HISS concept was nebulous, owned by senior management and the IT department and not by the Trust as a whole. As far as the IT department were concerned HISS was a technical solution which they would install and the business side would be addressed by the individual departments. Senior management on the other hand saw it as a tool to control resources. The medical staff did not relate to HISS at all as they did not see any benefits to them for quite some time (Hospital X Business case for HISS, 1994).

The problem of communication had been recognised by the IT manager when he joined Hospital X and he did make attempts to address it in his own way - the 'HISS Roadshow'. Unfortunately 'being invited to the event', the technical language used and the inability of users to communicate at the appropriate level with the suppliers allowed the IT manager to dominate proceedings and justify his actions in deciding on their behalf which software solution to adopt.

This was the last event to which users were invited to participate. Yet the IT manager did seek to keep them informed of what was taking place. However his solution was to give me the task of developing a 'Communications Database' that would belong to him and only he would use. This would store the names of staff whom he thought were important to the success of the HISS and he would then be able to choose who was kept informed and who was excluded. However, through the intervention of certain doctors and their medical secretaries this project was thwarted. Acting in my role as systems analyst I was given incorrect information by these secretaries which led to conflict between the IT manager and those staff. This manifested itself in a number of ways; he went to certain departments and complained; he could be seen shouting on the telephone at 'offending' individuals and his behaviour was aggressive within the IT department.

7.4.3 Losing an ally

An example of the impact of deteriorating relationships on the process of the HISS implementation can be seen from the interaction between the Information Management (IM) and IT departments. There was little trust between the two departments from very early in the project's history. The IM manager had been involved in the writing of the Information Management and Technology strategy prior to the appointment of the IT manager (Checkland et al., 1996) and was very keen to see the HISS installed and working as it would impact most on his department. Also, he had been looking after the IT in the Hospital X until the new IT manager was. When the IT manager arrived he was publicly critical of the IT infrastructure and this annoyed the IM manager who

was known not to criticise anyone in public. Moreover, staff in the IM department networked throughout the hospital gaining allies for changes in working practice or new projects. The relationship between IM and IT should have been a close one but it was finally destroyed by the IT manager who called into question the validity of the IM & T strategy in an IT departmental meeting:

“This strategy is rubbish. Who is this Peter Checkland anyway ?” (Author’s diary, April, 1995)

Simon, the IM manager’s son was at that meeting in his capacity as PC support officer and it was reported back. This was not acceptable behaviour and the IT manager was reprimanded by the Director of Finance. However it did not seem to moderate his behaviour and he continued to be aggressive.

7.4.4 Further Incidents

The nurses: Another example of how communications problems caused deterioration of the HISS implementation process is provided by the interaction of the IT department and Nursing staff. The IT manager would not allow any of his staff to go into clinical departments and assist staff there to write business cases for new systems

‘my staff have better things to do’. (Author’s diary, 1995)

Yet these departments would be required to interface with the HISS in order to gain clinical and demographic information. Things came to a head when a Directorate Head of Nursing and a senior Nurse arrived in the IT department to ask for someone to examine a business case that they had put together for a new system. The IT manager looked over it and was publicly very scathing about its content. The two nurses left humiliated and embarrassed by the experience. When interviewed later about the encounter they expressed total dissatisfaction with the process. They had not been given training in writing business cases or any guidance. Their directorate needed a new system and they were only doing what had been asked of them. They would never

have been so unhelpful to others and in fact would have actively assisted them. They intended never to approach the IT department again for help or advice and they had already spread the word about how they had been treated. (Author's diary, 1995)

The doctors: Having already had difficulties with the doctors and their refusal to co-operate with the Communications database the IT department came into conflict with the doctors once more. The IT department also needed to carry out an audit of all of the PCs within the Hospital X in order to establish which would be suitable for networking to become part of the HISS infrastructure. The IT manager believed that the staff allocated to carrying out the task could just walk into any clinical area and demand to audit the hardware without any prior notice. Once again the clinicians would not co-operate as they believed that it was intrusive, could jeopardise patient care and might prove a security risk. They were not convinced that the exercise needed to be done and were not prepared to co-operate.

In both events there was a clash of perspectives and no serious attempt to communicate at the appropriate level to establish a common purpose. The dictatorial approach adopted by the IT manager was completely at odds with the clinicians.

Dissent in the IT Department: It would be wrong to assume that all staff within the IT department approved of the new regime. There were in fact three IT facilities on the different Trust sites. The IT manager would visit these sites on a regular basis and occasionally take Hospital X IT staff with him. Through Sue, the Senior Business Analyst, I was informed about arguments at the other sites and dissent being shown by staff working there.

Even at the Hospital X newly appointed staff were becoming disillusioned with the conflict which affected their everyday work. The IT manager would not accept any deviation from his norm of working and anyone unable or unwilling to conform was disciplined in public view. During the research period a number of staff left after a short time. Noel (Network Support) and Robin (the analyst programmer) were both graduates and could not work with the IT manager. The IT manager lost the services

of three secretaries while I was there.

The IT department became isolated as IT staff were not allowed out into the Trust unless they had permission of the IT manager or his deputies. The public image of the IT department was a reflection of that of the IT manager and consequently Trust members came to understand the department as being aggressive and unhelpful.

Some members of the IT department did complain to the Director of Finance about the behaviour of the IT manager but it did very little good. Although no public action was taken the Director must have been concerned with the turnover of staff in the IT department.

7.5 The intervention

By May, 1995, the situation had reached crisis level and the IT department were unable to carry out an audit of PCs in the Trust because of overt lack of co-operation of many of the clinical departments and covert hostility of staff in some of the management departments. The business case for HISS had proposed that all clinical staff would have access to the system. Therefore to run the future HISS it was essential that every machine on the proposed Trust network met minimum specifications as defined by the suppliers. The IT department needed to know what equipment was available on each site and specifically on the main Hospital X site in order to implement the 'chosen' system. It was essential that the work was done as it was contributing to lack of progress in other areas

During the early part of the research I had tried to identify a project which would be suitable to adoption of an emancipatory approach to practice. This proved difficult due to the management style of the IT manager. He really could not relate to any form of participation by staff and believed that individuals worked better alone. However the difficulty with the audit of PCs appeared to have potential.

At a meeting of the IT department I proposed a way forward which might be acceptable to all concerned but it would involve IT staff acting as a team. I suggested that some of the IT departmental difficulties may have arisen through lack of understanding of the NHS cultural and political issues. This I believed was impacting on their work. I proposed two solutions:

- A programme of education through provision of background information of NHS IM & T history
- Adopt an action research approach to the Audit problem.

Both of these could be run in parallel and could inform each other. The IT manager and his deputies agreed to this and other staff thought it could work and were willing to participate. I began to run short seminars every week on my knowledge of the NHS IM & T projects and their outcomes. We explored the reasons why the clinical staff might be resistant to the IT department and this understanding was fed into the Audit project. Thus IT staff from non-NHS backgrounds began to see the situation from another perspective.

7.5.1 The Audit Project

The Initial Investigation: A preliminary investigation was initiated to examine the problem in more detail. This involved interviewing staff at the other Trust sites to establish their current status in relation to Hospital X Trust standard IT equipment and how they either had or intended to carry out an audit of their site. Various members of the Hospital X site IT department were allowed to go and talk to IT staff on the other sites. However, all meeting had to be documented and reported back to the IT manager.

Auditing any organisation's hardware and software can be a very laborious task especially when the hardware is on stand-alone machines. To cause as little disruption to work within departments it needed to be carried out as efficiently and effectively as

possible. Although the main objective of the study was to examine the audit process within departments a subsidiary objective was to discover the best way to communicate with clinicians, management and staff within departments.

The Pilot: Once we had the information we would need to collect from each PC we had to devise a method which would apply across the hospital for approximately 1000 stand-alone PCs. Audit software was purchased which could collect information from a PC in less than five minutes and then the pilot study was set up.

The model of action research (Figure 7-2) which we used was one that appealed to the IT manager but it was simple enough for all to use:

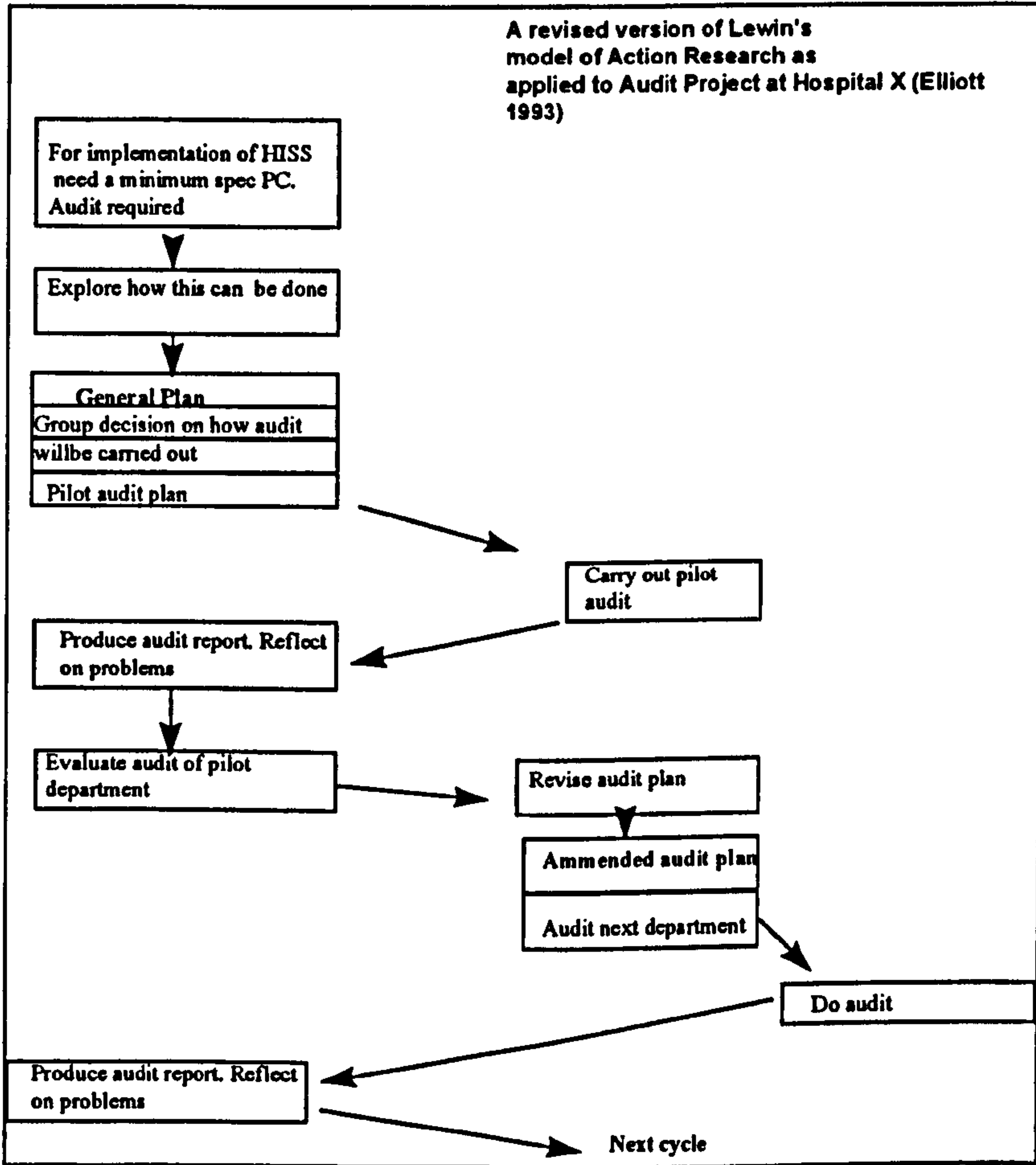


Figure 7-2 Participatory Action Research model adopted at Hospital X

It was decided that three management departments and three clinical departments would be involved in the pilot study. The intention was that the first audit would be carried out in the IT department after the development of a general plan, revisions would be made to the general plan and then the next department would be audited. Further revisions would be made iteratively as each department was audited.

Implementing the pilot: According to the model of action research used, after the first two stages of problem identification and reconnaissance a general plan was drawn up of the action to be taken. At every point of the action research the senior members of the newly emerging IT department were involved and consulted. I initially drew up a plan of the audit process which was then presented to the other members of the group for comment. This proved very enlightening as it revealed attitudes and approaches which might cause problems during implementation in the future. Obviously when staff have come from various backgrounds they bring with them ways of solving problems which were pertinent in their particular organisations.

Once the plan was agreed and all the action steps documented the audit of the first department was carried out. Notes were taken throughout the audit and a report on the process was written after completion. The main issues addressed were problems encountered, attitudes of personnel in audited departments and areas which may have been overlooked.

The pilot continued until all of the six departments had been audited. At the end of the pilot study a relatively well-defined plan had been developed and the audit process had been thoroughly studied, tested and revised in both management and clinical areas. At this point it was possible to hand over the project to members of the department to complete. This did not mean that the action learning had been completed but the team now had a framework within which to work and could continue to revise the general plan where it was needed.

7.5.2 Reflections and learning to emerge from the intervention

This period at the Hospital X allowed me to investigate and observe the some of the issues which were impacting upon this integrated systems implementation. These can be summarised thus:

Distorted communications: The Hospital X IT manager's aggressive and uncompromising attitude was well known in the Trust and that was admired by one or two members of staff in the IT department (Interviews and observations by author, 1995). However, there were also staff who found this 'macho' environment difficult to work within as it caused stress in the department and it made relationships with user departments difficult especially when co-operation was required on certain projects. Staff turnover was high in the IT department with six of the original 12 staff having been replaced within two years (Interview with Sue, Hospital X, January, 1997).

Lack of co-operation: Instead of fostering a culture of teamwork the IT Department were encouraged to work as individuals and not to get too involved in other departments' problems. I observed clinical staff humiliated and shouted at by both the IT manager and his Network manager and very often they used technical jargon to bring closure to arguments. Instead of coming to the IT department for help staff from other departments brought in external IT consultants. What actually developed was an 'us' and 'them' culture.

Systems acquisition issues: Systems development or implementation methods used in projects tend to reflect the philosophy of the development team (Lyytinen and Hirschheim, 1987). Bearing in mind the functionalist philosophy underpinning the Hospital X IT department it would seem appropriate that mechanistic approaches to implementation would be adopted. There were many shelves in the Hospital X IT department containing manuals of NHS guidelines e.g. IMG manuals on POISE (Procurement of Information Systems Effectively). Small projects within the department had to conform to PRINCE (Projects in Controlled Environments) standards. Paradoxically, however, programmers had no formal guidance from the department on development of small systems and use of the NHS preferred

methodology, SSADM (Diary entry May, 1995). This was not an area of expertise of the IT manager and led to a crisis in the IT department when Robin resigned without notice and moved to another post in the private sector. Robin had been developing a small system over a period of two months which he left unfinished and undocumented. It had to be abandoned as no-one could continue his work. He had had a number of arguments with the IT manager and it remains open to interpretation as to whether this was a deliberate act of defiance.

The concept of integration: The hospital as a whole had no idea how the integration of their information systems would impact upon those working there. The concept was selectively owned by management and the IT department with very little involvement of potential users. They could only be described as disenfranchised from the process.

The Trust itself had taken steps prior to establishing the IT department of trying to impose a re-structure on the organisation along clinical directorate lines to '*allow more involvement of clinicians in the management of the hospital*' (Trust Re-structure document, March, 1995). So mechanisms for integration had begun to be explored by management at this pre-procurement stage though on a small level . However, in some areas of the hospital clinicians had resisted the re-organisation.

Action Research: Although only used on one project action research did have a positive outcome for myself, the IT department and the Trust:

- I was able to develop my understanding of Participatory Action Research
- It attempted to begin a reflection upon practice by the IT department.
- It began inculcating a learning culture in the IT department.
- It improved inter-departmental and intra-departmental communications
- It began the process of documenting positive and negative experiences in relation to IT projects
- It provided support for new team members

Unfortunately any Action Research or emancipatory approach within an implementation may rely on the willingness of managers such as the IT manager to allow staff some degree of autonomy in planning their work and learning from 'mistakes'. In the case of Hospital X this approach was difficult for him to facilitate. It would have meant a major philosophical change which was not about to happen. It was, however, seen as a great success by other staff in the department who felt that they had developed some professional credibility through the project and made some friends in doing so.

Communication of the concept of integration continued to be a problem for all staff within the IT department as they could only see it as a technical solution. Hospital X was not being prepared for an integrated environment and users had no idea as to how the implementation would effect them. The IT manager believed that training in the HISS software would solve any difficulty. Clinical staff had been led from the outset to expect a system focused on patient care yet what was being purchased was a large resource management tool. This would have repercussions in the future when clinicians were asked to begin using the system.

7.6 A Post-script

The IT Manager left Hospital X in 1997 without implementing any modules of the HISS. In the five years since conducting the research Hospital X still has not implemented a HISS and only replaced its PAS in 1998. The term HISS is not used anymore and has become known as Electronic Patient Record (Discussion with EPR Project Manager, January 2000). When the EPR will be implemented is as yet unknown.

7.7 Summary

This chapter has described the continuation of my emancipation with respect to IT practice in an NHS hospital and the beginning of my approach to emancipatory practice. Developing critical theories about the nature of the social situation in Hospital X was done from the perspective of the researcher looking out from the IT department. This was not really satisfactory but was enforced by the IT manager. However, there was an opportunity for IT staff to reflect upon their own situation and practice with respect to the rest of the Trust and then to explore ways to move forward. This was done through the participatory action research project which appeared to have some incremental effects for staff involved.

The next chapter explores the second stage of the micro-emancipatory research undertaken in Hospital Y which built upon the learning from the Hospital X.

Chapter - 8

8. The integrated email project at Hospital Y

8.1 Introduction

Having reflected upon the learning from the previous research at the Hospital X and explored both the critical and IS literature I had developed more insight into theory and had a further iteration of the action research which wanted to explore. Once again I required an organisation undertaking an IS implementation which integrated a number of departments in order to explore the coercive-pluralist context where there were opportunities for micro-emancipatory action.

This chapter describes the second phase of the primary research based in Hospital Y between January and April, 1996. The Trust intended to purchase an integrated system to link all of its departments and provide them with email and a document management facility. The system that they were proposing to implement was complex and technologically more advanced than anything else they had on site. The focus of the research at this site was developing an understanding of the social situation and critique of practice. Nevertheless, an intervention was undertaken which proved insightful.

The chapter begins with an account of my role within this phase of the research. A rich description of the social situation and political environment is developed as the reader is introduced to the actors and relevant groups within the hospital. Following this the chapter examines the intervention, how it developed and the involvement of the participants.

8.2 The Role of the Researcher

In December 1995 Newcastle Business School was approached by the Information Services Manager of Hospital Y, on behalf of the IM & T board, to investigate the

issues within pilot departments of the Trust prior to them procuring an integrated email/ document management system. They had no doubt that this system was what was required to improve communications and address some of the perceived difficulties in the Trust. However, they were keen to discover whether there would be potential problems when the system was delivered and required a report incorporating the dataflows and the issues raised. The Information Services Manager was relatively new to his post as was the Computer Services (CS) manager and they had become aware of 'failed systems' in the Trust along with very cynical users.

I spoke with the Information Manager and then the Chair of the Trust IM & T Board, a Liver Transplant Consultant, and agreed that I could pursue the research but also produce the required report for the hospital. I worked at the hospital three days a week between January 1996 and March 1996.

I did not see difficulty with the project as the Hospital objectives were congruent with my approach to the research. Informed by my research in Hospital X and further literature reviews I wanted to focus upon communication within implementations and how users should be given the opportunity to participate in the process without the domination of some. However, I had seen IT staff using technical jargon and clinical staff unable to communicate their needs adequately. There was a complete language barrier. My intention here was to explore Habermas's 'ideal speech' concept and look for suppressed conflict through systematic distortion of communications and discursive closure.

I had been using a process modelling tool, IDEF0, within my teaching and had been able to observe undergraduate as well as post-graduate business students using the tool and finding it easy to utilise and understand. I felt this tool had potential in the process-driven hospital environment but I was unsure how staff from different educational backgrounds might cope with it. I believed that as part of my emancipation (reducing my status as an 'expert' (4.3.1)) and theirs I could facilitate the users to play a much larger part in analysing their social situation/working practices by using such a tool in a way they saw as useful and communicative. This could be done through action research with the participants.

The next sections describe the various actors, groups and culture within the 'integrating' departments. For a general background to Hospital Y which is situated only three miles from the Hospital X refer to Appendix F.

8.3 The Nature of the Social Situation within Hospital Y

Hospital Y was characterised by social features such as a strong sense of hierarchy, a high degree of respect for the Chief Executive (CE) from the management staff though not necessarily from the clinical staff and a sense of disrespect for anything related to IS/IT. In fact the Computer Services (CS) department and the Information Services department had low status reflected in their location in the basement of the Trust. The new CS manager had arrived in a department which was very demoralised and demotivated and his Network manager submitted her notice only two weeks after he arrived.

The Chief Executive of Hospital Y was very much a 'hands on' manager who insisted on knowing everything that went on and kept a tight rein on his Board of Directors. Many of the managers in the Trust had been there since the hospital had been built and were very loyal to the CE. His attitude to Computer-based information systems was that they provided information upwards and his decisions would then be fed downwards thus maintaining central control of the Trust resources.

Computer Services (CS) and Information Services reported to the Director of Finance who had little knowledge of IT and whose main role was keeping the Trust financially stable through tight control of the deployment of staff. The trust prided itself on its ability to keep a rein on expenditure especially on the management side of the organisation:

'We have the lowest management costs in the country and we are not expected to increase our management costs' (Business Director, 1996).

The CS manager and Information Services (IS) manager along with the Head of Liver Transplant were the core staff of the IM & T strategy group and were keen to develop a more progressive approach to IS/IT which would raise their profile and assist with their information needs. The Chair of the group, the Head of Liver Transplant, had no respect for either of the other two men but saw the IM & T strategy group as a way in which he could begin to bring some influence to bare on the Trust and Chief Executive - who he described as a 'Luddite' (Interview Head of Liver Transplant, 1996).

In order to understand why the senior management of the Trust felt the email/document management project had potential it is important to examine the social situation of the pilot departments where they believed there were huge problems controlling quality of information and data flows

8.3.1 The General Surgery Directorate

There were about 200 staff employed within the Directorate of General Surgery and Liver Transplant which consisted of doctors, nurses and administration staff. Even within these seemingly homogenous groups there were distinct groupings exhibiting their own norms and practices.

The doctors: The senior consultants of the Directorate tended to form two main camps - the general surgeons and the Liver Transplant surgeons. The former group had been present in the Trust since it opened but the latter were a recent addition and considered themselves superior.

"When I arrived at Hospital Y there was a large General Surgery department which had made a name for itself in the City. The staff tended to be generalists. However within three years the Liver department had almost as many consultants and they were specialists as well as generalists. There was a certain amount of professional jealousy grounded in worries about lack of work at the hospital and loss of private patients" (Interview with Head of Liver Transplant, 1996).

This attitude had caused tension in the Directorate. For example the Head of Liver Transplant had tried to establish the Liver Transplant Unit as a Directorate in its own right. He had introduced working practices within his own specialty which were particular to his way of working and had tried to inculcate a culture of research and open communication between the senior Liver surgeons and junior staff.

“The department has a regular meeting every Monday where we discuss clinical issues. At least once a month we have a ‘Moans and groans’ meeting where junior staff can feedback to seniors any problems they may be having. Anything of importance to the department is disseminated at the regular meetings where anyone who ‘touches’ the department will be present”.

The junior doctors in general surgery and in Liver Transplant in particular did not necessarily see the situation in the same light. They were very hard worked and did most of the mundane work on the ward. They spent much of their time requesting tests and results for patients and running back and forth from Pathology and Radiology to get them for senior consultants who were unaware of the situation. Their focus was not on research or completing the research database but on completing the period of work within the department before moving onto the next department.

“We feel that the consultants have little perception of some of the day to day operational problems of the hospital. For example if a CT scan or x-ray based procedures or angiograms was asked for by a consultant for a patient on the evening round (say 5.30pm) then the earliest this would be done would be sometime in the afternoon of the next day. To class this request as urgent (when it is not really urgent) would simply clog up the system for the really urgent requests. We feel that the consultants are not particularly aware of the systems because they do not have to work with them.”

“On the ward we are supposed to have a problem discussion / problem solving meeting every Friday between registrar, nurses and junior doctors, however this had not been held for three months. This meeting was originally set up because of communication difficulties experienced in the past. In terms of

other doctors in the hospital no formal (or informal) discussion groups take place."

"The only technology currently available to us is the Liver Transplant Database, which we have to input all of the information to get anything out. We see little value (to us) in maintaining this system, we are 'too busy'. This database is not up to date. Our only training in using this system was from the previous junior doctors" (Interview with Junior Doctors, Liver Transplant, January 1996)

The nurses: The nurses in general surgery were the main carers of the patients both before and after surgery. They related more to the consultants than the junior doctors who were transient on the wards. Their job was becoming more difficult in Hospital Y as more temporary or bank staff were used to man wards and the team spirit was being lost. Also the Trust was becoming more bureaucratic which impacted on patient care.

" We are concerned that we are being asked to fill in more forms but no-one comes onto the ward to examine the role of staff. For example the ward clerk's job is not the same on all wards. I have covered on other wards and have been given different tasks to do or given less responsibility" (Christine, Ward Clerk, March, 1996)

"My job is to provide patient care and any administrative work will always come last. I feel that I am so busy on the ward that I don't have time during my working day to do the nurse duty rota". (Ward Sister, March, 1996)

This had led to a Trust wide issue regarding Ward Returns (WRs). This issue had united nursing staff in a way that the Trust could not have anticipated.

"I (Christine) fully appreciate the importance of the ward returns to the hospital but not all of my colleagues treat them the same way. There is a league table of errors in ward returns produced on a monthly basis and staff think it is a 'big joke' and see it as a competition to be bottom. I think that it

might have a historical basis because before the hospital began contracting the ward returns did not have quite the same importance.” (Interview with Ward Clerk and Ward Sister 1996)

Instead of having a remedial effect the statistics had the wards competing for first place -emphasising the ‘us and them’ culture between clinical and management staff.

Politics and IT: A huge area which impacted on both the clinical and business aspects of contracting was that of clinical coding. When patients had completed a period in hospital all of their treatment had to be coded to allow their GP or District Health Authority (DHA) to be billed for it. This coding of treatment if done correctly could also allow clinicians to audit their practice and possibly make improvements. The Trust Board had its own ideas about coding but the general surgery directorate had taken a stand and were piloting a computerised coding system, CLINFO, designed and written by a clinical colleague. The directorate general surgeons liked it as their secretaries could code procedures on their behalf.

“In the hospital the coding that is required by the business department is done in every department manually except for this department by coding clerks. But we went along the line of saying well it should be possible to generate all of this automatically by the secretary who types in the diagnosis - the statements are recognised and turned into code. It has been a success in the department.” (Clinical Director of General Surgery, 1996)

However other views were prominent - Liver Transplant argued that clinicians should do their own coding with an appropriate system (not CLINFO), and the centralised coding department and Information Services stated they could not handle the CLINFO data.

Not to be outdone Liver Transplant has also been involved in IT initiatives such as Electronic Patient Record (EPR) discussions and suggested they had been involved in a pilot study. The Head of Liver Transplant was also involved in other areas unrelated to his department where it might benefit his attempted move out of General Surgery

into his own Directorate. He became Chair of the IM & T strategy group on the suggestion of the Director of Business Development who believed that a lead clinician would have the doctors' concerns at heart. He was also a member of the Clinical Policy Board but he considered that a waste of his time as he referred to them as '*a bunch of old women who do absolutely nothing*' (Interview with Head of Liver Transplant, 1996). He also broke Trust protocol regarding contact with the purchasers of Trust services. This was meant to be done through the Business development department as clinicians were not formally allowed to discuss contracts with the purchasers.

"The flows of information between clinical departments, business departments and purchasers is a hot issue at the moment. The department gets no opportunity to talk to the purchasers because it appears that Business Management stop them. As it happens I knows the purchasers well as we do a lot of projects together and they want to be able to talk to the doctors. I believe that if the doctors are in touch with activity levels they have a handle on the business aspects of the Trust and that make the business managers very anxious. They don't really want the doctors to know that information. 'It is not a paranoid view - it is real'. The purchasers understand this just as the doctors do" (Head of Liver Transplant 1996).

While the senior consultants were involved in politics at a higher level of the Trust the junior doctors were also using their political skills to deliver their needs. For example results from Pathology could be acquired sooner if the sample is labelled 'Urgent'. Unfortunately many clinicians did this so some doctors went in person and waited for the results. The consultants in the Directorate were either not aware of the problem or chose to ignore it as long as they got the results they needed for their patient. However Pathology had great problems scheduling work and abusing the system made matters worse.

8.3.2 Pathology

The department was split into four disciplines, Bio-chemistry, Haematology, Microbiology and Histopathology. The pathology department had a Clinical Director, and each discipline had a clinical head. In addition Pathology had a business manager and its own computer services manager.

This department was run almost as a small business unit and for most of its contacts with external organisations it did not have to mediate through the Trust's Business Development department.

Pathology (via their business manager) dealt with commercial companies to bring in business, for example insurance companies, and 'selling' private patient health checks. The pathology function in Hospital Y arranged and co-ordinated the private health checks for the hospital. The business manager set up mailshots, etc. on the service. This involved organising rooms, consultants, ECG checks, occupational therapists and possibly x-ray.

In addition pathology utilising Desk Top Publishing software had begun to offer a hospital wide reprographic service for internal booklets, slides, etc. For example they produced the junior doctors hand book which had previously gone out to a publisher.

This degree of autonomy was unusual within the Trust and this had brought with it a large amount of self-sufficiency where staff within the department were almost arrogant about what they did.

Politics and IT: Pathology were in great need of a new computer system and at the time of the research were well on their way to procurement. However the exercise had brought them into conflict with the Computer Services department who wanted to become more involved in the project. As Pathology had their own Computer Services manager for their system they did not want any interference and had resisted these moves.

"I am not at all impressed with the track record of Computer Services . As Clinical Director I have had a fair amount of dealings with them. I knew all about City Health Trust's aggressive recruitment of GPs and then tying them into their pathology system. City Health bought modems and terminals for the GPs and installed them in their practices. I petitioned Computer Services to move quickly to establish links from this hospital but they 'dragged their feet' and nothing happened. IT projects in the Trust in my experience have never got off the ground or have been outright failures (The Nurse management system to name but one) "(Head of Clinical Pathology, 1996).

Pathology also came into conflict with ward staff who were continually complaining about the speed of results reporting and/or request turnaround. Pathology defended this by arguing that doctors were abusing the system by making too many requests 'urgent' or there were problems on the ward:

"The results by telephone have to go to a specific individual on a ward, i.e. only staff nurses or above and it has to be a named person. When the result is telephoned through, the name of the person the request was passed to and the time are recorded on the request form. It can be a problem because results do get lost, i.e. somebody from the ward may call back and say they have not received the results." (Pathology Computer Services Manager, 1996)

8.3.3 Outpatients and medical records (OP&MR)

The department could be divided into two main areas - Outpatients which dealt with the outpatient referrals and outpatient clinics and Medical Records which incorporated admissions, medical records, coding, reception, and appliances.

The departmental manager was female and who *'was brought in to sort things out'* (Interview with Outpatient and Medical Records manager, 1996). She was very much a 'hands-on' manager and knew in detail what everyone of her staff did - something in

which she prided herself. The department saw itself at the hub of the hospital's information flow and believed the hospital would ground to a halt if not for them. If dissent existed within this department it was not obvious as they appeared united in their interface with the rest of the hospital.

The department was very conscious of the Patient Charter and the demands it placed upon the hospital which brought it into conflict with clinical staff:

"Patients are identified from the receptionists list which is printed off PAS for that day. There are problems, however, with consultants and throughput of patients relating to the Patients Charter monitoring. They maintain that it is quality of care that is important and it is not a numbers game. This is a very sensitive area. We are trying, with the co-operation of the consultants to identify patients who may need diagnostic tests and get them into the hospital before their appointment time- this is to attempt to meet Charter targets [90% of patients seen within 30 minutes]" (Manager of OP&MR, 1996)

The management team were also aware of the importance of the contracting process to the Trust and felt very responsible for data quality passing through their department.

They saw themselves as 'front-line' troops and attempted to monitor what was happening.

OP&MR produced a number of reports for both internal and external customers and relied on accurate statistics. Where they did not have confidence in the figures produced by other departments they embarked upon their own data collection exercise - thus duplicating in some instances work already completed elsewhere. This led to strained relationships between OP&MR and the directorates.

This conflict was most noticeable with the issue of clinical coding and ward returns. The manager of OP&MR saw her coding staff as experts and believed that their work was of the highest standard and could not be matched by doctors or their secretaries. If contracting was to be done correctly then the coding had to be accurate and on time. Consequently she insisted that her staff check all the coding that emerged from General Surgery and reported back the inaccuracies which annoyed the directorate.

Ward returns which the nursing staff conducted as an amusing exercise were once again vital to the contracting process from OP&MR's perspective.

"When the patient goes through admissions and the documentation is done there is a label which comes to medical records and identifies which ward they are going onto. The WRS should identify them as being present on the ward and if they are not there on the sheet MR need to ring up the ward to see what is happening in relation to that patient.

Missed discharges and missed admissions can pose real problems for the Trust and it is essential that staff on wards take responsibility for the WRS." (Manager OP&MR, 1996)

If they did notify the fundholder when a patient had been discharged Hospital Y may forfeit the contract and thus lose money. They had tried to address this problem by holding training meetings to explain their perspective but they had not had a great deal of success. Unfortunately they have lacked an effective means of communication.

8.3.4 Information Services

The department consisted of two teams led by a departmental manager. The department evolved from the old NHS reporting systems which provided standard statistics which fed into Korner returns (Statistics covering most forms of hospital activities). That was then extended to develop wider information gathering processes in order to develop casemix systems. The Trust had a working Casemix system, Clinical and Financial Information System (CFIS).

The department was continually stressed out due to the nature of their work.

"Coding have to code Fast-track activities eg cardio procedures, CABGs, GPFH activity etc for that month's contracted as the current NHS standard contract says you have to inform a GPFH within 6 weeks of the month end of

any contractual activity so that they will pay. Clearly this is a major issue. Historically, previous deadlines, 10-12 days from the month end is to allow coders more time. From my point of view - the schedule of the 12th of the month and Board meetings means that they only have a few days to turn the paper around. Staff in my department have to work standard overtime and can work Saturdays and Sundays". (Head of Information Services, 1996)

The main function of the IS department manager was to check that the information his teams produced was correct and accurate. He then looked at trends - looking at figures for one month against the previous month's work or for the same time period last year. This continual checking of work did not engender a good working atmosphere and everyone was on edge with very little office small talk taking place. The staff's main concern was with the CFIS system and how difficult it was to get any useful data out of it.

The Information Services manager reported directly to the Trust Board and one of his main responsibilities was to keep the Board informed of the impact of any major changes that were coming through the macro NHS system. There were significant pressures on the reports from the NHS performance indicators so he had to be aware of any of the changes or the reason for any particular change.

Controlling Information and data: In order to complete the reports for the Trust Board each month the department relied heavily on OP&MR completing their coding of the Finished Consultant Episodes (FCEs) by a particular point in the month. This could lead to conflict between the two departmental managers who were extremely wary of each other.

Even when the data was entered CFIS could not produce the information needed in the desired formats for the District Health Authorities or hospital departments, therefore the IS department maintained other systems to provide the information in a more desirable mode. Thus the staff took huge printouts from CFIS and then manually inputted that data into a spreadsheet model which allowed the generation of graphs etc. This led to conflict within the department as everyone was expected to check the

accuracy of these inputted data and tempers got frayed.

“Each day somebody is working a full day, inputting and removing from the waiting list system, if the data is not kept up to date, they get a demand for an elective form and all it has on is the speciality and the patients name, it does not have the district on, the GP has to be checked if they are a fundholder, and put the speciality code on, the ISM department update all this information on the form and then an individual. This happens every day”.(Members of ISM department, 1996)

From a clinical perspective doctors were promised access to the clinical data held on CFIS for clinical audit and research. However, the Information Services manager was reluctant to allow this even though it could give a full breakdown on patients, those with complications and the patients with subsequent procedures. He argued that the clinicians would need a fair amount of training before being allowed to use it.

“Currently CFIS is a relational database containing 20 tables written in Oracle. Information Services at present do not allow clinicians access to CFIS data as they would be too unsafe. If they get access to SQL they could easily interfere with data. So for security reasons it couldn't happen”(Head of IS department, 1996)

8.3.5 Business Management

The department had a manager, four teams headed by a Contracts Officer and there was also a Purchasing liaison officer. The main function of the Business Management Department was the day to day management of the Trust contracts. Once the contracts were negotiated the Business Management function then monitor progress and feed back information to the health authorities, GP fundholders and to the directorate at the hospital. Progress was measured in % complete against the negotiated contract figure.

The department was relatively new as it only began to function when the purchaser/provider quasi-market began and the Trust needed to negotiate contracts.

Consequently it's allegiance was to central management and to the Chief Executive and did not relate very much to the staff within the directorates. Business dress was 'de rigueur' for all working within the department.

Control through contracts: Business management formed the interface between the purchasers of the Trust's services and the Trust itself. In fact all contract negotiations were done through this department much to the frustration of departments such as Liver Transplant. An example of this might be a department offering a new service. Business Management had to go through a process of trying to get purchaser support for it. Purchasers might want proof that the service would be effective. This proved problematic:

"Information from the specialities can come in many and varied forms and is often not in enough detail. For example when I put together a business case for Cardiology, they held their own level of information which is say the number of exercise tests that they perform on patients or the number of 24 hour pacing tests for that department, IS could not provide me with this level of information, i.e. they could only tell me the number of outpatients. However to make a valid case you need to be able to know ward utilisation, demand and capacity issues, i.e. the finer detail. Therefore one patient may have five tests, but from a contractual point of view, they need to only go to the level of the number of outpatients. The detailed level of data needed did create some difficulties." (Project manager, Service Development and Planning, 1996)

They often came into conflict with clinical consultants when they got a query from a GP about a particular patient on a waiting list. Sometimes there were discrepancies between those a GP might think were on a waiting lists and those who Hospital Y believed were on a waiting list. In addition because of the way fundholders managed their systems they did not consider an episode of care to be completed until they had received all of the documentation - i.e. the discharge letter. However, as far as the hospital was concerned once patients had been admitted and had had the operation they were taken off the waiting list. The waiting list figures produced by the hospital were the figures relevant for national statistical purposes. These 'discrepancies' created

a lot of work and confusion.

This department also dealt with other departments - writing business cases for new equipment, technology or services and often had problems obtaining the level of detail required to write a business case. Even the inaccuracy of ward returns impacted on the tasks carried out here.

8.4 Reflection on the social situation

From early in the project it became quite clear that an integrated system between these five departments could not succeed in the current climate. Very few of the actors interviewed were aware that it was being considered and had little idea what it might do and what their role would be. This had not been articulated or even considered when the project had been initiated. It had been viewed purely as a technical project and that people would 'come on board' when it was up and running.

To compound the difficulties the five departments chosen to take part in the pilot project were experiencing tensions between themselves. These tensions can be summarised in a conflict diagram (Figure 8.1) as interpreted from the work of Wood-Harper et al.(1996).

It could be seen that communications between these departments and other individuals had broken down in many ways. Frustrations were high and some staff, notably the Head of Liver Transplant and Head of Clinical Pathology, were not afraid to express opinions about other staff in public.

The different systems being used for information capture and dissemination was seen as a major problem. This was especially so in terms of waiting lists coming from different sources and being downloaded to the CFIS system. GP fundholding information was downloaded onto business management's database which was in a Dataease software package. A lot of manual input was also taking place and this was causing more stress when working to tight deadlines.

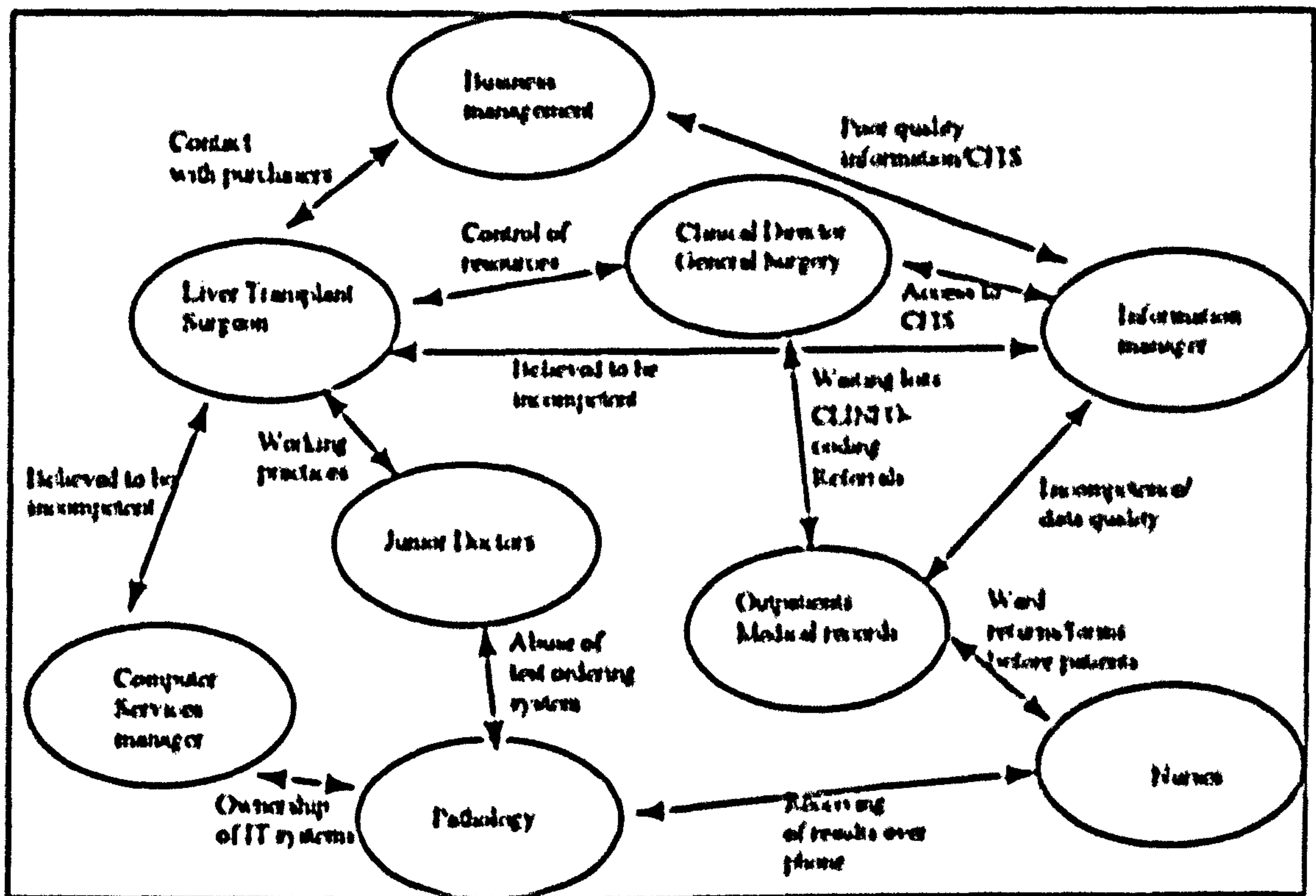


Figure 8-1 A conflict diagram (Adapted from Wood-Harper et al.1996)

Even specific language and terms around the Trust were problematic. A good example was 'beds'. It might be thought that this could be quite easily measured, but there were many different ways of measuring a bed. For example what somebody called a 'staff bed', somebody else might call an 'available bed'. This difference in measure could create confusion and inconsistency in terms of reporting. Also data collected in the Trust was often used as a stick in terms of efficiency gains and thus clinical staff would see little benefit in ensuring its accuracy or even collecting it. It had been used recently for example to close 200 beds within the Trust.

The information presented within this section was developed into a report copies of which were given to the Hospital Y pilot departments both at management and clinical levels. This caused disquiet for some and eager anticipation for others. It was then up to the participants what action might be taken.

The next section considers the action research which took place with regards the modelling of the processes between the five pilot departments and how the models and diagrams were used to explore issues and communicate an understanding of some of the difficulties at the level of the individual user. This led to decisions about how the email/document management system might benefit participants in the pilot.

8.5 The intervention

The initial interviews and investigation had highlighted issues which were reported back to the IM & T strategy group in order to discuss how the project would be taken forward. I argued that if they were to procure the integrated system then all problems and difficulties would need to be understood by everyone taking part, including any potential vendors. The Chair of the strategy group (Head of Liver Transplant) was very positive about users being involved though the Computer Services and Information Services manager were less than enthusiastic.

It was agreed that I would develop an action research plan and present it back to the board and if it was acceptable the work would be carried out and then reflected upon. As discussed in section 8.2 I had been using the IDEF0 tool for some time but it was unknown to the group who had very little idea of what it could represent and how it could be used.

8.5.1 The initial investigation

My understanding of the 'ideal speech situation' at this point was being able to expose all of the systematically distorted communications to public scrutiny. I intended to facilitate discourse which would allow critique by all concerned leading to some level of emancipation and eventually some action. The modelling tool IDEF0 would be used in this context but exactly how was the subject of the action research.

The main objective here was to model the individual departments' work and the interface between them where difficulties arose. These models and diagrams would then be fed back to the users and discussed, amended and fed back once more for clarification. In order to do the work it was necessary to get the approval of both management and staff within these areas for maximum co-operation and clarity.

As there were a number of problems relating to MR&OP and General Surgery I decided to begin by considering the process of Outpatient and Inpatient admissions. I conducted initial interviews with medical staff, secretaries and ward clerks in General Surgery and with the three main managers in OP&MR who dealt with outpatient and inpatient admissions. I also spent a morning on a ward and a day in OP&MR observing what went on in both areas. The action research model can be seen in Figure 8-2.

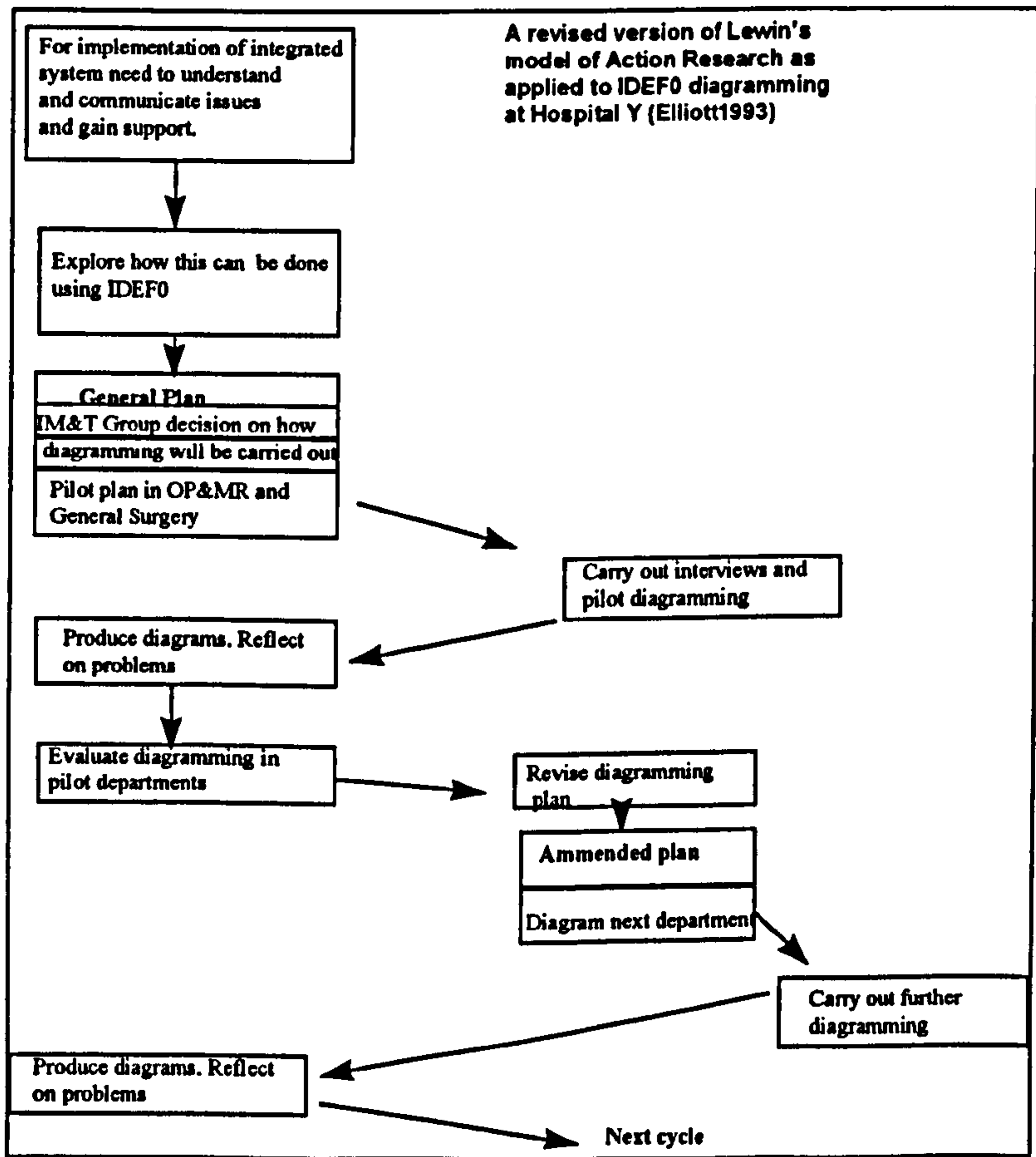


Figure 8-2 The Action Research Model used at Hospital Y

The richness of the data elicited not only allowed the processes to be studied in some detail but also gave further insight into the political nature of problems which had been arising.

The IDEF0 tool had an underpinning methodology which I did not believe was significant in this project as the objective was to facilitate communications between users so they all were using a common language -the models and diagrams. I encouraged the users to make use of everyday Trust language for the the models. The small extract n Figures 8-3 and 8-4 illustrate what emerged from the investigation and how I agreed to represent the systems. Although traditional users of IDEF0 may criticise me for not using the tool in its intended manner it brought to the surface in a graphical way what was going wrong in the way patients were being referred.

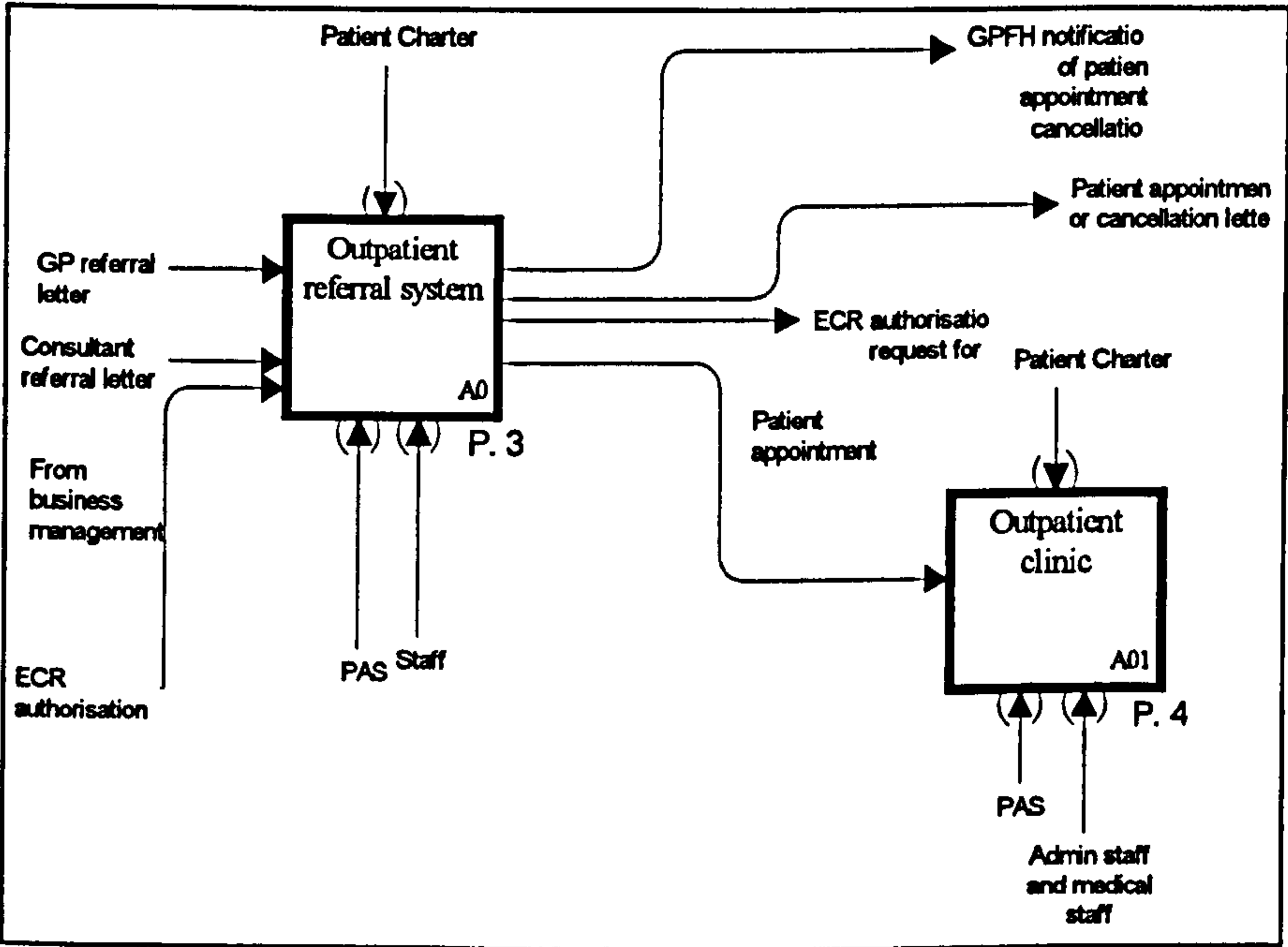


Figure 8-3 IDEF0 diagram produced with users from General Surgery and OP&MR

This top level diagram, Figure 8-3, shows how patients are referred and then access an outpatient clinic. By decomposing the 'Outpatient referral system', Figure 8-4, it became clear where things were causing difficulties and 'could be improved':

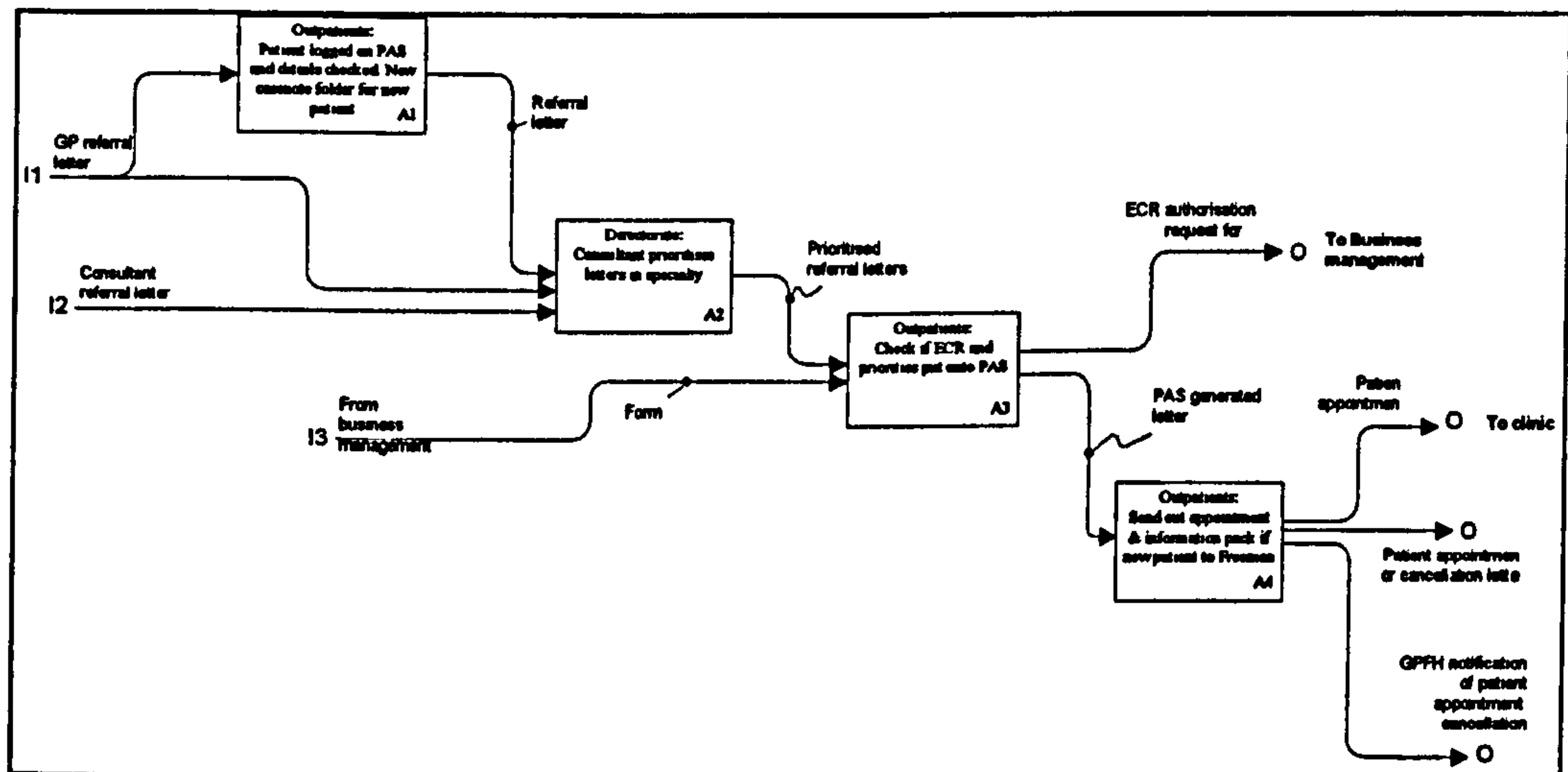


Figure 8-4 Further detail of the Outpatient Referrals in General Surgery

One problem identified in this system was that referral letters from GPs were coming into the hospital at two distinct points - first in outpatients and also to the consultant in the directorate. If the letters came into outpatients they were logged onto the PAS system but if they went first to the directorate then they could be 'lost' depending on when the consultant dealt with them. This had repercussions for waiting times measured against the Patient Charter. It was apparent from the interviews that a large proportion of staff were not aware of how their job impacted on other areas of the Trust. However when the first iteration of modelling was complete I went back to the interviewees to discuss the models. In OP&MR this was done with the staff as a group and included the Manager of OP&MR. They found the diagrams clear to follow and because it was done from a user perspective they could relate to the language and the terms being used. Once they orientated themselves they made some suggestions as to where there was missing information. This had not come out in the original interviews. The modelling of their systems made the information flows explicit and it was not unusual to hear *'I know it sounds silly but we have always done it like that'* and it

gave rise to some reflection on how they might change some of their practices. It also allowed discussion of where the integrated system might assist their work and give them the opportunity to exchange manual data flows for electronic ones. Obviously they were keen to see benefit for their department and not for it to be all one way flow. This was important for the nursing staff whose primary task was patient care and whose experience of the Nurse Management system was extensive data entry with no information in return.

Having completed the work in OP&MR and General Surgery the results were presented to the IM & T strategy group for further reflection. They, too, had never seen the Trust processes represented in this particular way and were very interested in what was being discovered. It allowed the Computer Services manager to start to understand the business and to realise what difficulties needed to be overcome before the procurement of the integrated system. It also allowed the Information Services manager to see why some of his information was inaccurate when presenting the monthly Board papers.

8.5.2 Further iterations

As far as the IM & T strategy group were concerned the initial diagramming was fairly non-contentious from their perspective and were anxious to complete the diagramming of the five pilot departments in order to move the project forward. Consequently I went into Information Services next followed by Business Management and then Pathology.

In Information Services the manager did not want individuals identified on the diagrams as part of the 'mechanisms' aspect as he did not want anyone singled out for criticism (if there was any). This was not a problem but was noted because of its political dimension.

Users in these departments were surprised at the detail which could be included in the diagramming and were interested to see the models for the other departments and how

they interfaced with their particular department. From my perspective the modelling done in this iteration highlighted the limitation of the IDEF0 tool in particular where staff needed to make decisions - the tool could not accommodate this. However the proposed integrated system was intended to allow communication and to facilitate electronic exchange of information where possible.

A major bottle-neck in the 'Outpatient referral' process was the need to clear Extra Contractual Referrals (ECRs) by OP&MR with Business Management. This involved staff running between departments trying to get signatures of the correct member of staff. By discussing the problems using the diagrams produced in IDEF0 the managers of the individual departments agreed that the ECR request could be dealt with electronically using the proposed new system as it would benefit both departments. This discussion between departments continued until there was agreement as to how the new system might be piloted within the five departments. However, there were staff who thought the pilot *'would be another waste of time and money'* (Head of Clinical Pathology, March 1996) and did not want to participate. Thus no-one was forced to become involved unless they wanted to and could see benefits for their department or ward.

The IM & T strategy group were given the final diagrams to consider plus a diagram which highlighted the possible documents and workflows which had been agreed with the users for the proposed pilot integrated system.

At this point the potential vendors of the system had to be consulted as to whether their product could do what the users wanted. So the next step was to contact them and arrange a session to feed back to them the results of the modelling and to explore the possibilities of exchanging manual documents for electronic ones.

The meeting which took place between myself and the supplier was informal but involved representatives of senior management. The company specialised in technical solutions for organisations and did training for them. However they did not become involved in the organisational issues which frequently arose and were not particularly interested in the business aspects of implementation. Their product was intended to be

generic and not function specific. They had done very little work with the NHS and were hoping to get into that market.

We went through the possible electronic information that could be transmitted by the system and this was seen as feasible. However what did emerge was that the creation of the templates for these documents would have to be done by the Trust staff and this had implications for training and staff resources. The suppliers could train their staff but did not do the work for the client.

This information was fed back to the IM & T strategy group who had to make a decision as to whether to go ahead with the proposed implementation of the pilot integrated system or to consider another solution.

All of the data collected and the modelling of information flows was presented to the Trust in the form of a report which was then left with them.

8.6 Reflections and learning to emerge

The learning from this project has two main strands: the learning which pertains mainly to the Trust and the individuals who took part in the project and the learning which pertains to the research project and myself. These strands are illustrated in the following sections:

Historical issues: The hospital had a legacy of systems dating back to the early 1980s which had grown out of a number of initiatives and pilots [Inter-regional collaboration, Management budgeting , Resource Management and Contracting] to the present time. These systems ran on different platforms and provided the Trust with many problems of data transfer. This legacy also applied to the microcomputer systems where many types of PCs existed and numerous versions of software.

Hospital Y was one of the original pilot sites for the Resource Management Initiative which it appeared to endorse wholeheartedly by adopting a Clinical Directorate structure and implementing certain information technology projects to support clinical

management. However, with the introduction of contracting and its importance to the viability of the Trust, central contracting and information systems were put in place. The devolved authority which was promised to the directorates under RM failed to materialise. Hence there was a tension present within the hospital between central administration and the directorates. This tension was manifest in the debate within the Trust about data quality and ownership of information.

Thus trying to implement a system without understanding what had gone before and how it might impact on the current situation assumed that every project was unique and had no 'baggage'. This was obviously incorrect as when talking to staff about the integrated pilot I encountered a number of people who had been involved in failed systems and systems procurement which had been unsuccessful. This had led to a cynical attitude by some although there was a general recognition that the hospital needed capital investment in the form of new information technology to support the clinical and business needs of its staff and customers. Staff generally responded positively to the suggestion of being involved in the pilot study and were even able to suggest areas which might alleviate their workload.

Responsibility for information and data validation: A result of the incongruent relationship between central administration and the clinical directorates was the difficulty in collecting high quality data at source which would feed directly into the contracting process. Staff within directorates were collecting and validating data on a regular basis which when it passed to the central business function went through further validating processes. This was continually adding to staff workloads and to stress levels. There was also the perception that certain departments were continually asking for more and more data to be collected and never feeding any information back or where feed back occurred it was of poor quality, in the wrong format or too late to be useful.

Training and education issues: Many of the processes that were modelled were manual processes and staff accepted without question their role in the system. However, many of the staff identified as willing to participate in the pilot integrated

project had no IT skills and would need an intensive training programme. In addition to this, based on the discussions with the vendor, some of the key IM & T personnel would have to be provided with advanced training in macro-programming to provide sophisticated messaging systems for users and undertake automated forms design.

From the research perspective: The use of IDEF0 as a communication tool within the context of an integrated systems implementation was grounded here in Hospital Y. Prior to the modelling exercise some staff in the pilot departments were informed that they would be getting a new integrated system but they had no idea how it would be used and how it might affect their working relationships with other departments. The IDEF0 tool allowed me to diagrammatically represent the flow of information through a number of areas in the hospital and to explore with the senders and users of that information the possible exchange of a manual task for an electronic one. As many of the information flows identified as suitable for the e-mail pilot were passed through the internal mail, portering or telephone system, there was a distinct time advantage to sending messages or documents by electronic means.

The introduction of contracting into the NHS brought with it a high level of complexity. The IDEF0 modelling allowed staff to learn more about this complexity, their own department and its position in relation to the rest of the Trust. Staff on the whole did not know how every other department operated. From the discussions with directorate staff it was apparent that they did not appreciate their role, for example, in the contracting process. By being able to visually see where a Ward Return started, where that information was passed, and to understand the implications of not recording the data correctly, gave them a novel insight into the process as a whole. This made them more reflective on their practice and even to suggest ways of improving matters. Although the collaborative project only lasted fourteen weeks in the hospital it provided IM & T staff with information about the data flows within the pilot departments which they had never attempted to gather before in this format. The modelling itself had to be discussed at length with the IM & T staff to gauge the level of detail they required. This was an iterative process because I, too, was learning about the tool's capabilities.

The action research allowed many people within the five pilot departments and other interested parties to explore the use of IDEF0 for communicating their understanding of their working processes and the problems therein. Through reflection and discussion some areas of working practice were thought suitable for change but only by agreement of all concerned. Some suggestions were rejected.

It is interesting to note that the action research was curtailed towards the end of the project though I had agreement with the IM & T group. I had wanted to convene interdepartmental meetings to discuss the modelling and to facilitate further dialogue especially where relationships had deteriorated. Unfortunately I had a telephone call from the Computer Services manager who said the group had been delighted with the work and now wanted to move on and they awaited the final report. This was very disappointing as this final exercise would have allowed staff from across departments to express their concerns armed with the diagramming which explicitly showed where things were going wrong. How they were going wrong and how they could be retrieved may have followed.

Politics may have played a part in this decision as it was not the overall policy of the Trust to encourage staff to participate in democratic decision making or discussions. This aspect of the project was re-inforced a few months later when I was invited back into Hospital Y to discuss a future implementation of a PAS which would integrate with the CFIS and Pathology system.

8.7 The Potential PAS project

The research in Hospital Y had exposed many practices which impacted upon an integrated project. I believed that to take the project forward the modelling need not be done by a systems analyst but by the users themselves. They understood their systems and processes best and this would allow them to communicate across departments using the same language, the IDEF0 models. This would widen participation and develop skills to 'level the playing field' (McKay and Romm,

1992,1995). The role of the 'expert systems analyst' would change (Bradshaw-Camball, 1990) (4.3.1) and the users would develop their own understanding of systems acquisition (Walsham, 1993b, Kerola, 1985,1987) (4.4.1; 4.4.1.1).

The detail of what was planned will be discussed in the next chapter. It is important to say, however, that the Chair of the IM & T Strategy Group contacted me to explore the possibility of returning to do further work on the PAS implementation they were about to undertake. When the suggested research plan was outlined he was very supportive and thought that user involvement to the degree that was being discussed would be beneficial to all. A meeting was arranged with the rest of the strategy group where I gave a formal presentation of what I wanted to do.

Unfortunately the meeting did not go to plan and the proposal was rejected by the Computer Services Manager and the Information Services manager. The latter actually concluded the meeting by stating *"We will decide what the new PAS system will be-not them"*.

The Chair of the IM & T group wanted me to do the work anyway but I declined on ethical grounds because I couldn't carry out my research overtly. Action research is collaborative and involves the researcher and the organisation. In this particular case the organisation did not want the research in the format suggested.

Consequently another site was needed to carry out the final piece of research and the Hospital Z in Gateshead provided the opportunity.

8.8 A Post Script

After deliberation the management of the hospital decided against a new integrated system. The pilot software would have cost £50000 without the IT infrastructure needed to be put in place to support it. It could thus be said that the hospital saved vital resources and prevented yet another possible failure. It could also be said that the research gave management an insight into complex working practices and the politics within them. The proposed system would not have addressed all of the difficulties.

Hospital Y merged with Hospital X in 1999 and as yet has not implemented any substantial integrated information system including a new PAS.

8.9 Summary

The action research model chosen by the author to explore an emancipatory approach is one which allows participants to collectively develop a plan of action, carry out the plan and reflect on that action. Modification of the action can be affected in response to new information or experience. In both hospitals I was overt about what I was doing and hoping to achieve. What evolved at the Hospital X was an understanding(for the IT department) of the different cultures and approaches to dealing with this. In Hospital Y it was the users who participated in the process and gained an insight into the social situation and processes which directly affected them.

This incremental emancipatory project in Hospital Y developed a wider understanding of the issues related to implementation and moved analysis of information flows from the domain of the 'IT expert' closer to the user.

The research also highlighted the need for the political climate within an organisation to be open to this particular approach and would not be acceptable in some organisations. It can pose a threat to management who are unable to facilitate dialogue and discussion.

Chapter - 9

9. The integrated Payroll and Personnel System at Hospital Z.

9.1 Introduction

After Hospital Y rejected the proposed critical approach to their PAS implementation I began to explore other possible research sites and reflect on newly emerging research both in IS and in the NHS.

The Information Manager at Hospital Z was contacted and a meeting arranged to discuss my proposed research and the type of project that was required. What I proposed was quite radical from the Trust's perspective and it needed further consideration at a higher level of management. However two projects were identified and the research commenced in April, 1997.

The research presented in this and the next chapter involves two distinct projects within the Hospital Z, where I was led to believe that staff involved had determined that they needed integrated information systems to assist them in their work. The first project described in the following sections was an integrated payroll and personnel system. The focus of this chapter is specifically on the intervention where participatory action research was used to facilitate an emancipatory approach to systems acquisition.

The chapter begins with a discussion of the role of the researcher and the objectives set at the beginning of the research. As in the case of the Hospital X and Hospital Y this chapter presents a rich description of the cultural and political dimension of the study and then explores in detail how the intervention was carried out and its results.

9.2 The Role of the Researcher

By February 1997 I had further reflected upon the work in Hospital Y and had established a framework of emancipatory practice which I wanted to explore within a live IS implementation. I felt it was important that I was not viewed as an 'expert'

within the implementation. I believed that by 'levelling the playing field' I could facilitate participants in the process to question other peoples' claims to expertise and rationale for decisions. This would require me to act as an educator in the first instance and develop the skills needed within the user population. Although I had acknowledged that IDEF0 had some limitations it did have its positive side in as much as it was easy to use and understand. I believed that an emancipatory approach would be to move it into the user domain within this stage of the research.

The approach I intended to adopt was not conventional and had already been rejected by Hospital Y. I wanted to educate users in the modelling techniques of IDEF0 software and then encourage them to model their own work processes and information flows. I believed that this would enable all concerned to discuss their current 'as-is' system and then explore how an integrated system 'ought' to operate (Ulrich, 1987). This also could facilitate discussions with vendors. With the agreement of the users I would be involved with the payroll/personnel implementation up until the contract was signed for the new system providing that they felt my approach would be worth pursuing. Thus the work began at the beginning of April 1997. The background to Hospital Z and the Payroll/Personnel project can be found in Appendix G.

9.3 The Payroll/Personnel Project

Before considering the intervention in the Payroll/Personnel project it is important to discuss each of the departments involved in the implementation and their particular social situation within the Trust.

9.3.1 The social situation within the integrating departments

This section is relatively concise as the main focus of the chapter is on the intervention and how the users decided to take the problem situation and act upon it.

The Finance Department: The Finance department was housed on the ground floor of Hospital Z management block. To gain access to Finance you needed to pass a number

of security coded doors and speak to various 'gatekeepers' along the way. As a department they considered themselves as intelligent, professional guardians of the Trust's financial affairs. Everything relating to contracting, purchases and staff payments came through this department. The attitude of the Finance department was typified by the Deputy Director of Finance (Pam) who was a very strong, forthright person who openly admitted she would not allow anything or anyone to compromise her position. In the project team meetings she was usually the first one to speak, defended her department and always got her point of view across. (Research Diary entry, 1997). The department as a whole were IT literate and compared to other departments in the Trust had the most up to date equipment. They tended to specialise in spreadsheets and the Finance packages which assisted the contracting processes.

The Finance department had, up to the start of the research project, dictated how staff needed to record their hours at work and this had given them a great deal of political power within the Trust. For example, every member of staff including the Chief Executive had to complete a time sheet each week and have it signed off. This to many people was ridiculous as they never did overtime or worked irregular hours and had a 9-5pm contract. However, Finance had stood firm on changing practices as they argued it would not fit in with the 'system'. They also controlled who got lease cars and mileage allowance from the Trust. This had caused a great deal of confrontation between the department and those who were claiming allowance especially where deadlines were set for submission of claims. So it could be said that within the Trust Finance occupied a prominent and powerful position with regards to the decisions taken there.

Personnel Department in Hospital Z: Personnel were located on the 2nd floor of Hospital Z management block and in contrast to the secure environment of Finance their department was very open with doors ajar and a very 'laid back' atmosphere. The staff here dealt with many aspects of Trust human resources but in particular, were heavily involved in recruitment and training, dealing with the unions and monitoring of contracts. They were very keen on team work and very often could be found in team meetings. However, their status was relatively low in the Trust and this could well have been because of their poor record in monitoring staff and their

personal information. Up until the start of the research project the department had an old Personnel system. The data on the system was suspect and consequently people in the department had no confidence in it and the statistics it provided for senior management and various departmental heads were unusable. The Personnel Officer, Lilian, also doubled up as the system administrator for the Personnel system and got no support from the IT department. She and her team were the main staff who entered data into the system and considered themselves over-worked.

At the time of the project there was much concern about the possible merger between Hospital Z and a smaller Trust, GCHT, and how that would affect jobs on both sites. It was obvious to all staff that if the merger went ahead they would not keep both departments as independent entities.

Personnel in GCHT: Housed in an old Victorian house on the edge of a large park the Personnel department of GCHT acted as a central co-ordinating function for the decentralised community healthcare centres. The image that they liked to portray was one of quiet confidence and competence. Typical of the staff there was the Senior Personnel Officer who was very quiet in project team meetings but on a one to one basis was very articulate and friendly.

There was some antipathy between Hospital Z and GCHT personnel departments which was often shown at regional NHS personnel meetings (Interview with Personnel Officer Hospital Z, 1997). Hospital Z staff thought the GCHT staff less competent than themselves due to some of the joint tasks in which they had participated.

Whether this was reciprocated is unknown as the interviews that I had with personnel staff from GCHT were always very guarded and only dealt with the facts as they saw them.

9.4 The intervention

This next section describes in detail how I explored, through action research, further emancipatory practice within the context of the payroll/personnel implementation. The term 'emancipatory' was not used to describe the research to the staff in Hospital Z

and GCHT as this has connotations to philosophies which might have alienated some staff (Payne, 1992,1996). However it is fair to say that I was overt about the objectives of the work and explained carefully what it entailed and what might result.

9.4.1 Establishing the research framework

The first meeting that I attended was in April 1997 where I was introduced to the team. The meeting was chaired by the Project Manager and although it was meant to start at 1pm no-one arrived on time. The Finance department was represented by a team of three staff, Pam, Deputy Director of Finance, Dave, Payroll Manager and Elaine, Finance Officer in charge of Lease Cars. The Personnel staff from GCHT were Karen, Senior Personnel Officer and Julie, Personnel Officer accompanied by Colette from IT. The Personnel Department of Hospital Z were represented by the Deputy Personnel Director, Vicki, and the Personnel Officer, Lilian.

Preliminary discussion at this meeting involved Personnel from GCHT handing over a document (about 1 inch thick) for the specification of the system 'they wanted'. It later came to light that the document had been prepared by the GCHT IT manager, who had used a previous set of specifications from another implementation she had been involved in - it bore no resemblance to the current system needed and was not prepared in consultation with staff from GCHT.

I was then introduced to the staff present and invited to present my research proposal. I began by presenting the work done at Hospital Y and the IDEF0 models impressed them. I explained how I thought the Action Research had worked in Hospital Y and I went on to explain the complexity of integration and how they needed to understand its implications for them. Communication at the right level was vital. There was some discussion about the modelling and what would be involved. Pam didn't see why her staff should take part -they knew what they wanted. The project manager pointed out that if they were to integrate then it might call for some changes in working practices. This gave rise to some concern. Eventually it was agreed that they would all take part. I then outlined how I thought we might take the project forward:

Outline plan to Payroll and Personnel Users

1. Train users in the use of IDEFINE (McKay and Romm, 1992; Kerola, 1985)
2. Users develop "as-is" models (Ulrich, 1987)
3. The "as-is" models would then be presented back to the project team with discussions about how people operate.
4. The models would then be used to discuss integration and how the new system might operate (Habermas, 1984, 1987)
5. Staff would then produce the "ought -to-be" system they all wanted including new modules (Ulrich, 1987)
6. Establish a best fit with available/procured system - done through discussions with supplier
Re-draw the diagrams in the light of supplier discussions

Table 9-1 Payroll and Personnel Agreed Plan

From a very apathetic start the meeting began to develop a much more positive attitude. We identified 3 distinct groups from each department with which to start the training:

I insisted that there would be no more than three staff per training group in order that everyone had an opportunity for a hands-on approach. It was agreed that the training would start immediately. I had a few concerns relating to the modelling which might affect the project:

- Will their job allow freedom to diagram?
- Is there a will to diagram?
- What are their levels of IT skills - they must be able to use a mouse?

9.4.2 Putting the plan into operation

This section is structured using the Action research plan agreed with the Payroll/Personnel staff.

9.4.2.1 Train users in the use of IDEF0:

I had prepared a Tutorial for IDEF0 which had been piloted on a number of post graduate students at Newcastle Business School. An action research plan had been devised for the training which would be amended in response to how well the first Group responded.

- 1. The training plan involved doing the tutorial and then beginning the process of modelling their own departmental processes

The table below indicates who was involved in the training and reflections upon how well it went.

Group	1	2	3
Members	Finance: Pam, Dave, Elaine.	Personnel (Hospital Z): Vicki, Lilian	Personnel (GCHT):Karen, Justine, Julie
Reflections on the training	They had high specification PCs.IT literate. Difficulty with departmental processes.	Only one PC which had WINDOWS. Lilian IT literate. Difficulty with own business processes.	All had PCs with WINDOWS. Seemed to understand what was required.

Table 9-2 Payroll and Personnel Training Response

All three groups had difficulty when they began to think about their working practices and the processes involved. In my emancipatory role I did not want to take the lead and tried to encourage them to discuss what they did (Walsham, 1993b; Bradshaw-Camball, 1990).

Group 1 were hoping that the supplier would develop a new module for the system which would help administer the ‘Lease Cars’ (a responsibility of Payroll). They decided to explore this as it was done manually at that time. They used paper and pencil to begin with and eventually after 3 hours training they had a framework which they could take forward.

Group 2 were much more discursive in their approach to their own work. We decided to start with 'recruit staff'. Once we had decided on a process they began to develop the model quite well - probably better than Finance- and at the end of the training period they had made a lot of progress and went away fairly enthusiastic.

One interesting aspect of the modelling of their system was when they recognised a form which came to them which on reflection they felt should have gone straight to Finance - *"Why should we do that, we are just gate-keeping. We just photocopy the form and then pass it to them"* (Hospital Z Personnel staff, 1997). They would bring this up at the next team meeting when they discussed the models.

Group 3 like Hospital Z staff found difficulty with the concept of what they actually did and how to represent it. I had been worried that the political situation might affect the work at the GCHT but while I was there the staff were extremely courteous and the IT staff did not try to get involved.

9.4.2.2 Users develop the 'as-is' model of their systems:

This agreed objective of the PAR required the users themselves to take ownership of the modelling process in order to communicate how they currently worked in their own particular department. As they were still learning about the tool I agreed to be available if they required support. Each group tackled this differently:

Group 1 : The Finance staff had agreed to go back to the other users in their departments to discuss what was happening and show them the IDEF0 tool.

Elaine had her own section which dealt with Lease Cars in the Trust and she had spent some time with her main assistant discussing the processes with which they dealt. I was called into the section after they had attempted some modelling. This was to help them think through some of the processes that they were having difficulty modelling. They were enthusiastic and were keen to move onto the next stage of outlining what they would like from a Lease Car module of the Payroll/Personnel system.

The project manager had set a deadline for all 'as-is' diagrams to be completed. Pam and Dave had been heavily involved with Payroll that they had not started their own modelling with the consequence that they had forgotten much of their training. I was asked for some assistance the week before the deadline to help them with their models.

On that particular day Pam had assembled a group of her staff in her office and we begun with a quick refresh on the use of the tool. It was then left up to them to determine how the session would go. They decided to work initially on paper outlining their main payroll processes. This was then transferred to the IDEF0 tool and each member of the staff present took a turn at the PC. It was an education for everyone present because having to explain what they did made them ask questions about why things were done in a particular way. Questions were raised about how the new system might operate and who would be in overall charge. A heated discussion ensued. Pam and Dave were insistent that Finance would keep overall control of the new system especially when it came to data entry and Payscales - *'the payroll is vital and mistakes can cost the Trust thousands of pounds'* (Pam, May, 1997). This was an area which would need to be discussed at a project team meeting.

Group 2 and Group 3: The two Personnel departments had decided to conduct their IDEF0 modelling sessions soon after the training sessions.

Karen at GCHT had called all of her staff together and facilitated a session whereby everyone considered their role, job etc. and tried to model on paper what they did. She took the flip-chart diagrams that they had all produced and developed an IDEF0 model of the activities. She then contacted me to help complete the modelling. I gave some advice on how to take it further but I was insistent that it was their work and that they owned it.

The Personnel staff at Hospital Z had got together a small group of users and with Lilian doing the modelling of their system they went through how they advertised,

called people for interview and then appointed staff. I then spent time with Lilian discussing their models.

The following week both Personnel departments met up to compare processes, for example, recruiting staff. There had been a real worry that they all worked differently. However, at the end of the session Lilian said *"It was comforting to know that they did things basically in the same way"*.

A Crisis- System Demonstration by PerPayCo. (May, 1997): A decision was made by the Hospital Y Trust Executive in May 1997 that there didn't appear to be any reason why the whole procurement process should be undertaken again. There was a limited choice of systems on the market and the Payroll Facilities Management company was causing further problems for the Trust.

The original Hospital Z project team had almost decided upon PerPayCo. as the supplier of the new system but they wanted a more intensive demonstration of what it could do in order to persuade GCHT that the product was a good one. This would take place over a full day and staff in all affected departments were invited to attend. By this time staff had been involved in the modelling and/or discussions and had a much better idea what was going on in their department as well as in other areas.

PerPayCo. sent two of their top people - Clive and Trish (who later attended a project team meeting and was responsible for the project when contracts were eventually signed). They set up the demonstration of the system in the main lecture room in Hospital Z's education centre. I was invited to attend in an observational capacity only. The lecture theatre was crowded with the project team and many staff from the affected departments of Hospital Z and GCHT.

The PerPayCo. team had a script which they used for the demonstration. Many of the staff had never seen the system as earlier demonstrations had only involved the project team prior to the research. There were a number of concerned staff in the room. For example, some staff from Finance began a heated discussion about their current system and how it is they who allocate payroll numbers. They also emphasised the security

checks they made on staff. Why should Personnel (as they saw it) start doing their work - they weren't qualified? Personnel staff (Vicki and Lilian) tried to defend the new system but were shouted down. PerPayCo. were asked for an opinion they just said *"It is up to you how the system runs and who does what - that's internal operations."* Trish did try to point out the advantages of the new system but many staff were too angry to listen. The debate on who would control data entry at different levels continued.

By the end of the morning the integration aspect of the system became manifest and accounting staff were not happy. The atmosphere in the room was tense. Where I was sitting I could hear people making disparaging remarks about Personnel staff and how *'useless they were'*.

From an outsiders perspective there were many issues relating to the new system that had yet to be discussed - how the system would be administered, how the data would get into the new system, who would be in overall charge, data quality, who would integration benefit and how would they integrate the three departments.

9.4.2.3 Presenting the 'as-is' models

The first project team meeting where staff came together to talk about their system was almost a month after the training and the week following the demonstration. The staff were nervous about how the situation might progress. Each team had produced a set of models to represent what they did. Prior to the meeting the two Personnel departments had met and had developed a joint set of diagrams because they felt they operated in the same way.

Each group took turns in presenting to the staff their departmental models. The atmosphere was very constructive and various people asked questions which then led to re-thinking of how a process is represented and what they meant exactly. Unlike previous meetings this one was not dominated by one or two individuals and armed with the models everyone who wanted to could raise issues and make their own points.

This led to further discussions about where this could go. They began some tentative discussions about how staff might be re-organised. This was still a very early stage in the process and no-one was prepared to say anything controversial.

The project manager tentatively raised the senior management issue of the 'time sheet' and how its use could be modified. Pam and Dave agreed to look into that. He was delighted at how the meeting had gone and said that the IDEF0 diagrams had been a real catalyst to progress.

The team felt that they were now able to take things on to the next stage.

One issue that had to be addressed in which the majority of the project team was not involved was the potential new modules which needed to be developed for the new system. Travelling expenses and lease cars were seen by Finance as vital within the integrated solution. None of the software they had seen actually had a travelling expenses/lease car module as part of their integrated package but PerPayCo. had said that if they were the chosen supplier they would be prepared to develop one to the hospital's specification. However, the staff in that section really did not know what a module might look like.

Elaine had been carrying out some modelling with her staff and had actually developed models which were ready to show to the potential supplier. She had even taken them further than the 'as-is' model and had thought carefully about how they might like the module to look.

1st Milestone: The meeting with the potential supplier, PerPayCo.: The potential supplier of the new system was not a local company but based in Lancashire. They had, however, supplied systems all over the UK with the NHS one of their biggest customers. The meeting which was arranged with PerPayCo. was to be an all day event to try and address issues and difficulties. The supplier had sent two seasoned negotiators who included Trish who had been part of the team who gave the controversial demonstration of the software.

There were some new additions to the team for this meeting with the supplier e.g. John the Finance Director and Brian from Occupational Health. The atmosphere was very cordial, almost jovial with an air of expectation.

However the team spirit which the modelling had engendered began to wane as the project manager tried to dominate the proceedings with an agenda which gave little thought to the rest of the team:

- The project manager wanted to push the implementation through as quickly as possible. The HR staff were quick to point out that the peak holiday period was coming up and his suggested deadline of the 1st September for the implementation of the Personnel modules of the new system was completely unrealistic. They suggested a more reasonable date for Personnel implementation was 1st November from a staff perspective. Even then staff were still unsure as to what was realistic because none of them had been through an implementation before. It was noticeable that Trish said nothing at this point - not even to offer guidance on the length of time that was usual for these events.
- The next issue from a financial point of view was that of concurrent users on the system and the cost implications. Obviously PerPayCo. would charge more if they didn't get this right. In fact the IDEF0 modelling and discussion sessions had been useful for staff when considering this issue - they had originally thought 36 concurrent users would be needed. However, having discussed how the system might run they thought 28-32 was a more realistic number.
- Training was the next issue. The project manager was concerned about costs. However, there was a long and protracted debate about how training might occur, where it would take place and who would have the training. Some of the prejudices came to the fore. Comments like *'Some staff will need more training than others'* alluding to the lack of confidence in HR staff.
Pam who always spoke the loudest and at times with the most force argued that her staff would need extra days and she was not prepared to accept cascade training

(typically used in the NHS to cut costs). On the other hand HR felt quite comfortable with cascade training and felt it was appropriate for their staff. They “understood” that payroll must get it right. However, it was their data input which was probably going to be the more vital as the rest of the system depended upon it.

- The issue of ownership of the new system. Who was going to be in ‘control of the system’? Who would be the system administrator? The question had yet to be tackled. Staff at this point were beginning to realise that this system didn’t just belong to them. Someone/some people must have ultimate responsibility for the integrity of the system - dataentry, security, changes and authority to make changes on the system etc. Pam insisted that a number of her senior staff would need to be trained almost to the level of system administrator. She was staking her claim to authority at that point.
- The next issue was raised by Elaine who was worried about the Lease Cars and expenses module. She had had no further contact with PerPayCo. since they provisionally agreed to write a module. Elaine later said that she felt no-one was really interested in her work and she might end up being left out - back to paper and a spreadsheet.
- Vicki then raised the issue of ‘How do you do implementation; who is needed and how is it done etc. ?’ It had been a question everyone had wanted to ask. None of the staff present had been so closely involved in an implementation.
- This led the project manager to bring up the subject of the re-organisation of staff when the system was implemented. No-one spoke. It was a subject that had yet to be brought out in the open though some staff had alluded to it in their small groups when modelling but never at a full team meeting. However, the discussion was pursued by the project manager. The project team were particularly worried about staff losses and merged departments. - Vicki spoke openly about this. They all felt the project manager was trying to rush them into things. The discussions were left open with no decisions made.

I later spoke to some of the team members to gauge their thoughts about the meeting.

Lilian said that staff felt the whole process was becoming railroaded by the project manager and his 'agenda'. She explained that there was a good relationship building within the team and this could be jeopardised if staff issues were not taken into consideration and peoples' sensibilities were trodden on. She felt that Personnel had been very open about the possibilities of change when the new system was brought in but Finance had not addressed the issue at all with their staff and consequently they all thought that things would be the same after implementation.

Elaine thought that the meeting had been less than professional at times with *"dirty linen being washed in public"*.

However Trish had said to her that she had been at worse meetings and at least Hospital Z were looking at these issues before the system went in.

9.4.2.4 Using the models to communicate about integration

Just considering the current system had exposed issues which needed to be addressed and having looked at the new system in some detail with Trish it was essential that everyone considered them. The project manager had been in talks with the project board and had issues he needed to raise from their perspective. However, it was obvious to all that the nearer they got to signing the contract the more important it was to sort out problems. Below is an example of the controversy which existed in getting the new system accepted and how staff had to work together to work for change which they felt was reasonable.

As has already been mentioned timesheets were an issue which needed to be addressed from the Trust perspective. Having considered the Finance modelling everyone was invited to think about it and propose ways of overcoming the difficulties. There was also another problem with sickness - managers needed to ring payroll when a member of staff went sick but often this did not happen.

Pam had been completely against change in the earlier meetings - *'I cannot see a better way. We have always done it like this and at least it works'*. She now led the discussion with Dave adding his experience when able. About 18 months ago Pam and one of her staff, Wynn had investigated ways of changing sickness reporting / timesheets. Administrative, clerical and management grades did not want or need to fill in time sheets as they were salaried staff who generally worked routine hours. However 75% of staff in the Trust did have changes. The outcome of this study was that everything would remain as it was - controlled by Finance.

Dave and Pam had to revisit sickness reporting in the light of new Government guidelines and requirements - sickness was a very important issue. It had to be amended. Dave gave an example of how Northumberland did things and based on that they proposed the following:

Give a sickness book to managers consisting of a 3 part form with 2 copies.

On day one of illness the manager completes the top part of the form and sends it to payroll. The bottom part is completed when the member of staff returns to work and sick notes can be attached to it.

This then began some discussions about the acceptability of it all. Personnel staff thought that managers might not be keen if there was yet more form filling. Pam continued by pointing out the facility on the new system for sickness recording and how they did not always know how many staff were ill/or away sick. This went on for about 20 minutes with Pam probably winning the argument in the end. However they did take on board the Personnel suggestion that they should go out and ask the managers what they thought and then bring in the unions.

All staff present at the project team meeting agreed the decision to get rid of time sheets for most staff and have a sickness book with variance sheets. This was amazing as this had been an issue for years and Pam had been the main person against doing anything else and yet here she was leading the team forward.

2nd Milestone -Integrating the Diagramming : Although the modelling groups had presented their diagrams and models to each other and discussed how aspects may be interpreted at no time had they sat down together to see how the integrated system might work. They intended to merge their diagrams at this session. This was done as a group around a PC with all present making contributions.

The discussions were very good and the atmosphere could not have been more cordial. The modelling was dynamic and it helped staff to see where they would have to look at procedures in greater detail - i.e. where new forms would need to be designed such as new employee acceptance forms to make it easier for data entry for payroll/personnel.[We all took turns at the PC]. It also raised questions about security and who would be authorised to do this. The brainstorming was very tiring for the staff and eventually we finished after about 3-4 hours.

Talking to Lilian after the session she still felt they had some way to go. She felt Pam and Dave were still in the wrong mind set for the project - they were still thinking of Payroll/Personnel jobs. She was concerned that they were still intending to operate the system in the "old way". They seemed to be continually talking about 'control, audit, checking' - which obviously must be important where money was concerned. Lilian thought there was another agenda relating to the system administrator job - she believed that Pam had someone in mind. (Meeting with Lilian, June, 1997)

3rd Milestone-Presentation to Project Board: The project board would not let the procurement go ahead until they were convinced that things would work and that staff were all in agreement as to what they wanted. They had had some bad experiences of failed systems in the Trust and could not afford another disaster especially with the merger coming up.

The consequence of this was that the project team were invited to present their diagrams to the Board and then talk them through what they thought was going to happen. Unfortunately, I was not invited to be present. However, the project manager told me that Karen from GCHT had talked through the Personnel side of the

integration and Pam the Financial side. The board had asked a number of questions but they had also given assurances that there would be no job losses under integration except by natural wastage. This pleased staff at the meeting as they had all been feeling the strain as things progressed to the signing of the contract.

The board was delighted with the way things had gone and agreed to release the finance for the project.

9.4.2.5 Staff produce the 'ought to-be' system

This part of the action research was not undertaken as the staff could not visualise other ways of working or were not keen to explore other possibilities. In my role as emancipatory practitioner I did not feel that I should try and facilitate something that the staff did not want. The project manager was keen to take it that way but recognised that he would not have to operate within the new system and his role would end once the project was over.

Elaine did manage to develop the models for her proposed modules of 'Travelling expenses and Car leasing' and she had introduced a potential link into another department which had no electronic links with her section. She had explored the possibility with the manager of that department and he was enthusiastic as it would cut down on the amount of paper going through his department. Part of the Car Leasing process is shown in Figure 9-1:

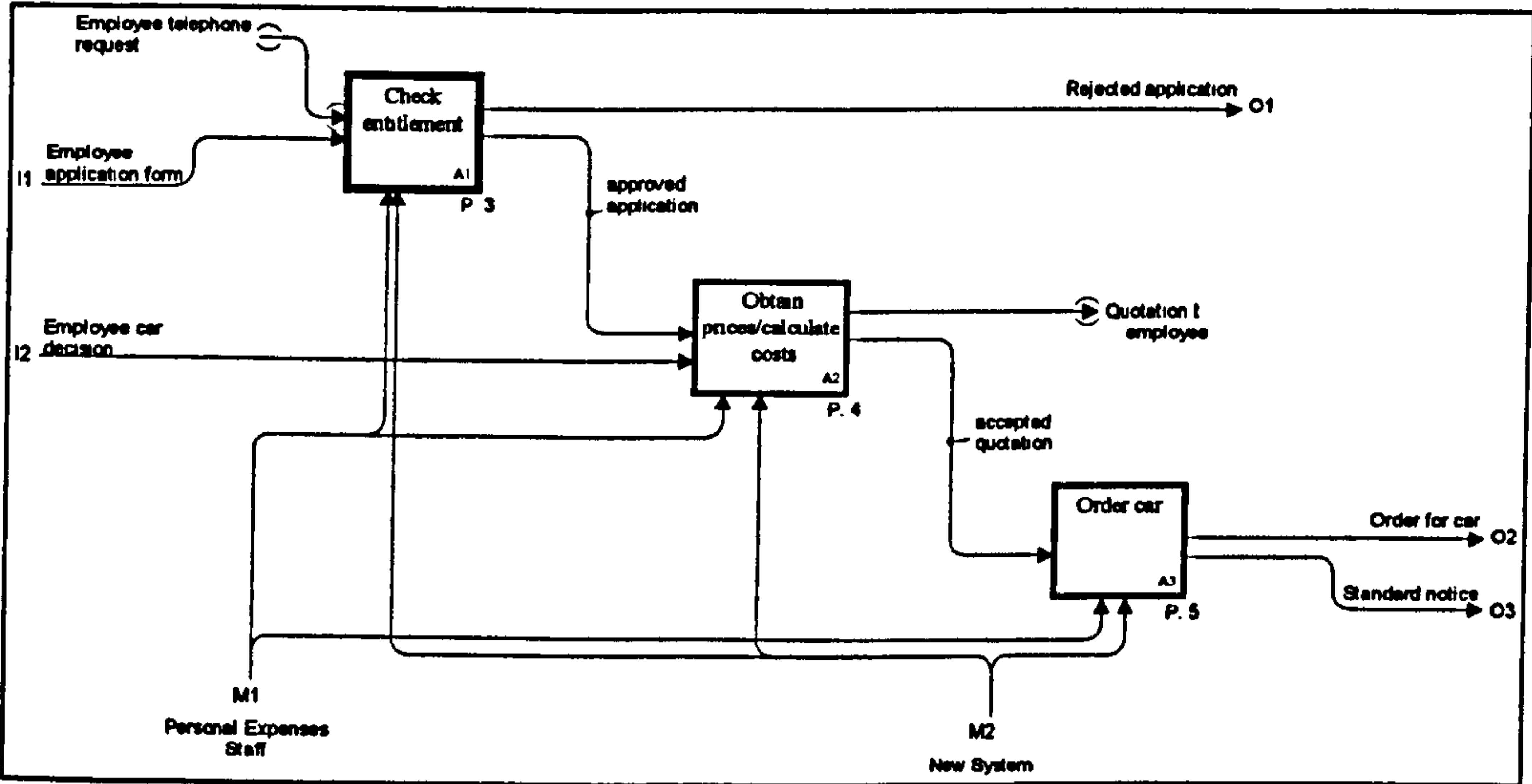


Figure 9-1-Elaine's Car Leasing Model

The decomposition of 'Obtain Prices and calculate costs' is shown in Figure 9-2. There were many questions asked about why employees were allowed such choice when obtaining a company car. A number of the staff were completely unaware that certain employees had such a perk to the job.

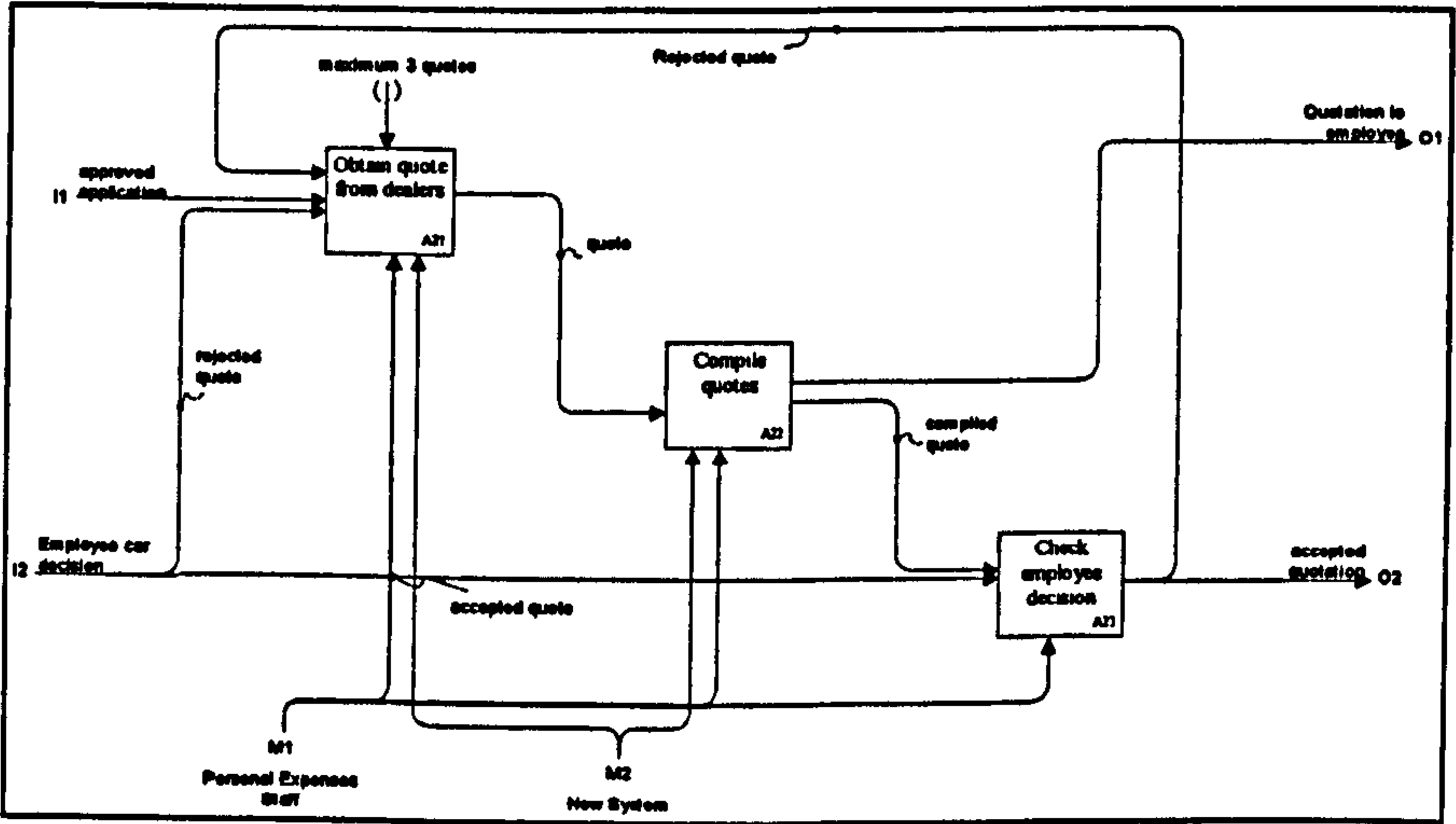


Figure 9-2:Decomposition of Elaine's model

Thus the project team were in a position to sit down with the supplier to examine how the vendor system fitted in with their modelled system.

9.4.2.6 Establishing a best fit with available/procured system

Prior to discussions with the potential supplier a meeting was convened to discuss the two day visit from PerPayCo. At this meeting there were a number of staff who had not been present at regular project team meetings. The following illustrates how the modelling facilitated communication of some major issues and led to discussion about the resolution, or not as the case maybe, of those issues.

To bring everyone up to date with what had been going on Pam began talking everyone through the modelling exercise. The atmosphere was tense because the diagrams and models now explicitly showed where various tasks needed to be performed and begged the question 'who by?'.

David, a Finance manager from GCHT, who had never seen these diagrams began asking some highly controversial questions:

"Who actually will do these jobs - does it have to be a Personnel job or a Payroll job ? It seems to me that what we have here are data entry clerks."

There was a silence and then the project manager brought the discussion towards how many staff actually worked in Payroll and Personnel, trying to establish how many will be needed in the future. There then ensued a debate on who will staff the new system. Pam was obviously worried about the ability of Personnel staff with regards to entering data. Vicki tried to put forward the argument that with proper training all staff should be able to cope with most tasks - though she did concede that some of the financial checking would need to be done by 'qualified' staff. Vicki was very good at diffusing situations.

4th Milestone - Meeting with PerPayCo. : The supplier had not yet seen the modelling but had known that the process was taking place. They were unsure of what to expect although they were experienced in dealing with technical specifications, the hardware, software and training issues.

At the start of the meeting technical issues were raised and then it got around to the role of the Systems Administrator (SA). The discussion was based around what sort of a person this should be and what their duties might be. Peter, one of the vendor team, said this person/ people must be someone authorised to make security changes to system. It was at this point that Pam appeared to make her bid for control “ *The SA should be a payroll clerk*”. Vicki disagreed.

Peter said that the Payroll Manager normally (in his experience of implementing this system) set up the new payscales. However, the dispute continued. At this point both Trish and Peter kept quiet and allowed the project team to take over. When asked what they thought they shrugged their shoulders and said the way the system operated within the Trust would be up to the staff themselves - they were only the suppliers. Thus extricating themselves from the organisational politics.

Vicki raised the question about staffing and what was the best way forward - should there be general data entry clerks ? Pam’s face showed her opinion. Peter did suggest that logically that was the best way forward - ‘under a unified department’. However, he did say that for audit purposes this couldn’t happen under two departments.

Things then progressed onto the modelling exercise. I had to do a brief presentation on what I had been doing with the staff here and showed Trish and Peter some of the models and how things worked.

Karen from GCHT began the session by talking everyone through the diagrams for Personnel. It didn’t take Trish and Paul long to understand the models. Everyone had copies of the diagrams and consequently most who wanted to were able to join in the discussions. It appeared very productive.

Pam presented the payroll models. Debate began again when Pam explained about the new ideas for absence reporting and the abolition of time sheets. Vicki then reported on the Sickness and Absence Review panel in the Trust which was looking at changing policy. It consisted of senior management, clinical staff and union staff. Pam asked whether she could do a presentation on behalf of the project team to see whether her ideas would be accepted.

During the discussions Pam was rather tactless at one point - she called into question the ability of personnel staff to enter data into the new system correctly. Vicki immediately challenged her on this and she retracted it.

Elaine was encouraged to present her models of 'Lease cars' - PerPayCo. had agreed to develop a module as long as it was worth their while. Both Peter and Trish were very non-committal and agreed to see Elaine on the next day to arrange for someone to come and evaluate what was needed.

At the end of the morning session I was stopped by Trish and she asked '*How long did it take to get them to this point ?*'. She was most complimentary on the work we had been doing. She said in her experience many organisations never get to this point until well into the physical installation and then often things broke down - '*politics you know*'. She was most impressed with the modelling.

The suppliers had no real difficulties with the diagrams produced by the Payroll and Personnel staff and agreed in principles that their system could accommodate how the staff wanted to operate under the new regime.

The Project Manager thus insisted that the models be part of the contract to which PerPayCo. would be obliged to commit. The contract was finally signed at the beginning of August, 1997 and the integrated system went totally live in April, 1998. Samples of these models can be found in Appendix J.

9.5 Learning which emerged from this project

This was the first of two projects at Hospital Z and consequently the learning from this would feed into the next project as a second iteration of the action research.

1. One of the major lessons learnt was the need for a supportive management to allow this type of project to take place. It could be that the motivation of the management may be called into question - they may have been in a desperate situation with regards IT projects and their apparent failure within the Trust and so were prepared to consider something more radical. They may have had the merger in mind and wanted the staff to fight it out between themselves and so avoid difficulties with the union. Whatever their motivation they kept their distance from the project and allowed the participating staff to own it and feel they were part of the process.
2. A second point to emerge was that staff can proceed down the implementation path even almost to the point of signing contracts without ever considering how they will operate under the new system and whether it will work for them. This was the case for Hospital Z who had only been prevented from signing a contract by the merger with GCHT. Trish from PerPayCo. told us of two hospital which had acquired their system but did not integrate as they had not addressed some very sensitive organisational issues. Of course she said *'it was not for the supplier to get involved'*.
3. Another point is that the staff involved in an implementation need to be very clear as to what they are trying to achieve and why they need to acquire an information system. In this case the Trust could not operate realistically with the systems they had in place. This point was not disputed by anyone and all concerned were united in trying to get a new system. This of course was not necessarily an integrated system. The integrated approach was a suggestion of management but they did state that if one couldn't be found then they could purchase two separate systems.
4. The IDEF0 tool produced models which appealed to the staff in the project team as they looked professional though simple and clear to read. Pam had tried to produce

some flow charts by hand in the early stages of modelling as she had attempted to take control of the project team meetings. However the team had united in accepting IDEF0 diagrams as the way forward as they would be trained in producing them and it seemed to them an easier way forward.

5. The training in IDEF0 was easy for IT literate staff but what they did find difficult was thinking about their processes and then converting them to models. They needed assistance at times. However, I resisted this as much as possible because it was their project and it was they who needed to communicate to one another how they worked.
6. The project team meetings were much better and productive once some of the staff had begun to diagram as they had models of how they worked and had an understanding of the bigger picture. By sharing the models with everyone else and explaining how things worked they were removing the 'mystique' of their particular department. Staff could see how data would flow through the system and where data entry would start. Whether they could live with the potential integration was another issue.
7. The models facilitated discussions to which all staff could contribute. They had all been part of the modelling and diagramming and consequently shared a common language. The diagrams were not intended to be technical and so everyone who read the diagrams could relate them to their own situation. The diagrams were not there to solve problems but to facilitate open debate. Staff could then choose whether they took part in that debate or not.

9.6 Post Script

The Payroll/Personnel system in Hospital Z was fully installed and has been operating as an integrated system since April 1998. However, this does not mean that the difficulties with power and politics were completely addressed by my emancipatory approach. The hospital was the only one at that time to implement it as an integrated

solution. PerPayCo was honest enough to admit that the system was operating elsewhere in the UK but not as an integrated system. Other sites were using it for Payroll but not Personnel or conversely using it as a Personnel system but running the Payroll elsewhere. The management of Hospital Z were pleased with the outcome (Appendix H) though the language they used reflects how they wanted to view the project. The staff involved in the project have learnt from the experience and may in the future be able to transfer skills to another implementation.

9.7 Summary

This chapter has described in rich detail part of the Payroll/Personnel implementation where I acted in an emancipatory capacity which was aimed at facilitating understanding, discussion free from domination of individuals or groups where possible. Whether this has in fact been the case will be reflected upon in Chapter Eleven.

However with the learning which emerged from this implementation I began a second project within the Trust but this time in a clinical department where there were doctors, nurses, administration staff and management. This will be described in the next chapter.

Chapter - 10

10. The Gynaecology project at Hospital Z

10.1 Introduction

This project was initiated in April, 1997, when I was introduced to the Clinical Director of Gynaecology by the newly appointed Business Manager. The research was difficult and the chapter describes the social situation and the conflict which appeared to be endemic between clinical staff, managerial and administrative staff. The project, as described by the Business Manager, involved acquiring a new departmental administrative system to assist in the day to day business of the department. However, this was not what everyone wanted and in fact, in some cases, not wanted at all.

The research built upon the experience and learning which emerged from the Payroll/Personnel project and involved further action research using IDEF0. The work was suspended in December, 1997 and was continued in the Spring of 1998.

The next sections follow the general structure of the previous chapter and begins by considering the role of the researcher within the project. It then describes the social situation within Gynaecology and its relations with other departments before giving a detailed account of the intervention.

10.2 The Role of the Researcher

Although having met the Consultants early in April, 1997, I did not actually begin work until the Payroll/Personnel System was almost at the contract stage. Unlike Payroll/Personnel the project was not particularly well defined. The Business Manager described the project as one which would integrate the Gynaecology department with the hospital via a PAS link and provide administrative support for the secretarial staff. However, the

consultants had other ambitions and wanted a system which would assist them in their research and possibly help administer clinics, the wards and theatres.

This proposed project was altogether more complex than the Payroll/Personnel project. Having agreed my action research plan, the Clinical Director and Business Manager also asked for a report on the issues surrounding the proposed implementation and a specification for a system based on my findings. It was agreed that I could have access to any relevant member of the department or departments interfacing with Gynaecology for the duration of the research. The background to Gynaecology and the proposed project can be found in Appendix I. The following section examines the social situation as I found it within the department and those with which it interacted.

10.3 The Social Situation in Gynaecology

The department of Gynaecology was relatively small and consisted of a permanent team of staff led by the Clinical Director. It stood alone in the grounds of Hospital Z and was accessible through a key coded door. Although meant as a refuge for all doctors working within the department junior staff were conspicuous by their absence.

The Consultants: It would be true to say that the Clinical Director dominated the department of Gynaecology. He was an extremely intelligent man and had built himself a formidable reputation in his field. However, his interpersonal skills were limited and he often appeared rude and arrogant. He was seen publicly haranguing a clerical worker who was carrying out coding in the department (Observed by the researcher, June, 1997). He was also dismissive of any other research being carried out in the department which he was not leading. An example of this was an NHS funded clinical research project on 'Psycho- sexual problems after Gynaecology surgery' being undertaken by a Ph.D. student. He was heard to say:

“When I have spoken to a woman and discussed her illness she doesn’t need any psycho- sexual counselling” (Interview with Senior registrar, September, 1997)

This behaviour typified many of his encounters with staff throughout the Trust and consequently a great many staff were afraid of him and would not like to have him as an enemy (Interview with staff nurse in theatres, September, 1997).

One interesting fact which emerged half way through the research period was that there were actually three consultants working within Gynaecology and not two as I had been led to believe. However, no-one, including the Business Manager, spoke of the third. This third consultant had been ostracised for many years and had, systematically, had his work removed from him to the point where the hospital were paying his salary for virtually no work. This situation came to a head in November, 1997.

The second consultant, Mr G, had been appointed by the Clinical Director and consequently thought very highly of him. Mr G was a brilliant surgeon in his own right and was seen as the ‘heir apparent’ to the department when the Clinical Director retired (about 2000/2001). His manner, however, was in stark contrast to the Clinical Director and he was courteous, patient with junior doctors and patients and prepared to network at hospital level. Where the Clinical Director saw conflict and actively went into combat with other Trust staff Mr G tried mediation and sought consensus.

The administrative staff: The administrative staff working within Gynaecology had been employed there for a number of years. Eileen who was senior had worked as the Clinical Director’s secretary for 9 years and dominated the other administrative staff and the office procedures. In the main office there were four administrative staff and further down the corridor there was Eleanor who looked after the clinical research system written in Dbase™ by the Clinical Director. All of the administrative staff were extremely loyal to the Consultants and believed that anyone being treated within the department was fortunate. They tolerated the Clinical Director’s tempers and were prepared to excuse his

behaviour. In fact two of the older female staff had had HRT implants done in the department.

The office was very busy and hectic at the times of clinics and theatre and very often chaos ensued. This was basically due to the lack of any real procedures within the administration. The office staff generally deferred to Eileen because of her seniority and she was the Clinical Director's secretary. She, in turn, reflected the Clinical Director's dislike of anything to do with the hospital by operating her own system of recording patients, organising clinic and theatre lists. This led to the administrative staff also receiving reputations of being 'awkward' and difficult to work with. Coding staff disliked having to go to Gynaecology because they were made to feel unwelcome and there was a lack of co-operation (Interview with coding clerk, September, 1997). Finance, also, had had difficulty recovering ECR (Extra Contractual Referral) money due to the complete disregard of filling in ECR forms by the administrative staff in Gynaecology (Interview with Finance officer, September, 1997). Yet when Eileen was not present in the department the staff were much more at ease and they could socialise freely with Eleanor. Eileen had had a disagreement with Eleanor some years earlier and would not let her staff speak to Eleanor while she was around the department. It could almost be said that the administration of the department was a reflection of the way the Clinical Director ran the clinical side. Eileen did not like change and this was manifest in the way the other staff had to adhere to her rules within the department.

The administrative staff, on the other hand, had a great empathy with the patients who were treated in the department and could spend a great deal of time explaining their test results and the potential consequences:

"We explain in layman's terms what is wrong with them - in fact the Clinical Director actively encourages the staff to translate the medical terms for the patients" (Interview with Medical secretaries, Gynaecology, June, 1997)

Junior doctors: A major part of the day to day clinical work carried out in the department was done by the junior staff who saw about two thirds of the referrals in clinic (Interview with Registrar, September, 1997). All practice within the department was determined by the consultants and consequently junior staff had to conform to it and had very little opportunity to suggest change. However, this did not mean that they did not introduce their own practice to supplement what was the norm. For example, some junior staff were unhappy with the lack of information that was given to patients prior to their surgery. Informally they had counselled patients and took time to discuss their worries:

"..A number of us have taken an interest in the psycho-sexual study in the department. The psycho-sexual study involves giving information to patients about the pure mechanics of the surgery but it also covers other issues such as post-operative problems. It goes over the information a number of times trying to get the message across to the patients- it is a very stressful time." (Interview with Junior Doctors, May, 1997)

As the Clinical Director did not see this as important they had done it with the knowledge of Mr G who had some sympathy with this approach.

Ward rounds were conducted by the consultants in a traditional way where up to eight staff followed the consultant from bed to bed. This was not popular with junior staff as they thought it was not beneficial for all concerned - patients, doctors and nurses.

However this was not the policy of the senior registrar:

"When I do the ward round I reduce it to a minimum number of staff because I feel that if I was a patient I would not enjoy the experience. Also, I don't believe that the juniors can actually see or hear what is being said." (Interview with Senior Registrar, September, 1997).

From the clinician perspective the administrative support for the junior doctors was inadequate. The secretarial staff were supposed to write up the clinic consultations by transcribing notes from dictaphones after they had been returned to the department. However, this depended on the workload of the individual secretary and whether they 'got on with' the particular doctor. Very often the doctors had to coax and cajole the secretaries into doing their work - this even resulted in bribery with boxes of biscuits being commonly donated.

The nurses on Ward G : The Gynaecology ward was a high dependency ward which generally dealt with patients who were very ill, were undergoing surgery and/or chemotherapy and radiotherapy. The senior nurse on the ward was a sister who had many years service and was due to retire within a couple of years. She had a traditional approach to her work and was a strict manager of her staff, demanding a professional attitude from all. She was extremely loyal to the Clinical Director and believed him to be a brilliant surgeon. They had worked together for many years.

The nurses were very protective of their work and saw themselves as being overworked and underpaid. They were extremely anxious about hospital cut backs in staffing and the affect that would have on their work load. Although highly skilled in their own speciality and able to use some sophisticated and technical equipment the majority of the nurses on Ward G claimed to be IT illiterate and did not see it had any relevance to their job - caring for very sick patients.

"We had a computer put on the ward to do the rostering of staff. It's over there in that corner. Nobody uses it. We haven't got time and we were never trained. It takes us all of our time to look after the women on the ward." (Interview with Ward nurses, August, 1997).

However, the senior sister was extremely IT literate and attended IT classes in her spare time, though she chose not to make this publicly known at work.

It is interesting to note that the nurses viewed themselves as the main carers of the patients before and after surgery and monitored and recorded vast amounts of data about the patients during their stay. This data was never entered into the clinical database kept by the Gynaecology department. The nurses also believed they monitored junior doctors because many of them did not know as much as the nurses - the nurses had been on the wards for many years and some of the junior doctors only spent a few months there.

Theatre: As Gynaecology dealt mainly with surgical procedures they interfaced regularly with the Theatre suite. This was run by a Clinical Director, who was himself a surgeon, and a Business Manager who was an ex-nurse. They had particular systems in place for dealing with the throughput of patients and had frequently come into conflict with Gynaecology who often flaunted these systems. There was a recognition within the department that they were not by any means perfect but many of their problems arose from a shortage of trained staff. The Clinical Director of Theatres was fairly outspoken in his criticism of the Clinical Director of Gynaecology's lack of regard to the working procedures in the theatre suites. He objected to the theatre lists being changed regularly over-spending, over-running of theatre time as well as the '*moral blackmail*' exerted on his staff.

"One of our problems is that Gynaecology tend to overbook their theatre list. As there is no service level agreement there is generally an overspend in the Gynaecology area. Much of the equipment they use is disposable and theatre management believe that there needs to be some discourse on this subject. There is a high level of expenditure here which has to be met out of the theatre budget with the knock on effect for other areas of surgery". (Interview with Clinical Director, Theatres, September, 1997).

The business manager: The Business Manager was responsible for the financial viability of the department at hospital level and for the management of the administrative staff. He did the job part-time and did not see this as a long term commitment. He believed that his

appointment was a political move on behalf of the Trust management to try and affect some control on Gynaecology. He said that he had been given the role of Business Manager to 'sort out' Gynaecology and to integrate it with the hospital as a whole. The Trust management felt that the department had been allowed to operate in isolation for too long and now it was affecting the financial stability of the hospital. The department did excellent work but the Trust needed to be financially reimbursed for that work and currently many cases were being missed through poor administration. He was keen to do what was required but he also wanted the department to continue making progress and develop. His attitude to all staff was courteous but professional. However, he was not prepared to be dominated by the Clinical Director nor dictated to by Eileen. Consequently, he was treated warily by staff in Gynaecology and with grudging respect by the Clinical Director

"We recognised we needed a new system four to five years ago but progress has only been in the last year with the Business Manager making a big difference"

(Interview with Clinical Director, Gynaecology, December, 1997).

He was viewed as a 'Trust' man but the Consultants believed they could use him to their advantage. This worked up to a point until the department came into conflict with the main Trust and then the Business Manager tended to side with the organisation at large. He had very little to do with the nursing staff because unlike the majority of Directorate Business Managers, who were ex-nurses, he was not involved with rostering of nursing staff and thus left that to the ward sister. However where there were disputes he did try to resolve them.

10.4 The difficulties facing the department

The previous section describing the social situation within Gynaecology and its main interfacing departments was elicited through interviewing staff within the departments. These interviews also highlighted a number of issues and problems relating to working practices and information management which needed to be discussed. They were issues

that were making certain staff's jobs very stressful and giving the hospital difficulties when dealing with patients. However, the forum for this to occur had never been established and consequently staff continued doing their job in isolation without recognising where it fitted in with other staff or how it could be done better in order to relieve some of the stress that was affecting them. The main issues and conflicts that were discovered are illustrated in Figure 10-1.

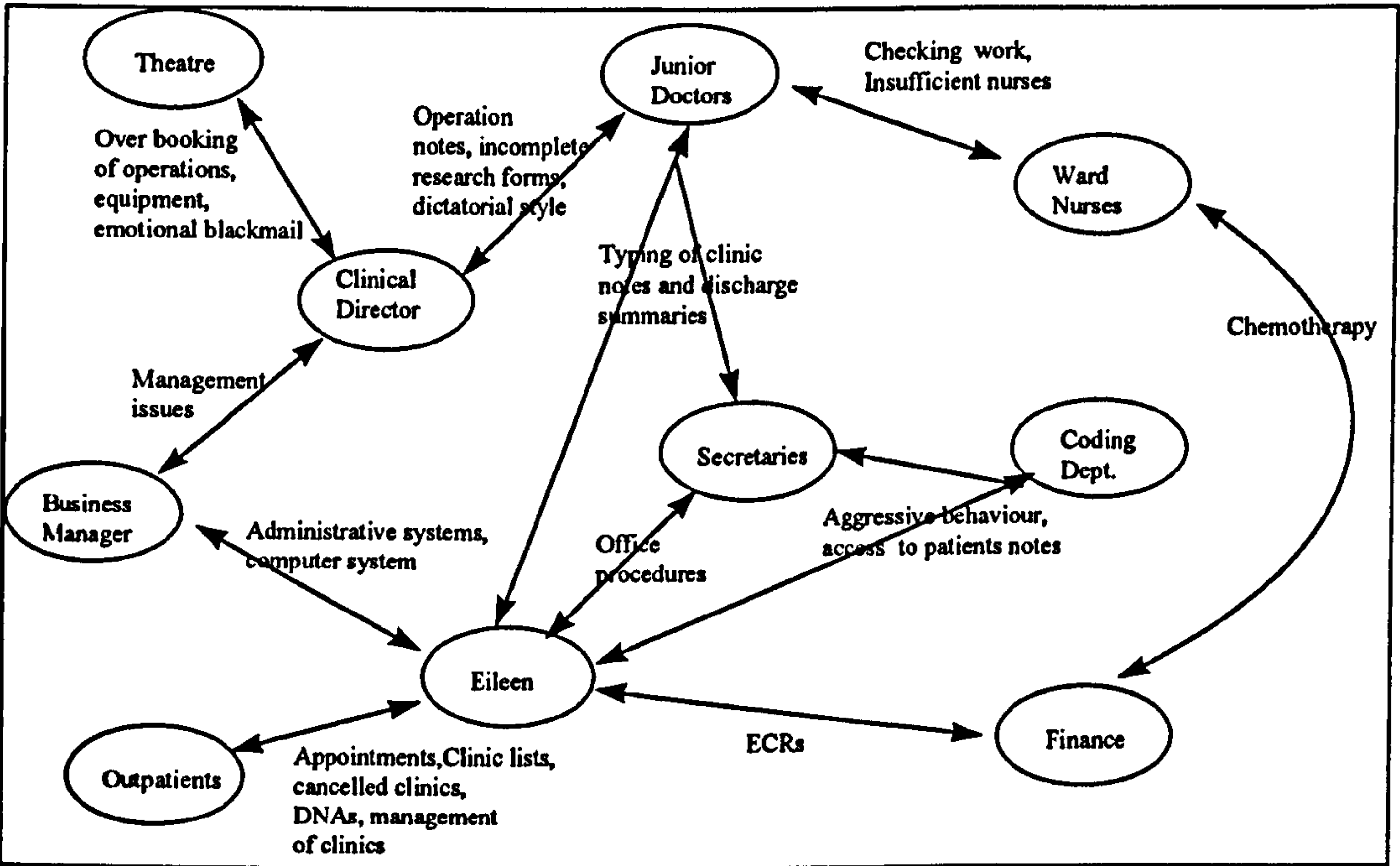


Figure 10-1 A Conflict Diagram for Gynaecology adapted from Wood-Harper et al, (1996)

The administration of Gynaecology was problematic for the hospital departments which interfaced with it and for the junior doctors. Yet it seemed to work for the consultants. As I never met any of the patients I was unsure as to whether they were disadvantaged by the systems operated in Gynaecology but my overall belief from the evidence collected was that things could easily go wrong and often did. Communications between Outpatients/Admissions and Gynaecology were fraught. Clinic lists sent through internal

mail were arriving the day before clinic. This meant work for appointment staff was rushed and in fact duplicated directorate staff work. There was some concern about statistics on DNAs (Did Not Attends) and Gynaecology. Some clinic lists were cancelled but often the secretaries forgot to tell Outpatient appointments. Outpatients did not know in advance how many doctors would be attending clinic and this had implications for scheduling nursing staff.

From the hospital perspective Gynaecology could not continue working as an isolated unit as it was losing the Trust money through neglect of operating procedures. It was argued that patient care would suffer through reduction in services elsewhere. The Clinical Director of Gynaecology did not care as his department was continually being left legacies from terminal patients who had been treated in the department. The hospital could not use this money and this allowed the department to be independent to a certain degree. It was problematic trying to recover Extra Contractual Referrals (ECRs) from outpatients in retrospect especially with tertiary referrals (Referrals from other Consultants). 70% of the income in Gynaecology was from ECRs and thus it was vital that they were identified.

Finally, two further points are worth noting. First of all, the research database within the department was focused upon types of cancer and how they might be treated i.e. surgical procedures. From a critical perspective the question must be asked why such a high profile department had no research into the prevention of such cancers? The data collected for the database relied on accurate recording by the junior doctors who saw most of the patients. However, most of what was required was incomprehensible to them and they were not very conscientious in filling out the required forms. Secondly, the nurses on the Gynaecology ward were isolated from the departmental doctors and much of the decision making. Their voices were rarely heard and up until this research was conducted had never had a forum in which to express an opinion. This made them very worried about how they would be treated once the Clinical Director was made aware of the issues.

Having interviewed 30 staff and collected as many perspectives as I felt was necessary I presented a report to the Gynaecology Department which reflected the social situation and the difficulties as seen by the interviewed staff and myself. The Business Manager and Consultants within Gynaecology were aware of a number of these problems but many had never really been voiced. The management of the department then reflected upon the report. The Clinical Director told me that he did not agree with some of the views expressed within the report. However, the senior registrar believed that it was a fair reflection of what he thought happened from his perspective. After about three weeks I was informed by the Business Manager that they had decided that a new integrated system was required and a number of working practices needed addressing. The senior clinicians acknowledged that staff would need to be involved in the decision-making process and so the research moved into its next phase.

10.5 The intervention

As the social situation within Gynaecology and with interfacing departments was conflictual, I believed that all of the issues pertaining to integration must be raised and discussed with all the potential users of the proposed integrated system. The success of the emancipatory approach adopted in the payroll/personnel procurement led me to believe that it could be applicable within this project. However, there were differences in this case:

1. There was no software package which could be purchased off -the-shelf for a Gynaecology departmental information system.
2. Not all of the staff were convinced that a new system was needed and a number of them were openly antagonistic.

A meeting was held within the Gynaecology department to which the administrative staff, junior doctors representatives, the Business Manager and the Consultants were invited. At this meeting the Business Manager explained that the department management had decided that they needed an integrated information system and that I would be

continuing to carry out my research in the department with a view to establishing what was needed. At this point I began by asserting that I would not be building a system but assisting them in understanding their problems and requirements and this would require their input. I explained the research carried out in the Payroll/Personnel project and I gave a demonstration of the IDEF0 software. Models and diagrams were passed around the meeting and the clinical staff were impressed with the clarity of the diagrams and their professional quality. I then outlined the research objectives which had emerged from the payroll / personnel project and which had been achieved:

<i>Action research plan</i>
<ol style="list-style-type: none"> 1. Train the users in the use of IDEF0. (McKay and Romm, 1992; Kerola, 1985) 2. Users develop “as-is” models of their particular system/area of work 3. Present the “as-is” models back to the group with discussion as to how their work interfaces, issues, problems etc. (Ulrich, 1987) 4. Use of models to facilitate the discussion about integration and how a new system might operate. (Habermas, 1984) 5. Staff produce the “to be” models and their requirements 6. Discuss the best way forward to develop the system needed.

Figure 10-2 Plan for Action Research in Gynaecology

The emphasis on staff involvement in the decision-making process was novel in this department and seemed to please many of the staff, including the majority of the administrative staff. I identified five distinct groups to train in the use of the tool: Consultants, Junior Doctors, Nurses, Administration Staff, Management. There were a few concerns relating to the modelling exercise which might impact upon the project:

- The consultants were going on holiday for one month and there may be a lack of continuity

- Would everyone want to take part - there were no nursing representatives present at the meeting though the Clinical Director assured me that '*they will do what I instruct them to do.*'
- Would non-IT literate staff be able to use the IDEF0 tool.

10.5.1 Train Users in the use of IDEF0

10.5.1.1 The Administrative staff

Compared to training the Payroll and Personnel staff this was a very slow process. The first training session with the administration staff took place in their shared office. They were apprehensive about what was going to happen and anticipating this I had carefully planned how the first training session would go. We began by having a general discussion about the department and the hospital in general. This I felt would help in establishing a good working relationship. I believed that being sensitive to participants needs within an action research framework was essential and the social aspects cannot be rushed or by-passed. We also discussed the apparent need for a new integrated information system within the department. Eileen was not convinced that there was need for one and dominated the discussion while Angela and Gail said little. However the discussion was finally concluded by Eileen "*If the Clinical Director wants one then we must have one*"

Having given them the tutorial to work through I then discovered that none of them used a mouse during their day to day work even though Windows™ was on their machine. This was something that I had not anticipated and so we had to begin with a basic lesson on the Windows™ environment and the use of a mouse before we could even consider diagramming. Angela, Mr G's secretary, was probably the quickest to pick up the skills and when we moved onto the IDEF0 tutorial she progressed the furthest and by the end of the session had enjoyed herself and said as much. My intention to move on to modelling their system of working had to be continued three days later because they were exhausted after 2 hours training.

Unfortunately, Eileen told me that due to the pressure of work in the department the next session had to be deferred for two. Thus the next stage of modelling the 'as-is' system was difficult as staff had forgotten the basics. This was not an easy task for the most able of staff as had been illustrated on the Payroll/Personnel project. Eileen was very uncooperative and became quite argumentative and very awkward. She was ignored by Angela and Gail who continued with the modelling and eventually she decided to stop and type up "*an important letter for the Clinical Director*".

As there were no consultants working that day the diagramming session went on for about three hours. I assisted with the software problems but left the interpretation of the administration system to the staff. Angela had made great progress and had diagrammed with quite a lot of detail and identified aspects which had not been discussed during the initial interviews - e.g. they frequently prioritised patients for clinics on behalf of the consultants. Their rationale for this was that they had developed so much understanding of the problems presenting within the department that they knew which was serious and which was not. However, they chose to show the 'correct' version of prioritisation on the model. When the models were printed out and everyone given a copy I asked them to have a careful look at them and we would use them as a basis of discussion at our next meeting. A part of the model developed by Angela is shown in Figure 10-3

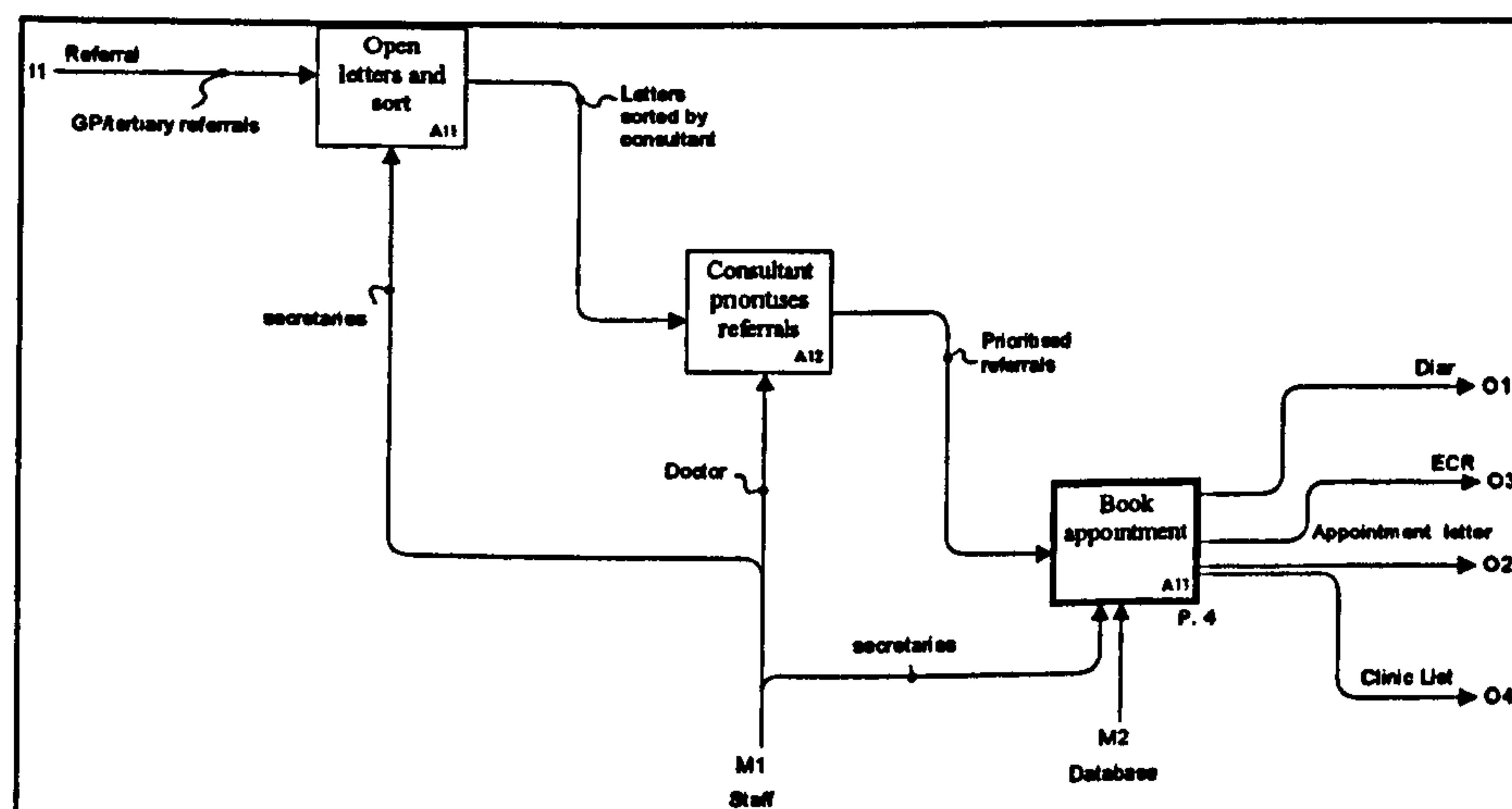


Figure 10-3 Angela's model

The decomposition of 'Book appointment' is shown in Figure 10-4:

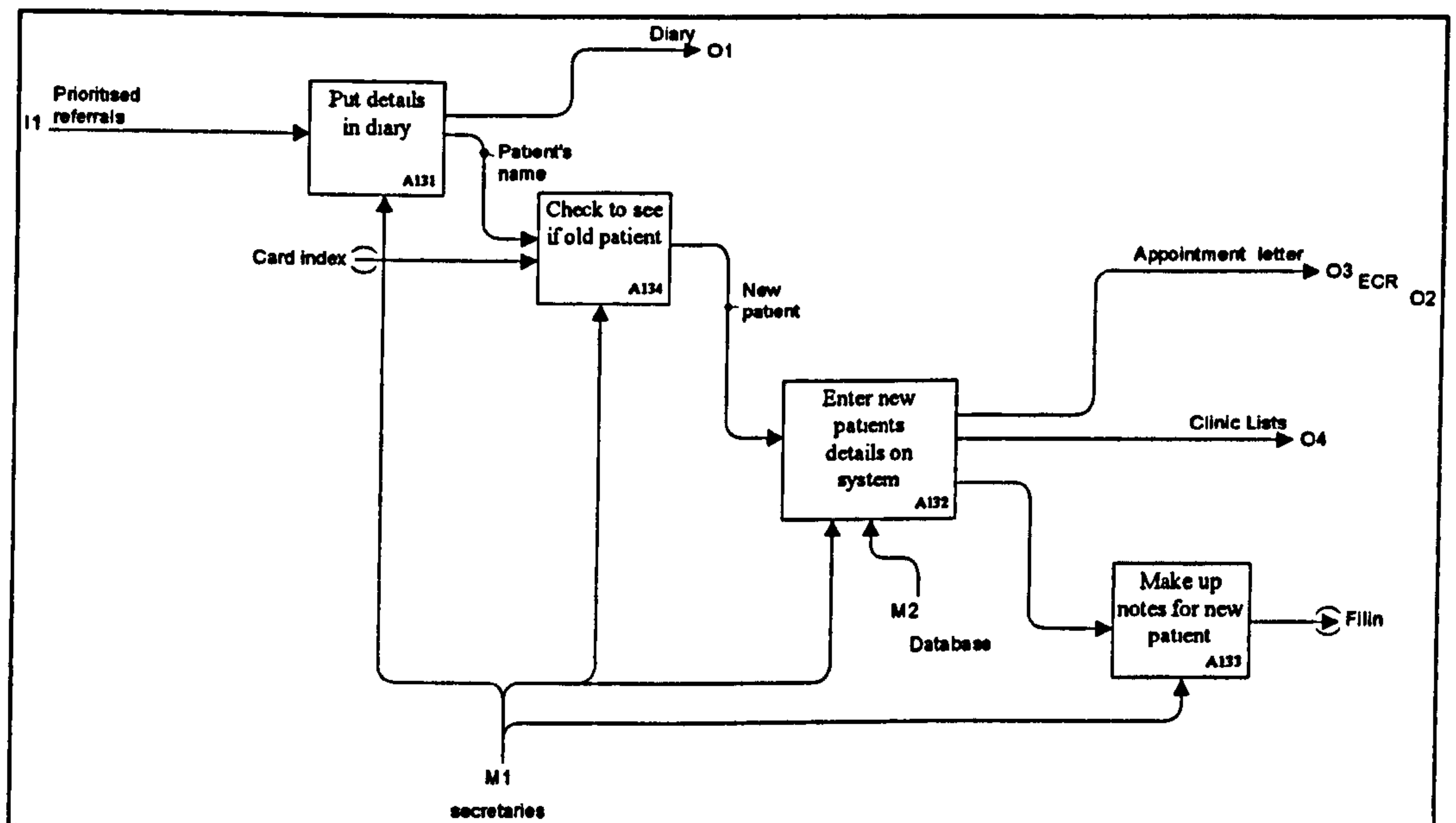


Figure 10-4 Decomposition of 'Book Appointment'

Eileen commented *"When you see it down on paper you ask yourself is this all I do ?"* Angela and Gail said that they had enjoyed the exercise and had found it interesting to explore what they actually did.

I returned to the department to discuss the models and IT training needs the week after developing the 'as-is' models. Eileen was on holiday and the department atmosphere was completely different. The staff were having lunch with Eleanor. Angela and Gail apologised for Eileen's behaviour at the previous training session and gave me a résumé of office politics. The others had worked for so long under this regime that they had been worn down by it. They felt the interviews and modelling had brought out into the open and to the attention of the management things which needed addressing and they were

pleased it was taking place. When the issue of training arose they felt it was essential but it remained to be seen whether Eileen would let them go. They thought that she really didn't want to lose the Wordperfect™ system even though they knew it was highly unstable and could not accommodate another consultant shortly to be appointed to the department.

10.5.1.2 The consultants

Both of the consultants insisted on being trained in the use of the software and this took place prior to their going on holiday. The Clinical Director always worked with a portable which was not ideal for modelling. Mr G had a PC in his office. They had already had a preview of the software during the initial exploratory discussions about the research and knew what it could do. The first part of the training session was taken up with familiarising them with the software and its capabilities and they were given the same tutorial as the administrative staff to work through. It was a difficult session in as much as they had continual interruptions from the secretaries to take telephone calls. At one stage the Clinical Director had to go out and talk to a lady who had a recurrence of her cancer and these events were typical whenever you made an appointment to meet any of the doctors. Both consultants were enthusiastic and keen to begin the modelling exercise. They were, however, reluctant to spend any time working through the tutorial at that session and insisted that they were both IT literate and could do it when they had spare time - in the evenings or while they were on holiday. I was not convinced that this would happen.

We then discussed what it was that they needed to model. They had indicated that they wanted the potential system to assist in clinics and in theatre and above all they needed to collect data about the cancers that were presenting in the department. The Clinical Director was adamant that he was not interested in the administrative and contracting side of things and it was up to the Business Manager to sort out that - as long as he got his letters typed etc. He was also quite vocal about a link into PAS

“The link into PAS is a political manoeuvre.. we don't want those bastards nicking what we've got... dumbing down.... I'm an elitist” (Interview with Clinical Director, July, 1997)

10.5.1.3 The Management

The training session that was to take place was with the Business Manager of Gynaecology and the Information Manager of the Trust. The Information Manager lacked a great deal of information from Gynaecology and he wanted to be trained in order to could examine the processes which linked his department and Gynaecology. However the Information Manager was away from work ill with stress. Consequently only the Business Manager was trained. He was IT literate and after a short while was able to operate the software sufficiently well to begin the tutorial. He really wanted the tool to help him begin to understand the complex processes surrounding the administration of the department. Although he did not think he was involved in any of the processes he believed that by seeing other diagrams from the clinicians and administration staff he could learn about what they did and possibly as a newcomer to the department be able to give some relatively independent views on the processes and suggest new ways of working.

10.5.1.4 The Junior Doctors

I decided that the transient junior doctors were unlikely to be able to assist in the project as they had just taken up their 3-6 month placement in the department. However, the permanent registrars were consulted and after a preliminary meeting it was decided that one of them would be trained in using the tool and then the others would help in the modelling process through group meetings. The registrars were the clinicians whose job it was to supervise closely all the new doctors in the department and to look after the day to day running of clinics and theatres. They very often took clinics on behalf of the consultant and operated on patients when required. They had a very heavy workload. Training the registrar in the use of IDEF0 was quite straight forward as he was IT literate. He was

unable to spend a great deal of time on the tutorial in that session because of the pressure of work but we did discuss how he and his colleagues might use the tool in relation to the duties in clinics, on the ward and in theatre. It was agreed to meet a week later to begin the discussions on the modelling.

10.5.1.5 The Nurses on Ward G

Although the Clinical Director had said the nurses 'would do what they were told' that proved not to be the case. In the first instance trying to get an appointment to see the Ward sister proved difficult as she was unable to meet for a number of weeks 'due to pressure of work'. When an appointment was made and I arrived for the interview a lady on the ward had just died and the appointment had to be rearranged. At the next available time I met with the ward sister who had not been briefed about the project and was quite taken aback. I explained that the integrated system that the Trust was hoping to acquire for Gynaecology was intended to assist in the care of patients both in clinics and on the ward and possibly the nurses could benefit from such a system if they wanted to. She agreed to speak to her staff and arranged for me to return later in the week at a 'quiet time'.

My next meeting on Ward G was in the patient day room with about eight assembled nurses and auxiliaries. I was introduced by the ward sister and I began explaining what the project was about and my role in it. I demonstrated IDEF0 and passed around models from Hospital Y so they could relate to some clinical processes. When it was suggested that we could begin by diagramming what they currently do I was met by a wave of negativity which until this point in the research I had never encountered. Comments were made such as '*We are too busy to do this*', '*What good is it to us?*', '*I don't like IT and cannot use a computer*'. The ward sister was the only one who could actually see anything positive in the project. The nurses certainly were not interested in an integrated system and left the room after about an hour with no progress being made. The ward sister tried to explain the current situation in the Trust and how a number of nursing staff had lost their

jobs. They were suspicious of any perceived management initiatives especially where it might involve more work. She suggested that she would start the work with the nurses on the white board in the nurses office and then she would try to represent their thoughts in IDEF0. This did not happen. After contacting the ward sister over a two week period only to be told that she 'hadn't had time yet' to do the facilitating or the modelling I began to re-evaluate my action research plan to accommodate this unwillingness of the nursing staff to participate. What I decided was to have an informed attempt at modelling what might happen on their ward based on my experience in Hospital Y and then present my models to the ward staff to stimulate discussion.

I arrived on the Ward without an appointment at a time when I knew things would be quiet and found most of the nurses having a tea-break. I explained what I had done and asked them for their opinion. I knew my diagrams would be incorrect and with their assistance we discussed how I could make them more accurate. This meeting with the nurses could not have contrasted more with the previous meeting. They were very interested in what I had produced and were impressed with the clarity of the diagrams. They did suggest amendments and I agreed to go away and re-draw them in the light of their input. They were also able to point out that they did not know what happened in theatre as they handed the patient over to theatre nursing and then received them back after the operation. This needed to be clarified. I continued these discussions with the nurses over a period of two weeks.

10.5.2 Discussion of the 'as is' models

10.5.2.1 Administration and Business Manager

In this particular project trying to get a meeting between all concerned in the project was extremely difficult and consequently I decided to try and bring staff together wherever possible. The first meeting was between the Business Manager and the administrative staff to discuss their models and how they might operate. It was a difficult meeting as the Manager had his agenda from examination of the models he had been given from the administrative perspective. Eileen on the other hand was finding the whole project disturbing from her perspective and was determined not to co-operate. She kept on insisting that the office worked well and the Clinical Director was pleased with what they did. However the Business Manager explained how by neglecting ECRs they were putting the Trust in financial difficulties and how a new system with a link into PAS could flag ECRs automatically and then the department would not have to worry about filling in forms and rushing them off to Finance. Also a link into PAS could automatically give the Outpatients department the Gynaecology clinic lists they were continually complaining were late.

The discussion continued as the Business Manager put forward further benefits and suggestions. Angela and Gail were fairly quiet tending to take a lead from Eileen. They had produced their models and had been vocal when Eileen had been on holiday but now had returned to their previous mode. The issue of training arose with the Business Manager insisting that they needed to bring their IT skills up to date. Gail and Angela were very positive though Eileen did not commit herself.

After this meeting the Business Manager arranged to see the Clinical Director to try and agree a united front with the administrative staff. He believed that the Clinical Director was providing a power base for Eileen which he felt could undermine the whole project. Eileen also did private work for the consultant and had access to him outside of work during which she was able to raise issues she would otherwise not be able to. This

symbiotic relationship from the manager's perspective needed to be addressed. The consultant agreed in principle with what was proposed but the Manager was unsure whether anything would be done.

10.5.2.2 Discussion of 'as is' models with the doctors

I asked the doctors to talk through their models highlighting some of their problems. The doctors through the Registrar had been very constructive in their modelling and were prepared to discuss how they operated and the difficulties they experienced. A number of them had worked in other hospitals where IT was given more prominence and were keen to see it develop further here. Although there were problems there were aspects of the current system they liked such as being able to make a future appointment by telephoning the department and the secretaries recorded this in an appointments diary. They were asked to think about how things could be improved. From their perspective anything which removed the need to rely so heavily on the secretaries would be an improvement. This would include the ability to capture data in clinics and not have to carry notes and dictaphones to and from clinics. They could not comment on the administrative aspects of the system as they only saw parts of it and did not really understand the business/contracting parts. They did however think the administrative office should be changed and staff moved to other places where they could get on with their work - the doctors thought the secretaries did not work hard enough.

10.5.2.3 Consultants and Business Manager

One of the most disappointing aspects to this part of the research was the unwillingness of the consultants to actually model the processes within which they operated. The reason for this was not forthcoming but it could have been linked to a disciplinary procedure which was about to descend on the department. What did emerge was a discussion of the models and issues which arose out of the modelling done by other groups. The Clinical Director could not accept that the juniors were dissatisfied with the departmental administration. This was not something they had ever discussed at clinical departmental meetings.

However Mr G who had been a junior a few years previously did see some valid points being made and was prepared to explore them. The Clinical Director did eventually calm down and things moved on. The concept of integration was introduced into the discussion by the Business Manager who was keen to have the department accessing PAS. In fact there was a general agreement that the department would examine an interface between PAS and the possible new system which would not involve the Gynaecology department sharing its clinical data with anyone else in the hospital. What the Manager wanted was the administrative staff to interface with PAS, not the clinicians, and to enter clinic appointments and ECRs etc. directly into PAS.

The consultants on the whole were not interested in the current system except for the clinical aspects and were keen to move on to building the new one. Financially they were in a position to independently have someone develop a clinical system and did not feel obliged to take part in the exercise. The Business Manager, however, wanted integration of both administration and clinical processes. There was an appeal to the Director's ego by the Manager. No-one else in the hospital has tried this approach and it would be a first for the department and the hospital. After a period of discussion it was agreed that we would progress to the next stage.

10.6 A Crisis in Gynaecology

A week after our discussions the Clinical Director was suspended from clinical duties while he was investigated for clinical irregularities. The accusation was brought by the third consultant in the department who had been ostracised. I was asked to write a report on the work that had been done so far and to submit it to the Business Manager. This was duly done.

Over the next three months there was no contact with the hospital as all activity was suspended until the outcome of the investigation. This occurred in December, 1997 and the Clinical Director was exonerated completely. At this point the department wanted to proceed with the project and a meeting was held to discuss a way forward.

10.7 Continuing the research

I returned to the department early in 1998 with a view to continuing my action research plan. However, this coincided with a period of transition for the department as the registrar who represented the doctors left and new staff were appointed. Eleanor who administered the clinical database had also left. The department had become involved with a national cancer database operated from Clatterbridge Hospital, Wirral and they wanted the new system to interface with that one too. There was much pressure to move the research on and I believed that getting staff to work with IDEF0 to produce the 'ought-to-be' models of the proposed system would not be fruitful from the department's perspective. Thus I looked for another way forward which would be congruent with my emancipatory intent.

There was no departmental system on the market which would fulfil the requirements of the department. As there were no systems to evaluate and explore the aspects of integration I believed that developing a prototype, with a view to understanding and communicating needs and issues, might be a way forward. The department then could engage a professional software developer to build the final system. In January, 1998, this was suggested to the Gynaecology management team and after some discussion it was agreed that two post-graduate students would be placed in the department as part of their course of study and to develop a prototype system which would interface with PAS. These students had database skills and were keen to develop them further. With the students I set about using the prototype to facilitate their understanding of what the new system might look like and what they would like it to do. From the report I produced it was decided that at that time it was not appropriate to consider the nursing staff within the integrated project as they had not been supportive and would require a great deal of training in basic IT skills. This might be problematic as the staff considered themselves to be overworked as it was.

10.7.1 The prototype

The two students produced a working system after six weeks and all of the relevant departmental staff were invited to a demonstration. The students had been having regular meetings with me and the various groups of staff and responding to comments as the project developed. At the demonstration the staff as a whole were able to see it as an integrated system and how it might operate. The students had tried to share their efforts between the clinical side and administrative aspects of the system and had had to endure a great deal of political pressure from the consultants and the Business Manager.

The administrative staff were still apprehensive but very positive about the system. They had seen some of their relationships change since the project came into the department and Eileen was less influential than prior to the appointment of the Business Manager.

The department was left with the prototype at the end of the placement knowing that the system was feasible and could operate according to their strict clinical procedures. The administrative aspect of the system could perform the necessary processes and record the required data from the secretaries perspective and the Business Manager's. The PAS link was difficult. With consultation from the PAS supplier the students developed an interface which allowed the secretaries to 'think' they were entering data into the departmental system but in fact it was into PAS. The demographic data was then downloaded into the Gynaecology system with no upload in reverse.

10.8 Learning which emerged from the Gynaecology project

I began the modelling exercise naively believing that it would run as smoothly as in the Payroll/Personnel project. However, the political difficulties were much greater than in that project. Unless an individual has actually worked within a hospital and experienced the environment around a senior consultant it is difficult to comprehend the authority, influence and control exerted by certain clinical staff. In the case of Gynaecology, the Clinical Director assumed the status of a feudal lord with the power of life and death over

his patients and the power of hire and fire over the staff. Thus the concept of emancipation was one that never entered his thoughts or vocabulary and the idea that anyone else would have some input into a departmental system was alien to him. This research project did not address his power base as such but through the report produced I was able to give voice to staff who had a valid need to be heard. What difference this made will be reflected upon in Chapter Eleven.

The junior doctors accepted that while in the department they must defer to everything that the Clinical Director said and did. They recognised his ability in this very specialist area. They relied on him for references and promotion and dared not speak out. To be invited to take part in an exercise which would allow them an input into a new system for the department was difficult for them. They were extremely hard worked and modelling meant extra work; they were unsure how their comments might be taken by the Clinical Director and wanted no reference to individuals in the report. However, their input was invaluable and gave insights which would have been missed if the consultants had been allowed to dominate proceedings.

I was naïve in assuming a greater level of education than the secretaries actual had. They lacked relevant IT skills and had difficulty overcoming their inability to use a mouse - on which the modelling tool relied. Once this was addressed they were able to operate in the same mode as the Personnel staff but not as well as the Payroll staff. The difference in this instance was that Eileen did not really approve of the exercise and was reluctant to take part. She perceived her control was being eroded whereas the other secretaries enjoyed it and provided a great deal of input. They were able to understand what was happening and discuss other possibilities. This project has illustrated in detail how an individual such as Eileen could cause great difficulties in an implementation as her authority permeated every task within the administration of the department.

10.9 A Post Script

Gynaecology now have an integrated system which has the consultant research database integrated with the administrative system for the department. This is interfaced with the Hospital PAS to provide a one way transfer of data from the PAS to the departmental system. This has been working for about 15 months and the next stage of developing a module for the clinic data recording is underway. This will allow doctors in the clinics to record a consultation with a patient immediately and automatic generation of letters for GPs. Patients now have information generated from the system which details their cancer and how it will be treated and what the hospital stay will entail. Integrating with the Ward and Theatre is still a long way off and may require many more resources before it can be considered within this hospital.

10.10 Summary

This chapter has described the research carried out within the department of Gynaecology where what appeared to be a relatively straightforward project was in reality extremely complex. It reflected the highly charged political nature of the project detailing the conflict and difficulties which all actors experienced in trying to do their work. It has also shown that the action research plan adopted in the Payroll/Personnel implementation was not wholly successful within this context and this will be reflected upon in the next chapter. However, there were models produced during this period of research and a sample can be found in Appendix J. The research carried out here was also the most stressful and had a profound affect on me.

Chapter - 11

11. The Reflexive Practitioner

11.1 Introduction

The essential aim of this chapter is to draw together the variety of primary and secondary source material referred to thus far and synthesise the key issues which have emerged from the research. The emphasis is on evaluation of, and reflection on, the different strands of the research and how they collectively contribute to an understanding of emancipatory practice for the systems analyst within the context of an integrated systems implementation. Throughout this chapter efforts are made to acknowledge influences, highlight overlap with other studies and account for differences in the approach adopted. This process of critical evaluation seeks to highlight the position of this thesis in relation to other work and the contribution that it makes to the wider body of IS knowledge. It is not yet another IS development methodology and therefore does not expound the virtues of practising in a particular way. The chapter is intended to be reflexive in that it includes philosophical reflection and the problematisation of my, the researcher's assumptions, interpretations and interactions with the empirical material (Alvesson and Skoldberg, 2000). It is important that the research is scrutinised carefully for evidence of emancipation because rather than looking for a change in thinking only, a critical approach also looks for changes in actions. These actions could be mine or those of the participants in the research.

The chapter begins by considering how this thesis is positioned with respect to the wider body of IS research. It then proceeds to bring a degree of reflexivity to the work carried out and considers how the researcher can be reflexive about the research project and what issues are important. It then critically examines the framework for emancipatory practice developed in Chapter Four (Figure 4.4) and how it was utilised within the context of the primary research.

11.2 The contribution to IS Research

At this point in the research process it would be very easy for me to revert to my historical context of functionalism and try to draw out from the primary data a new theory of IS practice within implementation. However, this would then be denying my subjective stance taken at the beginning of the thesis and would be at odds with the critical nature of the work.

Nevertheless, the research conducted here has provided empirical data regarding the process of actually adopting an emancipatory approach within integrated IS implementations by a systems analyst steeped in the functionalist tradition of IS theory and practice. However, emancipation cannot be identical for everyone and depends on an individual's historicity and social situatedness. Emancipation for me has been my recognition of a need to confront my rational scientific positivist background and to explore new meaning in the content of IS functionalist literature.

I have sign-posted the way I have developed my critical approach throughout the thesis and have explicitly shown how I arrived at my critical research methodology used to conduct the primary research. The actual use of this methodology within the context of the NHS hospitals has shown that a further alternative approach to researching in the IS discipline is possible and can be informed by Critical Social Theory.

I have synthesised a heuristic framework of critical practice which I have used to inform my research as a systems analyst. This framework has allowed me to explore my own paradigmatic transition and also how my critical practice has helped in emancipating others.

I also believe that, in the spirit of PAR, I am not the only beneficiary of the research and a number of people within the NHS hospitals have benefited from it and will take the skills and understanding developed throughout the projects with them into other implementations.

Having made claims about the outcomes of my research it is now important to develop a degree of reflexivity about those claims. Thus, the next sections will scrutinise the data collection methods and consider their limitations and then move on to consider the critical framework for practice (Figure 4-4) which was used to inform the primary research.

11.3 Guidelines for Reflexivity

At this point it must be said that writing this chapter has been highly complex because there is a need to explore interpretations and actions taken within the empirical data for alternative explanations. The critical field of research within the management disciplines is relatively young and, therefore, there is a need to incorporate the most recent thinking. Consequently, I have looked for guidance to two recent texts (Alvesson and Deetz, 2000; Alvesson and Skoldberg, 2000) where the authors have synthesised much of their earlier research. They have suggested that before considering the critical interpretation of the data it is necessary to scrutinise the data collection methods in a reflexive manner. They argue that this will remove some of its unwarranted authority and they invite the readers of the research to take part in the process. They point to four main areas which call for specific consideration:

Intensifying interpretations: The act of systems analysis has been compared to that of a research act (Hughes and Wood-Harper, 1999) and in fact they rely on similar data gathering techniques. Interviews call for consistent interpretation before and during the interaction with the interviewee. The quality of the exchange may depend on the social interaction of both people which can often be unreflective and non-conscious (Alvesson and Skoldberg, 2000). Thus the researcher must consider each interpretation in a critical manner and look for other meaning .

Language Sensitivity: Alvesson and Deetz (2000: 117) argue that ‘ *Language cannot easily transport meaning across the local settings in which statements are made* ’.

They believe that language is used to produce effects and create certain impressions and is not necessarily truth orientated. Thus statements from individuals say something about their social reality and their shared reality. Actors’ accounts may be seen as

expressions of their identities and this may determine what the interviewer focuses upon and excludes. They may describe their work, relationships to others and how they differ from others and they will all differ to the extent to which they bring these to the interview.

Historical context: Researchers must be aware that things change over time and established theories must be evaluated in terms of their relevance to the understanding of contemporary phenomena (Alvesson and Deetz, 2000).

Politics: In the context of critical research, politics refer *'to the dominance of certain values and interests irrespective of whether they are accompanied by consensus or conflict'* (Alvesson and Deetz, 2000:131). This does not just mean overt struggles but something which pervades the research project and of which it cannot stand outside. It influences whose views get listened to and what is worth researching. It calls for awareness on a number of points. First, there is a need to pay attention to diverse interests where there is a plurality of viewpoints. Only by incorporating a large number of views political conflicts become more noticeable. Second, there is a need to recognise that the content of any research may be sensitive and contributors may require what they disclose to be confidential or even anonymous. Third, there is the concept of Ground Power. Alvesson and Deetz (2000) view ground power as a mechanism leading to phenomenon being seen as normal, unavoidable and natural and where there are no alternatives. Ground power is difficult to locate and isolate and therefore critical research should challenge those involved in, and the readers of the research to see things as strange. To do this it is necessary to bring forward and activate 'silent voices'.

11.3.1 Reflexivity on the data collection process

The empirical material presented within this thesis cannot be unaffected by my social construction. However, I feel that I have been clear about the complex nature and uncertainty of the project and how my 'results' are dependent upon my *'more or less situatedness within a particular political, paradigmatic and linguistic orientation'*

(Alvesson and Deetz, 2000:135) - my interpretations cannot be the only ones and may reflect the limitations of my own emancipation.

Observations: I have relied heavily on observations and interviews in the course of this research and therefore must challenge my interpretations. Observations, even when leading to detailed descriptions, have been immediately interpreted by myself to get an idea of what is going on. Hospital X is a clear example where I observed interactions between the IT manager and other staff. These are not plain facts. I have been present at project team meetings in Hospital Z where they were implementing an integrated payroll/personnel system and recorded what took place. What would someone else have recorded?

Interviews: When carrying out interviews I tried not to introduce bias and lead the interviewee but this, in some cases, led to lengthy encounters which were often ambiguous and precarious. Occasionally, I did not share the same vocabulary as the interviewee which obstructed the interview. A good example of this was when interviewing the Clinical Director of General Surgery in Hospital Y (8.3.1:145). He got annoyed at my inability to understand his method of prioritising patients for surgery and began drumming his fingers on the desk. I did manage to retrieve the situation but at what expense? On reflection there were other interviews which were problematic. The Head of Liver Transplant in Hospital Y was very friendly and went to great lengths to inform me what was wrong with the hospital and some of the people there. The Clinical Director of Gynaecology in Hospital Z, also, was keen to describe the inadequacies of others. Did I unconsciously bring some value judgements to the interpretation? I have a pre-conceived cultural and social background. I was brought up to respect doctors and not to challenge their wisdom in relation to illness. How much did this affect my judgement of what they told me in the research and what I thought of them as individuals? Should I have concentrated on what they actually said and did and allow the reader to determine the interpretation? What I have done is describe my version of specific individuals and tried where possible to let other 'voices' express their thoughts.

Sympathetic bias: Did I develop sympathy with certain individuals or groups at the

expense of others and how has this affected the research and indeed the work I was doing with the individual hospitals? In 10.3 I described the Clinical Director of Gynaecology as highly intelligent and arrogant, a man with a lot of power. I felt sympathy with ward staff and junior doctors because of what I was told and what I observed. Can I trust their versions of the truth and as an uncritical systems analyst how would this have affected my judgement in relation to the required system? I am not suggesting that the interviewees were dishonest or tried to manipulate me but if I have taken their accounts seriously then they must have conveyed an impression. Some actors in the research were very keen to describe their job and how hard they worked compared to others. Administrative staff in Hospital Y complained about how they had to check the quality of other peoples' work for the good of the hospital (8.3.3). Finance staff in Hospital Z gave the payroll added status in comparison to personnel work. However, it must be recognised that people have multiple identities depending upon the context and it is a challenge for the researcher to establish the extent to which they bring these to the interview.

Historical context: From a historical perspective, in hospitals, Resource Management had seen the introduction of 'doctors as managers' (Bloomfield et al., 1997) and NHS documentation implied doctors working in partnership with business managers. This was clearly not the case in the hospitals within the research. Consultant doctors were powerful and managers deferred to their judgement. It may change over time and it may be different in other hospitals but generalisations cannot be made. I have referred to a history of failed information systems in Hospital Y and Z and also within the NHS as a whole. How much does historical context determine what might follow? We cannot know for certain but it has provided an interesting point of reference and comparison. It has also illustrated how the NHS has not appeared to learn from its mistakes.

Politics: The systems analyst/ researcher can be embroiled in the politics of a situation and become confused by it. Conflict diagrams (Wood-Harper et al., 1996) (4.4.3) (Figure 8-1 and 10-1) can help to clarify this. It is necessary to acknowledge that actors live in a world of scarce resources and there can be a lot of competition for

domination of a particular world-view. Something which has emerged from the empirical material is the politics of the professionals involved. Within the NHS doctors can still wield power through their historical background, their professional bodies and through the respect of the general public. The NHS is now being infiltrated with new professions in management and IT. These are beginning to establish a power base within the larger organisation and are challenging the clinicians in certain spheres. This competition at the local level of the hospital is different in each situation but can be the cause of many difficulties seen therein.

Political sensitivity: The systems analyst/researcher must also be sensitive to the needs of those participating in the research. I encountered this on a number of occasions. In Hospital Y the administrative staff in Outpatients and Medical Records asked me to turn off the tape-recorder at one point. A theatre nurse in Hospital Z was 'frightened' about her interview being reported to the Clinical Director of Gynaecology. In these situations the researcher must respect the wishes of the interviewees in order to maintain trust. However, I did have some interviewees who were quite happy to make it known that they were highly critical of certain situations or people. The Head of Liver Transplant in Hospital Y was one and the Clinical Director of Gynaecology in Hospital Z was another. I must question whether they saw me as a tool for seeking change or even revenge. Some interviewees were selective in whom they minded having access to their transcript. The Business Manager in Gynaecology, Hospital Z, was such a person. He wanted the secretaries to know he was not happy with their performance but he did not want to upset the Clinical Director. In all of these situations the researcher must try to reflect upon the ethical issues as they present and then make a decision on how the empirical data will be used within the research. It must also be recognised that personal conflict defies logic and often people will never get along together. Critical Theory tends only to recognise the structural conflict inherent in social situations.

Thus the critical researcher/systems analyst must be reflexive when considering the empirical material they collect and lay it open to other interpretations including political interpretation. 11.3.1 provides examples of doing this.

Thus having opened the data collection methods to a degree of reflexivity a similar dialectical approach will be adopted when considering the use of the emancipatory framework developed in Figure 4-5. Once again the reader is invited to challenge the research and look for alternative explanations. I may have had critical intent when carrying out the research but may have unwittingly been an instrument of a covert political agenda.

11.3.2 Reflexivity and the Framework for emancipatory practice

Critical research needs to comprehend the empowerment of the individual. How does the knowledge and critical reflections the participants gained through the research process assist them in freeing themselves from repressive social and ideological conditions ? (Johnson, 1999). Here, I was the researched subject who wanted to become emancipated in order to develop socially responsible systems analysis theory and practice. I was also the researcher who wanted to investigate how this theory and practice might affect others within an integrated systems implementation and change their behaviour and actions. Thus, the framework for emancipatory practice (Figure 4.4) reflects these dimensions in a fairly simplistic manner and engages them through action research. As has already been stated in 4.5 the framework was never intended to be a mechanistic model developed within a functionalist paradigm but a heuristic which allowed the researcher to explore and learn within an action environment. The framework has also developed as further theory has emerged during the course of the project and this reflects the developmental and exploratory nature of the work.

In order to reflect upon the framework and the contribution each piece of theory made to the whole I will begin the analysis by considering how I viewed my emancipation within the context of the social situation of the organisations involved in the research. The reflections then move on to a critique of practice which leads to discursive closure and systematically distorted communications.

11.3.2.1 Reflexivity and a Social Theory of the Organisations

Traditional functionalist texts on systems analysis (Ashworth and Goodland, 1990) have not explicitly encouraged the systems analyst to develop an understanding of the social situation of the users within the organisation. However, it must be stated that interpretivist texts do view this as important (Checkland, 1981; Walsham, 1993a). The systems analyst operating in the functionalist paradigm has had a job to do and this usually began with investigation of the current information system exclusive of its political and social dimension. Yet, by not addressing the political nature of implementation the systems analyst has ignored the medium through which the new system will be negotiated.

Becoming a critical researcher is developmental and takes time for reflection as well as practice. Johnson (1999) argues that there is no one social theory; each is dependent upon the particular organisation. It should show the historical development of social conditions within an organisation, the organisational culture, structures and actions which may shape participants views and constrain their actions. This can only be done by presenting empirical findings and theories which show '*the historicity and constructedness of social conditions*' (Johnson, 1999:7). From the perspective of an integrated information systems implementation it must also consider the history of IT within the organisation at the micro and macro level for further insight.

In a similar manner to Laughlin (1987) (4.2) the approach chosen for this research was to study in depth the history of Information Management and Technology (IM&T) within the NHS as a whole to develop an understanding of how government policies were affecting the local hospitals. Chapter Six gives a fairly concise overview of IM & T development over a period of twenty years. It reflects a poor record of successful integrated information systems implementation. It also reflects the politics of the time where successive governments strove to make the NHS more 'effective' and 'efficient' and cut costs. The incongruous relationship between patient care and business values appeared to be central to the difficulties. Many of the earlier information systems had little to do with patient care and took clinicians away from their main tasks. This historical pre-understanding of the macro organisational environment is very important

to the critical systems analyst before examining the local situation as it gives many insights into how and why actions are taken in a particular manner. An example of this is the use of POISE (Procurement of Information Systems Effectively) throughout the NHS when purchasing new IS. This project management method arose from the disastrous HISS projects where vast amounts of money were wasted. It is completely inappropriate for many procurements but must be adhered to or funding will not be released by central government. However, the historical political understanding at the macro level of the organisation should be followed by an analysis of the local situation.

At a local level Hospital X found itself in a very difficult position. It had been established for over three hundred years and had a tremendous reputation for medical innovation. Yet, it had relatively little IT compared to other Trusts and had no experience of dedicated IT staff. At the time of the research it had only just moved to Trust status and was having difficulty with trying to operate as a business and maintain its priority of patient care. Senior clinicians were refusing to co-operate with the new management. Thus the HISS implementation began against this background. The business case reflected the difficulties in reconciling the ideology of the macro NHS at that time and local clinical needs. Its objectives suggested better patient care but the proposed benefits were mainly related to cost savings in staff. This technical rationality which serves the interest of the management at the expense of staff and patients was hidden from most staff. The business case was not for public consumption but neither was it seen as controversial by the IT manager. The social, historical analysis of Hospital X indicated how clinical staff worked together and what their priorities were.

Emancipatory practice must involve social and political analysis in order that the systems analyst comes to understand individuals and their context. Along with a critique of practice it should be able to expose issues of patriarchy, power and racism. However, it must be pointed out that I did not encounter racism during my primary research in any of the organisations.

In Hospital Y the social situation was radically different from Hospital X. It had a Chief Executive who operated a somewhat patriarchal approach to management. The

all male senior management team at that time were ambitious for the hospital and took opportunities when extra funding was available e.g. they were a pilot site for RMI. The systems bought with this money had mainly fallen into disuse or were not producing useful information for clinicians e.g. CFIS (8.3.4). They encouraged entrepreneurial skills to bolster funding and this could be at the expense of their core activities e.g. in Pathology (8.3.2). They had a reputation with the clinicians for poor management skills even though they were able to keep costs down. This was typified by the Information Services manager whose department could not produce useful information for contracting and obviously did not understand how security of data could be maintained on his CFIS system (8.3.2).

“Currently CFIS is a relational database containing 20 tables written in Oracle. Information Services at present do not allow clinicians access to CFIS data as they would be too unsafe. If they get access to SQL they could easily interfere with data. So for security reasons it couldn’t happen” (Head of IS department, 1996)

This technical rationality was flawed but he used it to maintain his authority and to exclude the doctors from accessing data which could have been used for improvement in patient care through clinical audit.

This was not a particularly happy organisation and this was most noticeable on the clinical side. Limited resources meant that staff were in regular competition for them and clinical staff in particular gave priority to the things they believed were important and neglected others e.g. Ward returns (8.3.1). Also staff can learn very quickly how to get the resources they need through political means e.g. doctors and pathology tests/results (8.3.1:155).

Thus from an emancipatory perspective the systems analyst is faced with a social situation which mitigates against yet another innovative information system. The situation must be exposed and discourse encouraged. The systems analyst in this context must not look for false consensus as an easy option for the management and themselves but to look to dissensus as a way of exploring other possibilities and exploring other world views.

In Hospital Z's Payroll/Personnel implementation the social situation was relatively straightforward in comparison to the previous hospitals. The project only involved administrative and management staff who on the whole reflected a single management culture with the sub-cultures of the respective departments embedded within that. None of the staff had been involved in an IS implementation and thus had no preconceived ideas about what might happen. This did not prevent certain staff trying to dominate the process. Finance staff who were used to meeting deadlines had their requirements ready before others had begun to realise what they had to do. Finance staff were always on time to project meetings whereas Personnel staff were generally late reflecting their respective attitudes to the way work should be conducted. This annoyed the Finance staff and the project manager but it could have easily been a statement about the project itself.

It is important that emancipatory practice recognises these cultural differences and does not necessarily see certain actions as negative. In fact, the Personnel staff were very positive about the proposed system. The goal should be how can the new system benefit all concerned and make their working life better. Thus, I concur with Walsham, 1993b and Klein and Hirschheim, 1993 (4.4.1)

The social situation in Gynaecology was dominated by fear. Without exception everyone who came into contact with the Clinical Director feared him. He used this fear (though he might have called it respect) to control all of his clinical and

administrative staff. Fear pervaded the everyday work done with patients as they came to terms with their cancer and the prospect of radical surgery. The hierarchical structure of this clinical department, the autonomy of the Clinical Director and its isolation from the rest of the hospital gave the impression of a dictatorship. This situation was reproduced at an administrative level through the dominance of the Clinical Director's secretary. The suppressed conflict was only manifest when staff were interviewed for the research. In this type of social situation the systems analyst could very easily conform to the dominant requirements of the Clinical Director.

However, as an emancipatory practitioner the systems analyst must try, albeit with difficulty and personal stress, to expose suppressed conflict to open scrutiny and listen to the voices of the oppressed.

The experience within Gynaecology would appear to concur with Payne (1992) (4.3.1) when he discusses the personal cost to the emancipatory change agent. The critical systems analyst must be prepared to encounter this type of stress as power holders attempt to manipulate the implementation and develop strategies to address it. It calls for a degree of creativity. This is an individual attribute and my level of creativity will be reflected upon later in this chapter.

Trying to extricate the theory of the social situation from critique of practice is difficult as the social situation has often come about through the particular practice of certain individuals. However, from a critical systems analyst perspective working practices often impact upon a new IS and can be the focus of much dissensus.

11.3.2.2 Reflexivity and Critique of Practice

Chapter Two illustrated the dependency of IS theory and practice on the functionalist paradigm and before even going into the field I had to begin the process of critically evaluating this theory and practice in respect to the historical and societal contexts in which they reside. In 3.4.2, Alvesson and Deetz (2000) stated that in modern society there are now invisible constraints that are coming to dominate but are disguised as

neutral and self-evident. They described them as discursive closures and systematically distorted communication. The outcome of these processes is a flawed consensus hiding suppressed conflict. By considering the practice of all involved in an implementation the systems analysts with emancipatory intent should be able to reveal where the suppressed conflict lies and what discursive closures and distorted communications are causing the difficulties. However, Walsham (1993b) suggests that the systems analyst engaged in this type of work should strive to establish where these problems are and redress them. From my experience in the field this would then place the systems analyst in the position of an 'expert' in deciding right from wrong thus imposing a personal judgement on a situation. This cannot be the way forward with respect to emancipatory practice as it should be the individuals within the implementation to become enlightened and then to decide the course of action.

In all of the three hospitals critique of practice focused on suppressed conflict that could arise from several processes. Table 11.1 provides an insight into the discursive closure and systematic distortion of communications, as discussed in 3.3.2, in all of the three hospitals. It is not intended to be a summary of these practices but a selection of examples which can be read and applied to other situations.

Discursive closure through:	Hospital X	Hospital Y	Hospital Z-Payroll/Personnel	Hospital Z- Gynaecology
Ground power	Apparent need for HISS system.	Apparent need for integrated document management system	Apparent need for an integrated Payroll/Personnel system. Although told they did not need to integrate there was no discussion of alternatives.	Apparent need for integrated system to cover all aspects of Gynaecology work.
Limited participation	Only certain staff invited to 'Roadshow' No discussions of alternative solutions to HISS. IT manager only communicated with 'important' people with regards HISS	Restricted membership of IM&T strategy group - mainly staff with technical vocabulary Experienced staff with skills excluded from decisions- e.g. Clinical Director of Pathology	Restricted membership of project team. No member of IT department.	Nurses not included in departmental meetings.
Lack of right skills	Users not trained in appraisal of vendors' products at 'Roadshow'	Management of departmental waiting lists e.g. General Surgery where expert decides who will be placed on it.	Roadshow staff not trained. Original visitors to reference sites had no training in evaluation.	All systems based around surgeons' needs - emotional blackmail 'Patients' lives will be put at risk'
Deny right of expression	Manage the expression of ideas through 'Roadshow questionnaire'	Staff ignorant of working practices elsewhere which impact on their own.		Junior doctors had no forum for complaints about clinical or administrative practice. Lack of patient voice
Assertion for the need for certain expertise	IT manager wrote Business Case and Specification of HISS. IT staff must conform to IT managers standards Staff with technical vocabulary seen as superior	Restrictions on which staff can interact with outside purchasers of healthcare Doctors unable to have access to clinical data e.g. CFIS	Finance requirements appeared paramount. No flexibility in changing working practices	Consultants impose all working practice both in administration an clinical areas.

Figure 11.1 Critique of Practice in the Hospitals under study

Reflexivity of the practitioner: Hospital X provided what appeared to be an ideal opportunity to be part of an IT department which was to become part of a major implementation of an integrated information system. I believed that I would be able to reflect on my own role and how I could change my actions. “*Emancipation necessarily involves an active process (or struggle) for individual and collective self-determination*” (Alvesson and Willmott, 1992b:432). However, what I became part of was a concerted effort on the part of the IT manager to dominate and control every aspect of the working life of those within the IT department. He had brought with him from his previous employment a set of practices which were incongruous with the culture of the hospital and with the sensibilities of most staff employed in the IT department. 7.4.4 clearly relates the difficulty IT staff and non-IT staff had with this practice. My discussions with the IT manager and examination of the documentation relating to the HISS Roadshow indicated that he also intended to control the whole of the HISS project and only allow selective input from other hospital staff.

IS practice within the IT department consisted of a ritualistic adherence to project management tools and techniques to the exclusion of many other important issues such as relations with users and their departments. Wastell (1996) (2.3.1.3) has been highly critical of this type of mentality as the method becomes more important than the outcomes. It meant that most IT staff were engaged on developing project schedules during the working day and found time to do the actual work focused into fewer hours. This frequently resulted in staff in conflict with the IT manager and then the ‘offending’ staff working overtime to recover their project.

From my perspective I tried to reflect upon why the IT manager operated in the manner he did and whether he realised the damage he was doing to staff morale and the quality of work in general. It provided me with empirical evidence for the ‘commodification of expertise’ (Elkjaer et al., 1991) (2.3.1.3). Historically, he came from a consultancy company where he managed projects but never developed systems per se. Thus, Hospital X appointed someone who had never managed an IT department before or had experience

of a project such as the HISS project. No doubt excuses could be made for his behaviour but this is not the intention of this critique. During the time I was carrying out the research I saw little modification of this behaviour and this would indicate that it was seen as acceptable to his immediate superiors.

Thus one level of critique for the systems analyst who is developing emancipatory practice is at the level of individual practice in terms of their understanding of how they practice. A second level of critique is at the level of the department within in which they develop and learn their skills. Micro-emancipation can involve a critique of this practice and an understanding of how it has come about (3.5.1). However, incremental improvement can be made by trying to address these practices for the greater good of all (Alvesson and Willmott, 1992b).

Reflexivity on practice in other areas: In hospital Y the critique took a different form. It was the IM & T strategy group who had initiated the pilot integrated project and suggested that five departments 'would benefit' from this new system. On the surface this seemed a benign objective in-keeping with a caring organisation. However, it soon became manifest that there was suppressed conflict and there were problems with the individual departments from a management perspective. While developing a social theory of the situation within the five departments I was able to critique the practice of each department from a critical information systems perspective. Much of this critique has been summarised in Figure 8-1 and discussed in 8.3. Information is often described as the life blood of an organisation and in the case of a hospital the metaphor is most appropriate. In clinical departments there were individuals whose use or misuse of information could be life threatening. There were junior doctors under pressure from consultants to deliver test results on patients. This led to abuse of the pathology testing and results reporting system by these junior doctors. The Pathology department was struggling to keep up to date with its work but was running other businesses to make money for the hospital. General Surgery had developed its own method of coding episodes of patient care that was at odds

with the rest of the hospital and was causing delays in the reporting systems. Thus, this led to a loss of income from GP fundholders, which in turn meant certain operations could not be carried out. There were many other incidents that needed exposing to critique. How does this critique by the systems analyst emancipate individuals and who benefits from it? If individuals or departments are practising in an uncritical manner, exposing it offers the opportunity to those who are disadvantaged by it to try and achieve some improvement.

When joining the Payroll/Personnel project in Hospital Z I was thrown immediately into the charged atmosphere of the joint, trust project team meeting (9.4). Here, staff 'appeared' to have agreed what was needed but were in paralysis as to how to move on. The suppressed conflict was being managed by the senior directors of the hospital by their reference to 'No loss of jobs' and 'You don't need to purchase an integrated system if you cannot agree on one'. Yet, a number of staff on the project team actually did not believe this. Critique of practice was initially very limited and emerged as the process modelling was undertaken. However, I did find it strange that a hospital with an acknowledged history of failed projects could allow three departments with no experience of systems acquisition to undertake this procurement. Not only were they undergoing a major merger where staff sensitivities about job losses and re-deployment were at the fore but these 'warring parties' were also expected to sit down and act rationally about a new information system which would radically change their working practices. The project manager found it difficult to move the procurement forward as he readily acknowledged that he lacked the patience and the political skills to deal with the situation. He had written the technical specification for the system and the business case without the rest of the project team. The specification was written in a highly specialised, technical language and meant very little to the team thus bringing discursive closure and excluding further dialogue. Staff wanted to participate and felt they could contribute but lacked the requisite skills to do so.

Once again in Gynaecology I was told by the Business Manager that a new integrated system was necessary to address a number of problems in the department and at its

interface. However, at an initial meeting with the Clinical Director I was informed that there were no problems as such but he wanted a new research database. The critique of practice led to insight into issues and problems which were simmering under the surface but which had no forum for expression. For example, I was very surprised when I discovered that there was another consultant working in the department who no-one acknowledged. This was the result of a personal battle between the Clinical Director and that consultant. Generally staff were afraid of the Clinical Director and were unable to raise issues of working practice because of this. Thus all of the research that I carried out had to be done in the shadow of this man's domination of all that he was involved in. Critique became critique of the man. By critiquing practice within this department and writing a report on my findings I was exploring and exposing difficulties of which others in the hospital may not have been aware. I do recognise this could have been a political manoeuvre on the part of hospital management. However, the impact upon a proposed integrated system also needed to be made visible.

A third level of critique is at the level of the departments within which the systems analyst must practice their skills. It is my understanding of emancipatory practice that by developing critique which is open to all involved, those actors can then decide how to move the situation on. It is not the systems analyst who decides the ethics of the situation. It is difficult not to take a view and I recognise that my report presented to Hospital Y and Gynaecology in Hospital Z may have been biased by what I discovered. It is also difficult at times to untangle the myths that surround certain practice as it is, often, heavily protected by guardians of 'the truth'.

Acquiring new information systems must be informed by the political control of the information within the current system and the implications of changing or challenging ownership of that information.

11.3.2.3 Reflexivity on discursive closure and distorted communications

Central to this emancipatory framework has been the intention to maximise participation in the implementation process and to address discursive closure and distorted communications. I have done this through a process of Participatory Action Research (PAR).

All of the IS implementations in this research were intended to be integrated solutions. Integrated systems and integration in general have been seen as inherently good in the macro NHS and in business organisations as a whole. The opposite negative image has been one of 'legacy systems' and has associated with it connotations of less than modern and old technology. No matter how valuable these systems were, being associated with them indicated individuals were not up to date and hence not valued. Thus a managed consensus was achieved through the rhetoric associated with the concept of integration. Discursive closure and distorted communications has affected me and is tied into my historical background. I have accepted too easily the concept of integration and have needed to emancipate myself from its distorted communication which could have influenced my behaviour during the research. The history of the technical rationality of integration dates back to the 1960s with the introduction of MRP (Materials Requirements Planning) and is still continuing to date with ERP (Enterprise Resource Planning) (Waring and Wainwright, 2000a; 2000b). None of the hospitals studied had really opened the subject of integration to debate. Yet they were prepared to spend many hundreds of thousands of pounds purchasing or developing systems which might not have been appropriate.

The possibility of undistorted communication is an ideal (Habermas, 1984) (3.3.2). Within the context of the 'ideal speech situation' *'it is not power, status, prestige, ideology, manipulation, the rule of experts, fear, insecurity, misunderstanding, or any objectionable practices that constitute the grounds for ideas and understandings which emerge. Rather it is essentially one thing: the strength of the good well-founded argument'* (Alvesson and Skoldberg, 2000:118). My challenge was to expose the

systematically distorted communications and the practice of discursive closure. Only by doing this could the ideal of communicative rationality and the 'ideal speech situation' be pursued. There was no 'right' way to do this and Payne (1992,1996) (4.3.1) argues for creativity on the part of the researcher. What it does require is action to address the situation and this cannot just be action taken by the analyst but must involve those who may be disadvantaged by what is about to take place. They must be given an opportunity to act even if the action is to remain silent or to leave the situation.

The overt nature of the distorted communications and discursive closure were apparent in the primary data covering Hospital X. The power wielded by the IT manager was objectionable as it intimidated the staff within the department and imposed unrealistic burdens on their daily work. His practice was to treat users as objects to be manipulated and viewed them as subservient to the IT department. When someone has such a tight control it is difficult for individuals to combat it as it involves a personal cost and it is often simpler to conform or leave the department. The opportunity to address his practice within the research was limited and only arose because he was at a loss on how to progress a project. However, Alvesson and Willmott (1996) (3.5.1) argue that any opportunity for micro-emancipation which can improve a situation in an incremental manner should be taken. For many experienced IT staff in other organisations the Audit project would seem a very simple exercise. Yet within this hospital it had become a battleground with users and IT department in opposition. The use of Participatory Action Research (PAR) within the context of this project exposed the original audit practice to scrutiny. It then allowed the IT staff to develop some autonomy over their work and construct practice which was socially acceptable to them all and to the users with whom they came in contact. It helped to develop a dialogue whereby IT staff discussed problems and difficulties and tried to look for solutions. It removed for a short time the control of the manager. The success of the project illustrated to the participating staff that the views on practice of the IT manager were flawed and it gave them more confidence in challenging him on other issues. It was, however, obvious to me and other staff that this was just one small step and it did not modify the behaviour of the IT manager. When the

next HISS related project was undertaken he appeared to have complete disregard for the practice his staff had developed.

My experience of discursive closure within Hospital X gave me a better understanding of how participants within an implementation can be excluded even though they have 'participated'. Hospital Y provided an opportunity to be actively involved in an integrated implementation and develop practice which could discourage systematically distorted communication. Hirschheim and Klein (1989) (2.6) suggested a number of methods for doing this which were not open to my research. Discourse needed to be facilitated in another way and my choice of the IDEF0 process modelling tool reflected my historicity and my ability to be creative (Payne, 1992) (4.3.1). However, my relative emancipation led me to believe it could be used in a manner which could begin to counter-act distortions in communications which had grown up around IS practice and expose other objectionable practice by 'experts'. Although I actually carried out the modelling on behalf of the participants it was they who decided what was modelled and were at liberty to change aspects as they reflected on what they were trying to represent. By modelling their understanding of their systems with them and representing what was important to them I began the process of problematising the role of the 'expert' (Bradshaw-Camball, 1990)(4.3.1).

Although Bradshaw-Camball (1990) refers to the 'expert change agent' the modelling exercise also problematised the 'experts' in some departments. By giving participants in the research access to other departmental models it gave them insight into how they operated and demonstrated in some instances the irrationality of some processes e.g. production of the Board papers. The models acted as a graphical, pictorial language which over the period of the research they began to understand and communicate through. The use of the modelling tool is interesting as it is non-discursive. Understanding through pictorial representation is not new (Checkland, 1981). However, my intention after producing the models was to try and bring the participants together to explore the issues further - to expose the systematically distorted communications. This was not allowed to

happen on this project. Participation in decision making was not common practice in this hospital and the research project had been watched with interest, at first, by management and then with apprehension as staff began to express themselves in ways not normally encouraged. What I believe management wanted was for the five departments to 'agree' to implementing the pilot system. However, through the PAR the participants determined that their involvement could only be limited due to the dissensus between them. My feedback to management in the form of a report highlighted the issues which needed to be addressed prior to considering an integrated system. The participating staff had gained access to a speaking forum through the report and through the modelling.

The implementation of the Payroll/Personnel system in Hospital Z had been 'agreed' by the project team. However, there were issues with systematically distorted communication. The management wanted an integrated system and had appointed a project manager to see it through. The Finance staff wanted a system which addressed their priorities and they provided arguments to back these up. However, it was impossible for other staff to question these priorities as they had no understanding of practice within Finance. By offering them the opportunity to become involved in the research through PAR they all began to develop skills in IDEF0 which could 'level the playing field' (McKay and Romm, 1992; Romm, 1995)(4.3.1) and have the right of expression.

Although the average size of the project team was twelve and depended on issues on the agenda, the participation in the modelling was extended to staff in the various departments in a cascade manner. There was no exclusion from modelling or examination of other departmental models. Staff were encouraged to discuss and reflect upon the models away from the project team meetings. At the team meetings staff presented their models to the participants present and there was an open forum to question and challenge. Expertise was also problematised. Once I had trained the users in the use of IDEF0 and had helped them develop their departmental models I was no longer needed in the 'expert' role. I attended team meetings to observe how they used the models in their discussions and to understand more about the 'concept of ideal speech'. This was not another fix to make the implementation go smoothly. In fact by the time the contract had been signed there was

still dissensus about the post of the system administrator and whether Personnel clerks and Payroll Clerks were one and the same person under the new system.

In Gynaecology my efforts to use the framework in a similar manner to the Payroll/Personnel project met with difficulties. The culture within this clinical department mitigated against active participation in anything that would bring individuals openly into conflict with the Clinical Director. The PAR and modelling only had a limited affect and in the case of the Ward nurses they did not want to have anything to do with the project. This form of dissensus was, in fact, not negative although I felt very disappointed at the time - my research was being compromised. On reflection and with further discussions with the nurses I came to understand their reluctance to participate. At the macro level of the NHS nurses were becoming disillusioned with the profession and lack of reward. Why take on more work for no more pay ? On the ward they were under-staffed and they did a difficult job, working with very sick women. This was stressful in itself - there were many deaths. They also felt no empathy with the Clinical Director whose patronising attitude to the nurses upset them at times. Although their contribution was not done in an open forum their voices were heard through my written report in an anonymous form.

The modelling approach within Gynaecology could not prevent the Clinical Director from dominating the process. He was going to finance the integrated system from his charitable funds and he was determined to get what he wanted. Although I tried I could not prevent the Clinical Director from bringing discursive closure. He did not produce any models as he agreed and he was elusive in as much as he was 'too busy' to attend meetings. The discussion through the models thus focused on other requirements and how they might be accommodated. I saw groups of staff when and where their schedules allowed and with them built a picture of how a new integrated system might work. I cannot really say that the systematic distortion of communication was greatly improved within this project. However, in terms of micro-emancipation questioning of practice did bring some changes which would benefit the disadvantaged.

In order to address discursive closure and systematically distorted communications the emancipatory systems analyst must first facilitate their exposure to the participants in the research. There is no right or wrong way to do this. However, it must involve problematising the role of the 'expert' analyst and other 'experts' whose claim to legitimate expertise is flawed. It should also involve the assessment and delivery of requisite skills to allow all concerned to have an opportunity to engage in rational debate. This process can be demanding on the systems analyst and can be depressing when evaluating the progress made

11.3.2.4 Reflexivity on Critical Systems Heuristics

As part of my understanding of discursive closure I examined the work of Ulrich (1987) (4.3.2.1). His concern about the role of 'experts' and how they operate within the decision-making process gave rise to his Critical Systems Heuristic framework which is intended to aid individuals in challenging these 'experts'. My original PAR plan discussed with the project team of the Payroll/Personnel project contained an adaptation of these boundary questions which was incorporated into the modelling and discussion process (Table 9-1). My intention was to provide some structure to the discourse not to challenge or radically change the power structures within the organisations (Tsoukas, 1992) (4.3.2.1).

The first question that needed to be answered was 'What is the purpose of the proposed new system?'. At the first meeting with the project team this was made clear and all staff appeared to agree. However, the imperative was for Payroll to come in-house and this was driving the project. The Personnel system had fallen into disrepair and staff within that department had learnt to cope. However, new requirements from government meant they would be expected to change. The difficulty was that these people had never worked together not could they imagine how that might be achieved in a way that would benefit all. Before looking at how they might work in the future I believed that they all needed to

understand how each department currently worked. This would expose working practices to public scrutiny through modelling i.e. the 'as-is' models. This helped everyone see that they all had contributions to make to the decision about the new system and they all had expertise. The modelling also gave them the opportunity to discuss possible changes which might be beneficial, not just to the team but to others in the hospital e.g. dispensing with timesheets for the majority of staff. The difficulty for staff on the team was trying to conceptualise what the new system 'ought to be'. They had no previous experience of implementations, the choice of integrated systems on the market were limited and they could not envisage working in a different way. Thus they integrated modified 'as-is' models with a new 'car lease' model and presented these to the vendor (Appendix J). Discussions with the vendors led to them guaranteeing that the work processes determined by the project team could be delivered by the new system.

Thus the CSH framework allowed some structure to the discussions without imposing a rigidity which might have impaired the process. In fact the project team determined the course of action as the project progressed. However, there was evidence that people still tried to protect their status - an issue highlighted by Alvesson and Willmott (1996). Finance staff were not happy that they might have to share the title of 'data input' clerks with staff from Personnel.

My belief that the Payroll/Personnel project had progressed my emancipatory practice led me to use the CSH framework at the start of the Gynaecology project. As has already been discussed in the previous section the domination of one individual and the fear of other participants made emancipatory intent precarious for all. Ulrich's (1987) framework is naïve in as much as he does not allow for this type of situation and there is a presupposition that people are rational in the way they deal with others and in planning situations this does not occur (4.3.2.1). Perhaps it was naïve of me to believe that the plan was transferable and possibly this illustrated that my functionalist historicity is still affecting my thought processes. Whatever the truth is, on reflection I believe that like the criticism by Mingers (1992a) of Laughlin's work (1987) in 4.2 I possibly could be accused

of pursuing my research needs rather than the needs of the researched.

The CST framework can be used to help structure discourse but must not be applied rigidly by the systems analyst as there is a greater need for participants to determine the direction of the project.

11.3.2.5 Reflexivity on Critical Education

The literature covered in the earlier part of this thesis indicated that critical education can take many forms. Alvesson and Willmott (1996) (4.3) see it as a formal process whereby managers take courses to develop their critical skills. Kerola (1985) (4.4.1) sees participants in implementations educated in the process of development to give them an understanding of the part they might play. McKay and Romm (1992) and Romm (1995) (4.3.1) believe education should enable all participants in a project to have a similar set of skills and prevent domination by one individual or a group of 'experts'.

In my research role I have explored my own educational limitations and have, through the literature on the subject, become more critical in my understanding of my own subject discipline and in the practice of IS implementation. Through my understanding and reflection I have become aware of situations where others could be similarly enlightened.

In Hospital X there were a number of opportunities for critical education. There was also a need for the IT manager to be educated to develop concern for others and more enlightened management practice. His staff who were mainly from the private sector needed education about the NHS and its culture in order to develop better insight into how it worked. This I was able to facilitate through my own education. By considering the political nature of the changes and the history of IM & T they became aware of how HISS systems had a chequered past. Through the PAR they were able to develop communication and reflexive skills which enabled them to view situations from other

perspectives. It also demonstrated that these skills would be vital if the system eventually came to be installed.

Thus from the critical perspective systems analysts and practitioners need to develop skills which allow them to communicate better. Better communications involves speaking in plain English and communicating at the level of the individual. Learning to avoid technical jargon is important. Communication also requires good listening skills and sensitivity to others needs.

The critical systems analyst must also be prepared to reflect upon practice in order to become more aware of how they use their skills to re-create the status quo within the organisation and disadvantage others. To do this they may need to engage with formal education courses which facilitate this (4.3).

The education process in Hospital Y was one of developing an understanding of the IDEF0 modelling process and through it reflexivity. By interpreting their understanding of their working processes and presenting them as models their emancipation began. The models were returned to them and they could reflect further and change them as more insight developed. Reflexivity was achieved when having examined and reflected upon their working practices they began to question and feel uncomfortable about them. Obviously this was not achieved by all participants and only in degrees by others. The modelling also gave them critical insight into other departments' work and provided the participants with a better understanding of discursive closure.

Hospital Z was intended to be the research site where I critically educated the staff within the integrated information systems projects to use IDEF0 to develop a 'level playing field' and begin the process of addressing the systematic distortion of communication within the projects. This process was not too difficult in the Payroll/Personnel project as staff were of a similar educational standard and had IT skills. Personnel staff were used to open discussions. Finance staff had good IT skills but were not too comfortable with long

meetings. The combination of modelling and discussion appealed to both sets of staff and the educational aspects of understanding that is required within an implementation developed from that. Through modelling they learnt to challenge the clarity, veracity, sincerity and appropriateness of the communications (Habermas, 1984) (3.3.2).

What they did reflect upon, however, after the system went live was that they did not document the implementation process from their perspective and share it with the rest of the hospital (Conversation with Personnel Officer, December, 1999).

In terms of modelling in Gynaecology the education process was inhibited by a number of problems. The secretaries within the department did not have the same educational standards as staff on the project team in Payroll/Personnel. They lacked IT skills which meant I had to help develop those before they could even begin to use the modelling tool. There was also the reluctance on the part of Eileen to be trained in case it changed the status quo. How does the critical systems analyst react? I pursued the modelling convinced that they would benefit from it as had the Payroll/Personnel staff. I believed that Eileen was too dominant in the office to the detriment of the others. I had formed this opinion from the interviews I had done with the staff. In this instance I believed that I was acting as a moral agent (Walsham, 1993b) (4.4.1) by trying to address a situation I understood was asymmetric. I wanted them all to decide on the new system requirements. However, it does raise the issue of how easy it is to critically educate participants and whether they want this type of education (4.3.1).

The modelling of the work processes in Gynaecology only showed the extent of the systematically distorted communications within the department and at its interface with other departments. The critical education was mostly my own. The junior doctors wanted to change things but were powerless in comparison to the Clinical Director. The nurses were under-resourced.

Emancipatory practice must involve the systems analyst not only exposing systematically distorted communications but also assisting participants in the implementation to develop their own critical insight. Thus the systems analyst may have to assess what skills or education process need to be undertaken. It could be a mutual education process where the systems analyst learns about the participants and their roles in the organisation and they learn about the implementation process. However, it must be a reflexive process where there is no attempt at indoctrination in the dominant ideology. This education process must also take account of how it might impact upon the individuals therein and this will require a degree of sensitivity from the systems analyst (Payne, 1996) (4.3.1). The systems analyst must recognise that people have been conditioned within their working environment for many years and learning to engage in discourse and conflict as well as participate in decision-making could take even longer to learn. Some may never want to learn.

11.3.2.6 Reflexivity on Participation

Much of the previous sections of this chapter have dealt with the issue of participation to some degree. Critical social theory has the emancipation of all as its intent and this can only be done by engaging the individuals in society in critique with a view to taking social action. Participation in this critique and how it is brought about is a highly complex problem. Society is becoming less critical and hence less inclined to participate in discourse which challenges the status quo (3.2). Consequently, this has implications for the systems analyst who wants to develop emancipatory practice - they need participants.

Management theory in general has engaged with the ideal of 'participation' (3.5). Many such experiences have resulted in participants in new management practice working for the benefit of the management rather than experiencing benefits for their own working life (Alvesson and Willmott, 1996). Through user participation in the decision-making process management have negotiated better productivity, longer working hours and changed

working practices.

Participation is often highlighted in IS research as one of the most critical factors in influencing systems success (2.3.1.1). Functionalist literature views user participation as gaining commitment to the new system and overcoming resistance to change. There will be more accurate user requirements. Unfortunately it is not as simple as this. Recent work by Howcroft and Wilson (1999) indicates that it is the degree to which the users are involved and the quality of that involvement that is much more important. They highlight how IS research has rarely discussed the political nature of participation and how various '*Machiavellian motives*' can be addressed (Howcroft and Wilson, 1999:12). Yet the highly political nature of that participation and the asymmetrical power relationships between individuals which has been seen as dysfunctional (2.3.2) must be opened to scrutiny within the context of IS implementations in order to expose the process through which the system will be mediated.

'What is different about participation in an emancipatory manner?' In an ideal world the systems analyst practising in a critical way must have the concern of all at heart and therefore must be prepared to become immersed in the political lives of those staff who will engaged with the new IS in whatever manner. They must not accept a selective view of problems, requirements or other issues pertinent to the implementation. They must also be prepared to expose all of these views to public scrutiny and provide a suitable forum for debate and discussion. The systems analyst must not make hollow promises and must strive to establish how a new system can benefit all concerned. Thus the systems analyst practising in an emancipatory manner should also try to encourage and facilitate maximum participation and should not try to engineer false consensus to support technological rationality.

Unfortunately this ideal for the emancipatory systems analyst is far removed from the reality of actually practising as there are many things which mitigate against it. First, if there has been a history of participation for management's benefits how does the systems analyst convince users that their practice will be different? Second, if this has been the case

how does the systems analyst develop a relationship with the users and gain their trust? Third, what happens if management 'will not allow' the degree of participation that the critical systems analyst believes is necessary? Should the systems analyst take the side of the users against management? A fourth point is how can a systems analyst practising in a critical manner engage in participation if the culture of the organisation is against it? I should now like to consider some of these issues in the light of the research and reflect on whether they can be addressed.

Traditions of participation: Hospital X clearly demonstrated how participation was used to benefit the management. Involvement in the HISS project was aimed at getting the proposed system accepted by the staff. They were told that it would benefit patient care yet the Business Case pointed to staff cuts. As I did not have an opportunity to explore emancipatory practice to any great extent I believe that if this manner of user participation in IS projects was continued then a degree of cynicism would enter the attitudes of staff and would affect future implementations. It could already be seen to be entering the attitudes of IT staff in the IT department.

In Hospital Y my intention was to involve as many staff as possible in the project. It was to be their integrated system and they needed to be part of the decision-making process:

"The movement towards greater participation and democracy is not accomplished by rational arguments and the display of systems of domination alone, but also by helping create responses to the current situation" (Alvesson and Deetz, 2000:145)

However, understanding the nature of participation and how individuals adapt to it was part of my education and theirs. They had a tradition of limited participation. During the Resource Management initiative a number of small systems had been acquired and users had been involved. However, these systems had failed to deliver benefits to many clinicians e.g. the nurse management system, casemix to name but two and this had led to cynicism amongst many staff. I encountered this cynicism on a number of occasions and I

became concerned that the research would not deliver benefits for those users.

My experience in Hospital Z was mixed. The staff involved in the Payroll/Personnel implementation generally had expectations of participation. It was part of their culture, in particular in the Personnel departments. When I began to work with them I generally did not encounter cynicism. They appeared to have little problem with my research and the potential for user benefits. However, in Gynaecology the situation was completely different. The Clinical Director did not have a participatory management style and was inclined only to talk to Mr G and the senior registrar. Also the nurses on Ward G had had a nurse management system imposed on them a few years earlier which had fallen into disrepair and they were very cynical about IT and their participation in facilitating it.

Developing emancipatory practice through participation: The critical systems analyst cannot provide a 'magic bullet' which immediately turns all users within this type of research into active participants. It can only be achieved through a continuous incremental approach which may begin with the systems analyst exposing systematically distorted communications and allowing users to develop their own insight, thus building up a trusting relationship. Through this trust the systems analyst may then be able to gain the users acceptance of a critical approach and involve them in it. Unfortunately, my research did not have the luxury of trust building over many months or years. However, there was evidence of some trust being established within the context of the project.

In Hospital Y my approach was to interview staff and through these interviews develop a report which would highlight problems being experienced by staff throughout the proposed pilot study. This report was made public to a lesser degree. Thus staff in the departments could see my intentions from the beginning. The second stage involved asking them to be part of the intervention in whatever capacity they found possible. This invitation to try and change things to benefit them was novel and interested some staff. However, there were staff whose cynicism was difficult to overcome and the duration of the research project was not long enough to change their perspective e.g. Clinical Director

of Pathology. I did try to involve as many staff as possible in the research but there was a limit on my ability to do more in the context of the time frame.

In Hospital Z I had developed my action research plan and this relied heavily on user participation. I wanted the users of the proposed system to be able to facilitate their own requirements by participating in a process which addressed discursive closure and distorted communications. I believe that on the Payroll/Personnel implementation it worked quite well and users did become involved and did recognise that I wanted them all to benefit from the process. However, in Gynaecology, although I did try to involve as many staff as possible in the project I was thwarted in my goal for a number of reasons. Some staff did not want a new system e.g. Eileen and the nurses on Ward G. There were different political reasons for this which have already been dealt with. Some staff did not have time e.g. junior doctors. Other staff were quite happy to participate in interviews but did not see the relevance of participating any further e.g. Clinical Director and Mr G. Thus the systems analyst is faced with a complex web of political intrigue which can be overwhelming at times and can try the resolve of someone committed to this type of practice.

In difficult situations it could be very easy to return to a functionalist paradigm and take one view of the problem. It is at personal cost that the critical systems analyst pursues the goal of emancipation (Payne, 1992, 1996) (4.3.1). My approach within Gynaecology was to involve users where they wanted to be involved and where they did not I tried to take into consideration their views as I saw them. Thus I did persuade management that it was inappropriate to include Ward G in the integrated system at that time. However, I must reflect upon the quality of the participation of the administration staff in Gynaecology. In one respect they only participated because the Clinical Director asked them to do so. This implies needing permission to participate.

Management control over participation: It would be unrealistic to assume that the research carried out within this project was free from management involvement in the

process. Generally speaking my research was negotiated through management who had problems in the IS area. Even though I explained my research carefully to them I cannot say that they fully understood to what they were committing themselves or the organisational actors with whom I came into contact. For them, participation was used to provide benefits for the management and the organisation as a whole.

Initially, in Hospital Y, I was given freedom to try and involve as many staff as I wanted in my research. However, once the report was produced and I suggested ways of moving the project forward management began to re-think their approach to the research. 8.6 and 8.7 illustrate how this reflection on the project brought about a changed view of participation. It had to be stopped or carried out under management guidance.

In Hospital Z senior management kept distance from the Payroll/Personnel implementation and we were able to develop the level and the quality of participation to the degree required by many staff. Not everyone had the ability to participate in decision-making though some had had years of practice. For staff involved in the project it was generally a new experience and presented them with a forum for speaking and limited decision-making. A number of staff viewed it as a form of personal development e.g. Senior Personnel Officer. The project did not appear to pose a threat to the senior management and in fact they found it a positive experience (Appendix H).

The Gynaecology project in Hospital Z was a different experience. Willing participation in the research was limited. If the Clinical Director wanted it then it happened - to an extent. He determined what took place and had a great hold on everyone. Analysing the complexity of the power relations within this department is beyond the limits of this thesis but it can be said that critical systems analysis was difficult within this department. Management did not really want to hear what was wrong with their information systems and active participants were concerned with how participation would affect their relationship with the Clinical Director.

The ethics of participation: The systems analyst practising in an emancipatory manner is faced with a number of challenges which involve making ethical decisions. Ethically, throughout the research I have tried to understand how certain work practices have made working life difficult and stressful for participants within. I have been guided by a need to improve the quality of that working life through better information systems. Where necessary I have identified ethical conflict (Wood-Harper et al., 1996) (Figures 8-1 and 10-1) and made it explicit through the reports I have produced. However, from a critical perspective it is then up to the organisation to address the issues not the systems analyst and I have tried to involve the organisational actors in this. I have bias of which I am aware and that that which I am not. I cannot be viewed as an 'expert' in these ethical issues because I will not have to suffer the consequences of my decisions. Walsham (1993b) (4.1.1) has suggested that moral agency is a role which the systems analyst can adopt. Here the systems analyst acts in a micro-emancipatory capacity of questioning the norms and values of those involved and possibly making some incremental improvements. My role has been that of a moral agent to some degree through my intention to problematise the traditional role of the systems analyst as an 'expert' and the 'experts' within the projects under investigation. Walsham (1993b) suggests systems should not be acquired on the basis of a technical specification. This did not happen at Hospitals Y and Z. Emphasis was placed on the organisational and political issues with technical specification assuming less significance.

However, what must be challenged from an ethical stance is how much the organisational actors affected my role in the participation and how much bias I then brought to the process. I did feel at times some staff were disadvantaged and I 'wanted' to help them. I did have personal dislike for others. This type of bias can affect the outcomes of research and must be acknowledged and has been covered in 11.3.1.

11.4 Summary

This chapter has had the intention of scrutinising the research presented within this thesis and thus exposing its limitations. The reflexivity has considered the data collection methods and the claims that can be made from its interpretation. I have brought to this research my own individual background, socially constructed over a number of years and this bias must be acknowledged when examining how I carried out the research and then my interpretations of it.

I have deliberately set out with the intention of engaging in and exploring the politics of organisational life through the medium of integrated information systems projects and to this end I have developed a framework of emancipatory practice as a heuristic. My main objective was understanding how suppressed conflict arose through discursive closure and systematically distorted communications during integrated systems implementations. By developing a theory of the organisation and critiquing practice the systems analyst can come to understand how certain ideas have come to dominate and whether they are legitimate. I have opened up many of these practices to debate and discursion through PAR and the use of IDEF0, a process modelling tool. I have tried to avoid false consensus as the 'easy way out' and thus limit the personal stress on myself and others. I have attempted to explore how a new system might benefit the working life of all who use it. This must be a goal of the socially responsible analyst. I have begun the process of problematising the expertise of the systems analyst by providing users with the skills to understand their own systems and communicate the political issues within them. IDEF0 and the Critical Systems Heuristics adapted from Ulrich (1987) have provided users within the Payroll/Personnel and Gynaecology implementations with a framework for discourse which can be used effectively given the political will.

In the final chapter I will draw some conclusions from the research which will give some insight into how the research has affected me personally and where I believe more research needs to be done.

Chapter - 12

12. Conclusion

This final chapter brings to an end the first stage of the journey started in 1994. Within this chapter I reflect upon that journey and some of the personal difficulties encountered along the way. I explore how the research has affected me as an individual and how it has impacted upon the way I now view the research process. Finally, I draw some conclusions and suggest where I, or other researchers, might want to take the research further.

12.1 The Journey's End

From the outset I wrote myself into this thesis leaving the reader in no doubt that it was written from a subjective paradigm. Thus, the organisations presented here have been viewed as arenas of highly political, social interaction based on the belief that reality is socially constructed. However, by writing from a subjective paradigm at the outset may have appeared premature as I have missed out the trauma of the epistemological migration and the personal struggle that has involved. This represents the developmental process of my epistemological migration from the positivist approach to the research to the critical approach. Bron (2000) when discussing migration asks whether leaving the place you have been assigned is a crime ? I do not believe that I have committed a crime but recognise that I have taken a risk leaving my assigned place.

Safety in numbers: Even though systems analysis and the role of the systems analyst have evolved in the last 50 years in response to the changing environment of information systems and the technology which enables them, I would argue that it is almost impossible to move theory forward without reference to this traditional body of knowledge. There have been many calls to re-focus research efforts (Mumford et al., 1985; Orlikowski and Baroudi J.,1991; Walsham, 1993a; Avison et al., 1999) yet the subject discipline is, even today, dominated by positivist research which in many instances has little or no relevance

to the practitioner. The debate continues in academic circles (MIS Quarterly, March, 1999). Resistance to change within the IS academic environment is evident and this could be linked to vested interest in positivist research, the power of leading academics and the money which can be attached to research grants. This resistance to change is also evident in the practitioner community where methodologies, models and critical success factors are essential tools of the profession. Although other areas of business and management, through a select group of Scandinavian researchers, have begun to develop practice informed by critical social theory and are having limited success integrating it into the mainstream of management theory (Alvesson and Willmott, 1992, 1996; Reynolds, 1998, 1999) it would appear that the discipline of IS is less developed theoretically to explore practice in this field (see Chapters 2 and 4). Research in this area is very much on the margin of mainstream IS. This is understandable from the perspective of the research presented here. I have had great difficulty at times engaging with the particular style of the discourse utilised by respective authorities in the subject area. The language used, for example, by Lyytinen and Klein (1985) is exclusive rather than inclusive and lends itself to their domination and control of that particular part of the subject discipline. This is also a criticism which is levelled at the main inspirers of this work by other subject disciplines:

“The conceptual language of key writers (Foucault or Habermas for example) is notorious for its obscurity, and interpretations of critical theory in educational literature, though clearer, are often characterised by a vocabulary and rhetoric sufficiently opaque to deter all but the most persistent reader” (Reynolds, 1999: 177)

Thus, it must be asked ‘How critical are the critical theorists?’. If they cannot communicate with research communities who might benefit from their insight they are not being reflexive and are committing the same sin of ‘expertise’ that they critique in others. Researchers need to gain confidence from their own subject discipline but if it is not communicated in a language with which they are comfortable it may well be overlooked or completely mis-interpreted. Yet what is said within the Critical IS work is inspirational

and thought provoking and has eventually led to this project. However, exploring and working within another paradigm for someone who has been educated in the traditional approaches adopted by systems analysts has involved a great deal of doubt and self-reflection. The need for methodological guidance is essential and is lacking on the whole within the IS Research area.

I cannot claim great insight into the Critical Literature which led me to choose Habermas above all others only insecurity and a need to follow a path other more exalted academics had trodden. Understanding the work of Habermas has been difficult in itself as much of it has been translated from German to English with researchers relying on these translations and interpretations of his work. Habermas himself has been criticised for not moving his critical theory in to the practical domain (Held, 1980) and this may be one of the reasons why there is little empirical research to guide IS research in this area. It is also important to acknowledge that there may be other critical philosophers' work which is highly relevant to IS and may develop more insight than Habermas. However, they have yet to emerge significantly within the main body of IS literature.

The personal challenge: My own personal challenge has been one of understanding, reflection and change. Understanding and interpreting the work of Habermas is a task which still challenges modern philosophers and as such must question whether IS researchers fully comprehend what his work is actually evoking. This must be true of the research presented here as I like others have been inspired by principles which question assumptions and taken for granted practice and theory; where power and ideology are integrated into the social fabric; where claims of rationality and concealed sectional interests are confronted; working towards an emancipatory ideal (Alvesson and Willmott, 1996). I have read many works by Habermas and on Habermas by other authors and the outcome has been my interpretation of critical theory and practice within an IS implementation. I have developed insight into theory and practice which has begun my emancipation from the ideologies of the subject discipline and which will impact upon the direction of my future research. Yet I have had a continual struggle to reflect on whether

my research has been truly critical in nature or biased by my historicity and inability to fully grasp the real meaning of critical social theory. Wilson (1997) argues the point that IS researchers have misunderstood and over-simplified some of the work of Habermas particularly in the understanding of the concept of the 'ideal speech situation.'

The Hegemony of the Research Process: The struggle is also evident in the history of the development of this research from the perspective of the educational institution in which it is located. Within the Business School, at the time of starting the research, there was consensus that a valid research project must involve a degree of positivistic data collection. The world this data represented was a systematic, well-organised world with regularity, uniformity and absolute principles shaping it and the data collected via this positivist approach was perceived as objective and valid, certain and accurate within the scientific world (Crotty, 1998). The actors here had an interest in control and domination of the research process which was in fact their power base. This pressurised supervisors and could totally undermine the confidence of new researchers as they tried to pass various stages of the research process. However, this is not the case now as the research community within the Business School has grown and new members have brought with them new methods of conducting organisational research.

If a researcher wants to do relevant research and engage with the field of practice (MIS Quarterly, March, 1999) then they must be actively encouraged and shown the way. Unfortunately, I have felt isolated within the Business School and my immediate IS community with little academic support for my research. This has been problematic in this research project and I have had to look to other subject disciplines to provide this support. Research traditions in organisational behaviour, management education and even accounting are becoming much less polarised and the need to discuss research with other colleagues is imperative in order to maintain conviction of purpose and confidence of method.

Other peoples' lives: The traditional role of the systems analyst is to be objective and

neutral and report the facts, not to become embroiled in the politics of whether the system is needed, who it will affect for good or worse, how job descriptions will change and hence affect the quality of the individuals work experience or who is controlling the process for their own purpose. Yet these are the issues which will determine how people engage with a new Information System and from a critical social theoretical perspective they ought to have this awareness raised and have an opportunity to determine the outcome of the process. Obviously raising critical awareness within an organisation has positive and negative effects and these will be reflected upon later in this chapter. However, it can be dangerous for both the researcher and participants in the research and lead to a struggle which can be stressful at the time of the research and continues to remain with them:

'Often people, even those who loved the book, have said, "this book completely paralyses us". The effect was intentional. My project is precisely to bring it about that they no longer know what to do, so that the acts, gestures, discourses that up until then had seemed to go without saying become problematic, difficult and dangerous.' Michel Foucault in Miller (1993:235)

This has implications for sponsors of this type of critical IS research and for the researchers themselves. Allowing staff to question accepted practice within an organisation and challenge the dominant ideology requires a 'leap of faith' that many would not be prepared to allow (Reynolds, 1999). In the NHS there is an adherence to functional methodologies which pervade all IM & T projects - SSADM, POISE, PRINCE. It can be almost impossible to exclude them from IM & T projects as funding from central bodies is predicated upon these methodologies being used. Evidence also comes in the primary research where the IMand T staff in Hospital Y refused to sanction the PAS project if I adopted an emancipatory approach. The sponsors of the Gynaecology project at Hospital Z accepted the critical approach initially but later refused to engage with the process and attempted to manipulate the project for their own purposes. Users, too, who take a critical stance on an IS project may reflect on the consequences of

this stance and its impact on their working lives outside the project. In Hospital Y, I was requested to switch off my tape recorder during an interview so that the interviewee might comment on an issue which she did not want to be attributable to her. This was also the case in Hospital Z where a nurse specifically asked me not to report her comments back to the consultant *'He can be really vindictive'* (Interview with Theatre nurse, 1997).

Brookfield comments:

'critical learners perceive that if they take a critical questioning of conventional assumptions, justifications, structures and actions too far they will risk being excluded from the cultures that have defined and sustained them up to that point in their lives' (Brookfield 1994:208).

Users of IS must balance the risks of being marginalised with the need to be emancipated and this is a struggle, not only within themselves, but with their fellow workers and managers. If the culture has been one of 'control and domination' then those working therein, both management and staff, will have great difficulty accepting a critical approach to IS acquisition and consequently an organisation with an appropriate climate is necessary.

The personal cost of CST research: Payne (1992) states that emancipatory practice can be difficult from a personal perspective. As has already been discussed, staff may become critical and threaten the established norms of the organisation, they may become stressed by the process, the outcomes may not be to the liking of the management. Further development of the research may be blocked in that particular organisation as was the case of the PAS project in Hospital Y. This can lead to stressful situations and difficult ethical choices for the researcher which can affect the validity of the research. For example, I was advised by a Professor of research at my institution to return to Hospital Y and do the work on the PAS system but to do my research covertly. I chose to withdraw from the work and examine opportunities elsewhere but this problem will not be unique to my work. However, it is highly relevant when emancipation is a goal and the methodology

requires the researcher to be overt in their practice. Researchers must be aware of losing sight of their objectives i.e. becoming an agent of management unintentionally.

Emancipatory intent also has had other consequences which IS researchers and other practitioners might find disquieting. Once a critical perspective is developed it can spill over into all other activities and can be detrimental to social relationships, work and career. The need to expose injustice can be overwhelming at times and may lead to the researcher being labelled as 'awkward', 'dysfunctional', 'not a team player' and if this is in the work environment it can act as a barrier to promotion. Therefore, it is important that researchers who become involved in critical research develop coping strategies. This could involve seeking out and networking with like minded people; leaving the organisation and joining one sympathetic to Critical Theory. It could also involve a need for mentoring for researchers who choose to approach research in this way.

From my own perspective I have reflected upon the concept of emancipation and now realise that this process has only begun in earnest and its progress will depend entirely upon me and how I want to develop further critical insights into the subject discipline of IS. I have, as a woman, noted the feminist literature which has emerged in this area but as yet have not seriously engaged with it. The research presented here in this thesis has a woman researcher employed in research where the majority of the dominant actors are male. I have empathised with nurses and doctors and the work they did in caring for very sick people. I have also been shocked, in some instances, at the callousness of certain individuals and their lack of respect for others. I continually challenge how this might have affected my work and whether another woman doing the same work would have been so moved. How would a man have worked in this environment ? Emancipation is not a specific movement from one position to another but like my research project a journey where the person undertaking it decides how far and what actions they will take along the way. For some I believe the journey never ends and for others it never begins. I know that I am a different person from the one who started this journey and it has already impacted upon the way I teach and research IS. However, this does not mean seeing issues of power, domination, constraints and social suffering in every aspect of the subject under

study but to be aware of how they arise and how they are often seen as part of the normal fabric of society (Alvesson and Deetz, 2000).

I will now summarise the conclusions I have drawn from my research which I believe may be relevant to the IS community and suggest further areas for research.

12.2 Conclusions to the research

- This research project has covered a lot of exploratory ground in what is a critical approach to the practice of systems analysis. I have shown that it is possible to synthesise some of the ideas from the critical literature into a heuristic and move theory into practice. Therefore, this work might be further developed in the light of some of my findings.
- It is evident that there is a need for Critical Social Theory (CST) to penetrate mainstream Information Systems education in order to break the cycle of positivist research and functionalist re-enforcement of computing and IS practice. Future practitioners must become aware of how their practice impacts upon society as a whole and be encouraged to develop an ability to reflect on their actions and the actions of others. The degree to which this is happening in IS may be established with the publication of the results of a UK Academy of Information Systems survey which has been undertaken at Glamorgan in collaboration with UKAIS members. This survey intends to discover what subjects are being taught on computing and IS courses at both undergraduate and postgraduate level.
- The introduction of ethical issues into undergraduate computing and IS courses has emerged but it must progress further as has been the case in Management Studies where CST is, for example, part of the mainstream courses at Manchester School of Management and the Management School, Lancaster.
- Within the IS research community there is a need to develop better understandings of

methodological choice and the theoretical perspectives which underpin these. From a personal stand-point I have had great difficulty in finding guidance within IS research for the use of critical action research. I have been confused by research expounding the virtues of methodological pluralism and I am unsure as to whether the authors understand fully the implications of their particular arguments. This confusion leaves me to suspect that the research has not explored its epistemological stance or theoretical perspective.

- In relation to the above point on CST and IS education is the need for researchers in this particular field to develop a discourse which is accessible to 'ordinary mortals'. The language used by CST IS researchers is one adopted from the Critical Philosophical tradition. If they are to talk about 'emancipation' and 'barriers to communications' they must begin to address this from their own perspective. Research papers must be written in a language which is inclusive not exclusive. Some of this research must be less esoteric and aimed at practitioner researchers who would like to develop better social practice in IS. This happens in other disciplines such as Healthcare where nurse-researchers are developing better practice.
- Leading on from the last point is the conclusion that action research in this particular project did actually inform practice. Action research in its many forms (Chapter 5) is well respected in many other disciplines and if carried out correctly can be beneficial to IS research, especially when the details of the work are explored. All too often IS research is presented in a diluted and clinical manner which excludes the reader from insight into the specific context and the difficulties met with only the outcomes made visible. If carried out in the correct manner action research can be rigorous and relevant too, though it may not conform to the rigour as defined by positivist researchers.
- If IS research, such as that presented in this thesis, is to inform practice then it must not only enter mainstream IS education but must reach out into the business community. To do this researchers must also become practitioners and develop their work in real

organisations and be prepared not only to write in academic journals but also in practitioner journals to disseminate the learning. Organisations need this feedback into their systems and if the work is presented in a language they can understand they may be able to develop similar practice. It may even result in work for the researcher as in the case of Peter Checkland. Reaching out to the practitioner community is essential as many IT specialists have no formal IT education and have arrived in their position through serendipity.

12.3 Recommendations for Future Research

- From a personal perspective I would like to explore further the critical framework developed in Chapter 4 within the context of another integrated IS implementation in the NHS. This need not be within a hospital but anywhere there is integration and conflict is possible. New government directives have led to a strategy where GP fundholders have lost their autonomy and been encouraged to join Primary Care Groups (PCGs) which will need new forms of information and new working relationships. These PCGs are beginning to form new relationships with hospitals where regular exchange of electronic information will be expected by the PCGs thus changing the primary/secondary care interface. There is also the new NHS Direct just coming on board and it will establish new relationships with the various services with which it interfaces.
- A further area of research which could be explored in relation to IS is the work of other critical philosophers. Habermas's work has been the focus of this thesis but there are others such as, for example, Paulo Freire. His work on developing literacy skills through critical awareness in the lower classes of Brazil could be explored and adapted to IS implementation or education.
- The work presented here has related to that of the systems analyst and their role prior to the physical development of an information system, or its procurement. At the end of

the Gynaecology research in Hospital Z, I found two post-graduate students from Newcastle Business School to prototype the proposed system for discursive purposes. This is an area which could be explored through a critical perspective. It may be possible to develop the critical framework further by incorporating a prototyping component.

- Many researchers have alluded to 'organisational learning' as being necessary if IS is to move on and learn from failure (e.g. Lyytinen and Robey, 1999). However as has already been discussed in the previous chapter organisational learning also comes from dissemination of all learning experiences not just failure. Many people involved in IS implementations at organisational level through integration may have never experienced it before and need guidance. Research could be done in the area of critical awareness and organisational learning. Organisations need to see the benefit of this type of project as one which will empower everyone and contribute to a more democratic process of organisation.
- The research carried out within this thesis relied on organisations willing to participate in what might be described from their perspective as a 'radical' approach to IS implementation. The NHS is an excellent context for this type of critical study as it has many criteria which make it a suitable subject. However, it would be of value now to take the research and move it into the private sector where capitalism is the dominant ideology and staff may have completely different objectives to those in the NHS and the nature of conflicts motivated by other issues. Getting access to this type of organisation would be challenging for the researcher as would be the continual need for reflexivity when working in this environment. Ethical issues might feature more highly as would the need to develop a critical awareness in the user groups.
- It would be of interest to the research community for this type of critical research to be carried out by a man. I have observed the two male, post-graduate researchers within Gynaecology carrying out their work and they dealt with the political situation in a

different way than I did. This could be explored in more detail.

- Finally, I propose that Hirshheim and Klein's (1989) suggestion that emancipation through the use of anonymous network conferencing might be possible and could be explored. The three organisations discussed in this thesis had no email facility or conferencing possibility. IDEF0 use was a creative use of a modelling tool but may have been discounted if email had been available. Reference to Nygwenyama's work (1997) may be made.

13. References

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14. Appendices

Appendix A	Overview of IDEFO
Appendix B	Action Research Model
Appendix C	Interviews at Hospital Y and Hospital Z
Appendix D	Revised HISS Model
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IDEF0

IDEF (Integrated DEFinition Method) was developed by SofTech under the ICAM (Integrated Computer Aided-Manufacture) programme of the US Air Force

IDEF0 is a derivative of the Structured Analysis and Design Technique: SADT which is SofTech's propriety methodology based on structured analysis. Basically it is a modelling tool which encompasses three subsets which govern its use: a set of methods that assist in understanding a complex subject, a graphical language for communicating that understanding, a set of management and human-factor considerations for guiding and controlling its use. It allows top down decomposition to break up complex domains in order to facilitate understanding and it provides a means of communicating that understanding.

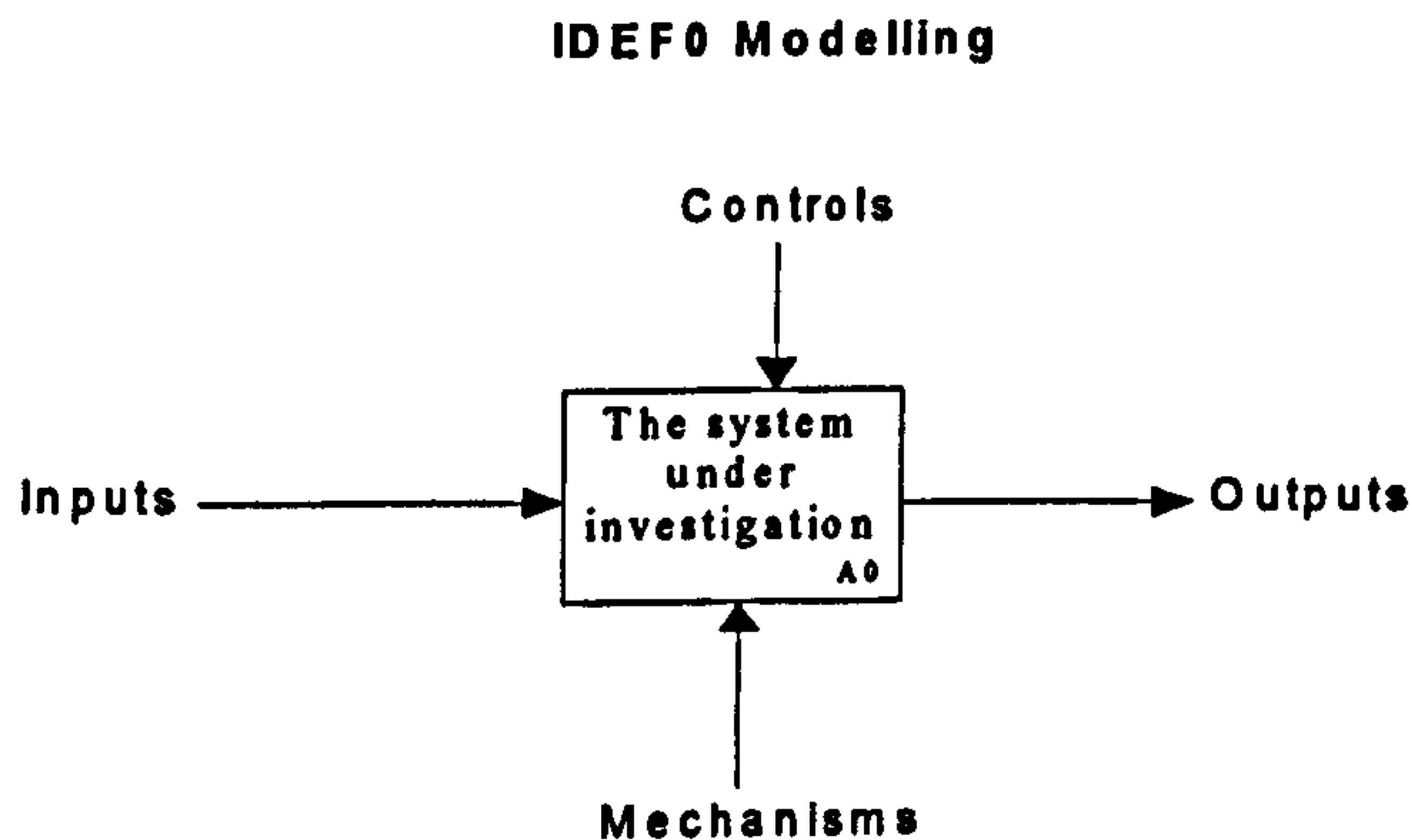


Figure 1 The IDEF0 Model

Figure 1 shows the basic principles behind the IDEF0 modelling. The box(es) on the diagram represents activities. The arrows that connect to a box represent real objects or information needed or produced by the activity. The side of the box at which the arrow enters or leaves shows the arrows role as an input (I), a control (C) or an output (O). The bottom of the box is reserved to indicate a mechanism (M) which may be a person(s) or device (computer system) which carries out the activity. These give rise to the term ICOM

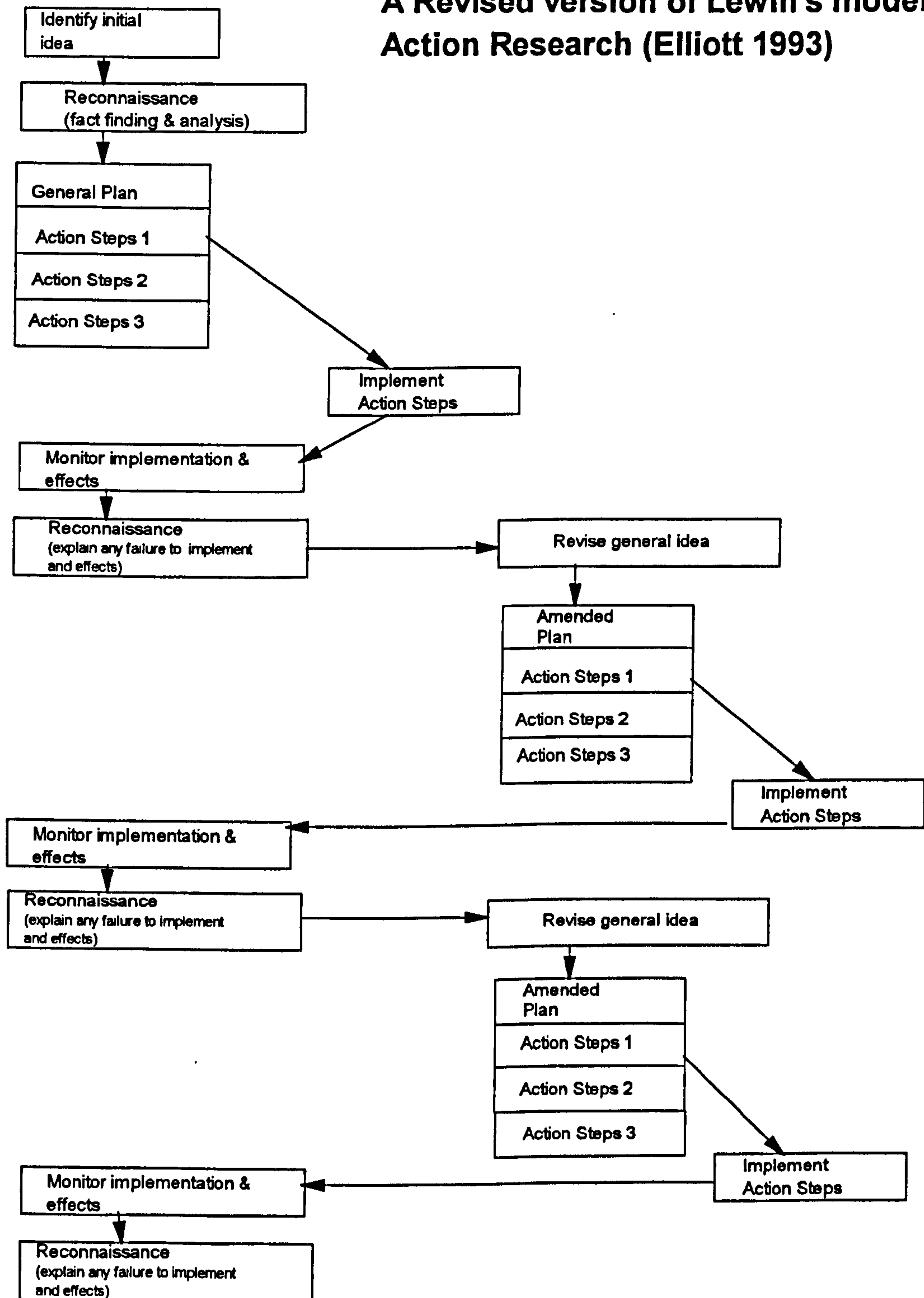
In summary the input and output show what is done by the activity, the control shows why it is done and the mechanism shows how it is done. The automated tool can then be decomposed to further levels to express more detail of the system under study. With decomposition comes referential integrity for all of the ICOMS.

IDEFO as a modelling tool for understanding complex systems integration

Colquhoun (1993) in a state of the art review of IDEF0 divides published work into 4 categories: the description and reviews of the methodology itself, performance evaluation or comparison with other techniques, enhancements of the technique and specific applications. They find there is a plethora of published work on methodological comparisons such as between IDEF0, SSADM, GRAI and SSM, but still no answers as to the appropriate content of the methodology with no one

Appendix B

A Revised version of Lewin's model of Action Research (Elliott 1993)



Appendix C

Hospital Y- Interview Schedule

Job Title	Date/ Time	Analysis Feedback	Analysis Agreed	Dur	Docn
Computer Services Manager	15/01/96 @ 9am	N/A	N/A	30	N/A
Information Services Manager	15/01/96 @ 10.20am	N/A	N/A	1.20	N/A
Business Information Officer	15/01/96 @ 2pm	23/01/96	24/01/96	2	Yes
Business Information Officer	16/01/96 @ 2pm	31/01/96	14/02/96	3	Yes
Contracts Officer	17/0196 @ 9am	23/01/96	31/01/96	1.10	Yes
Laboratory Services - Computer Manager	23/01/96 @ 9.30am	31/01/96	12/02/96	1.10	
Outpatients & Medical Records Manager	23/01/96 @ 2.15pm	01/02/96	15/02/96	2.10	Yes
Business Manager	25/01/96 @ 1.30pm	06/02/96		40	
Clinical Head of Service - General Surgery Liver	26/01/96 @ 11am	05/02/96	09/02/96	1	
Clinical Head of Service - Laboratory Services - Histopathology	26/01/96 @ 2pm	N/A	N/A	1	
'Junior' Doctors	31/01/96 @ 11am	N/A	N/A	1	Yes
Speciality Manager - General Surgery	01/02/96 @ 10.30am	08/02/96	02/03/96	1.20	
Information Services Manager	5/02/96 @ 10am	15/02/96	06/03/96	1.30	
Business Manager - Lab Services	6/02/96 @10am	26/02/96	26/02/96	.30	

Hospital Y- Interview Schedule

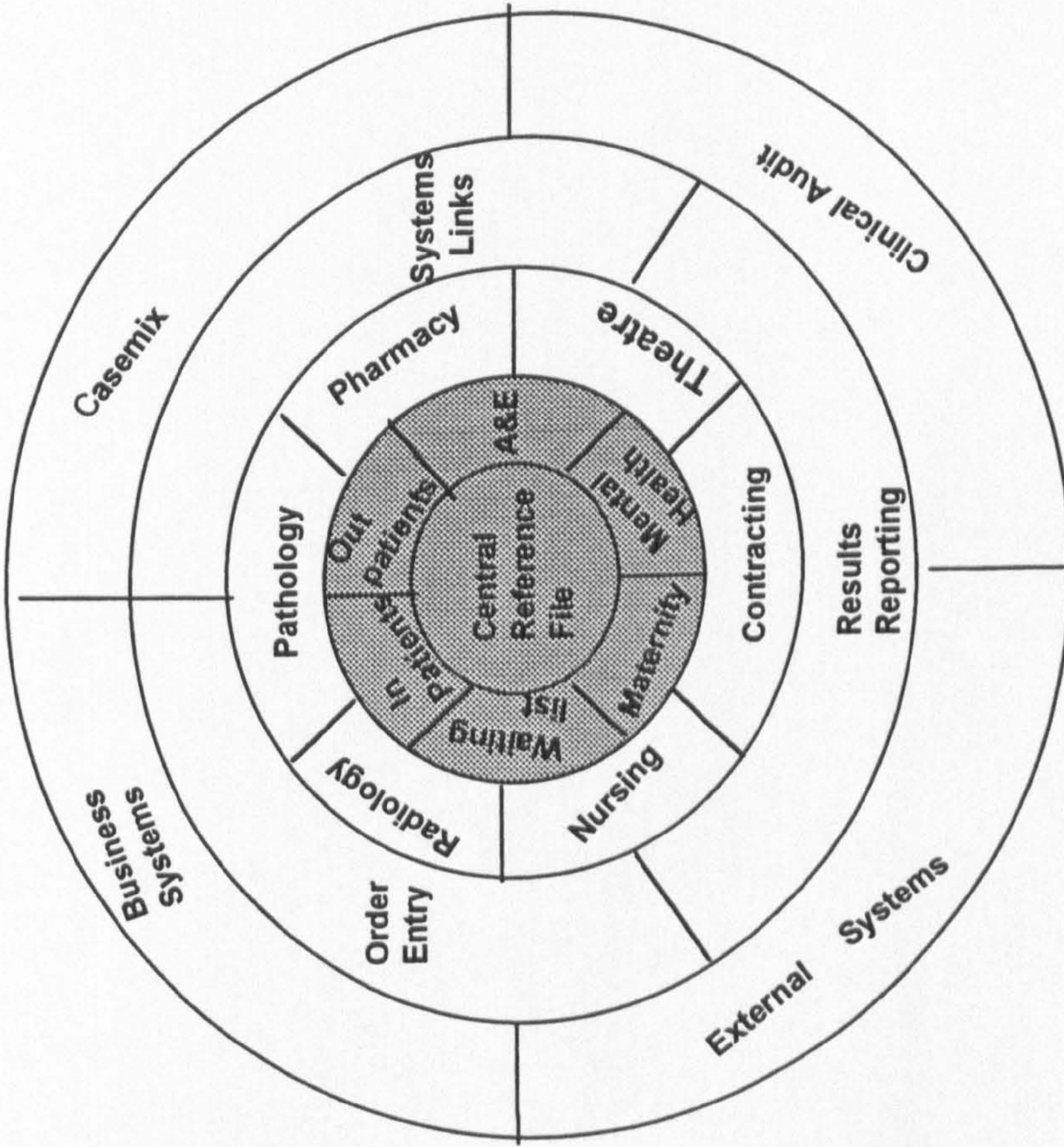
Technical Head of Bio-Chemistry	6/02/96 @ 2pm	26/02/96	06/03/96	.45	
Clinical Head of Service - Bio-Chemistry	9/02/96 @ 9.15am	26/02/96	27/02/96	.15	
Clinical Director - Lab Services	9/02/96 @ 2.30pm	N/A	N/A	.15	
Clinical Head of Service - Haematology	12/02/96 @ 2.30pm *Cancelled*	N/A	N/A	0	
Business Development Director	13/02/96 @ 9am	20/02/96	27/02/96	1	Yes
Secretary	14/02/96 @ 10am	N/A	N/A	1	
Clinical Director - General Surgery	14/02/96 @ 2.30pm			2	
Outpatients - Management	15/02/96 @ 2pm	15/02/96	15/02/96	2	Yes
GP liasion Officer - Business Management	16/02/96 @ 9.30am	26/02/96	06/03/96	.30	Yes
General Surgery	16/02/96 @ 3pm	N/A	N/A	.40	Yes
Service & Capital Planning Manager	19/02/96 @ 9.30pm	29/02/96	06/03/96	.40	
Outpatients Management - Systems Demo	20/02/96 @ 10.30am	N/A	N/A	2	Yes

Hospital Z Interview Schedule for Staff associated with Gynaecology project

The following were interviewed during the period of April 1997- December 1997. A number of these staff were visited on more than one occasion for further information and some were involved in the modelling exercise.

Clinical Director, Gynaecology	1hr
Mr G, Consultant Gynaecology	1hr
Senior Registrar, Gynaecology	2hrs
Secretary to Clinical Director	2hrs
Secretary to Mr G	
2 Administrators, Gynaecology	1hr
Research database administrator	1hr
Business manager, Gynaecology	1hr
3 Junior doctors, Gynaecology	.5hr
Senior Sister, Ward G	1hr
Chemotherapy sister, Ward G	.5hr
Nurses on Ward G	1hr (Initial interview)
Clinical Director, Theatres	1.5hrs
Business manager, Theatres	
Finance Manager (ECRs)	1hr
3 Sisters, Theatres	1hr
3 Staff in the Coding section	1hr
2 Staff on Admissions and Outpatients.	1.5hr

Appendix D



A Revised Baseline Model for HISS

Appendix E

Background to the Research in Hospital X

Hospital X is situated in the centre of Newcastle upon Tyne. It is not a typically modern hospital unlike its rival, Hospital Y, two miles to the north east but it has a tradition built up over two hundred years which is reflected in its underlying structures and culture.

The history of the Hospital X (Hulme 1951, Trust Merger document 1995) can be divided into five distinct parts:

1751 -1801	Early work at Gallowgate and on the Forth Banks.
1801 - 1853	Reconstruction and fever control
1853 - 1906	Addition of the Dobson Wing and Ravensworth Wards, rapid development of surgery
1906 - 1991/92	The new Infirmary on the Leazes and the development of specialism.
1994/1995	Trust status, mergers with Newcastle General and Hexham General hospitals (and in 1998 with the Hospital Y.)

This history of almost two hundred and fifty years is visible all around the Hospital X site with buildings of different ages and reflected in past paintings on the walls, various statues and busts commemorating past illustrious doctors and surgeons and of course the historical gifts available at the gift shop.

However some of the most dramatic changes to the Hospital X have taken place not in direct response to changing health needs but to new political initiatives. In 1992 the Hospital X took the first steps to becoming a second wave NHS Trust hospital. In April of 1992 its former unit general manager became Chief Executive and a board of directors were appointed. In 1994/95 the Hospital X was involved in the merger with two smaller units - the General Hospital in Newcastle and Hexham General, fifteen miles west from the Hospital X. The NHS politics within Newcastle did not finish there as in 1998 the Hospital X and Hospital Y merged with many of the Hospital X management leaving post.

Thus this proud history of over two hundred years of patient care within the Hospital X starkly contrasts with the focus of the early 1990s where merger and acquisition by management appeared to be high on their agenda.

It is also interesting that the Hospital X has a reputation as being innovative in a number of medical areas and yet in terms of its IT infrastructure it is many years behind other comparable Trusts. This naiveté was evident during the research period.

The history of IM&T in the Hospital X

The research at the Hospital X began in March 1995 when the hospital had already achieved Trust status and had embarked upon a merger with two other hospitals on different sites. The Newcastle General hospital (NGH) was based in the west end of Newcastle in what might be described as a socially deprived area and Hexham General (HG) was 15 miles west of Newcastle in a middle class rural setting.

During the 1980s the Hospital X was run by a unit general manager and his team who reported to the Regional Health Authority. The hospital in the early 1980s had very little in the way of hospital information systems expect for some early PCs: *"Bed reports in the mid-80s began to be done on the 'computer-in-a-suitcase', the*

Osbourne” (Interview with Information Manager, 1995). In the latter part of the 1980s some ‘progressive’ departments began to acquire their own systems such as Microbiology and Biochemistry (Ferranti system) and a Renal system.

In 1987 the Hospital X linked into the district PAS system (ICL IRC) built through an Inter-regional Collaboration (IRC) which had evolved from Hospital Y’s involvement in the pilot RMI. All of the Newcastle hospitals which used PAS accessed their particular modules through District’s Computer Unit based on the Hospital X site [established approximately 1985]. In September 1990/91 the District Computer Unit were allowed to form a trading agency INFORM based at Cramlington which became NEWCARE which eventually found a partner in ITNET. The trading agency were allowed to remove the PAS system from the Hospital X site and relocate it at the Cramlington base leaving a ‘*mess of wires*’ behind (Interview with Information Manager, 1995).

The Hospital X was a 2nd wave RMI site and during that period bought a Case mix system, a theatre management system and one or two other departmental systems with funding from RMI. The theatre management system was not particularly successful and fell into disuse.

At the beginning of the 1990s the Hospital X began to undergo huge change in relation to its management and focus. The introduction of ‘Working for patients’ and the purchaser/provider split fundamentally altered the relationship between primary and secondary care and the Hospital X began to experience new pressures on it from GPs. There was a need to provide more information and GPs were beginning to demand access to Hospital X systems. Added to this was the relative autonomy that Trust status brings and the newly merged Hospital X, NGH and HG which strained all systems, manual as well as IT based, to the limit.

A major problem for the Hospital X at the time of establishing Trust status was the deteriorating service that ITNET were providing with regards to the PAS. The PAS had been facilities managed since it had moved out to Cramlington. The PAS as it stood had a limited life span in the ‘new NHS’ and it was recognised that the Trust needed a replacement to fulfil its information requirements. A strategy working party was set up to produce the IM&T strategy for the Trust and a major influence on this group was the RMI Manager from Hexham General. With the agreement of the working party he invited Peter Checkland to assist the Hospital X in developing its IM&T strategy using a Soft Systems Approach (Checkland et al, 1996). Checkland interviewed as many stakeholders as he felt necessary including a number of highly placed clinicians. What emerged from these discussions was that the clinicians wanted a system which focused on patient-care and they were completely dissatisfied with the current PAS. The concept of a HISS was born at the Hospital X and was greeted with general approval from within the hospital. The HISS that the Hospital X would purchase would involve two stages:

Stage 1 - PAS, Casemix, clinical coding system and contract monitoring system

Stage 2 - Results reporting, casenote tracking and Order communications.

IT in the newly merged Associated Hospital Trusts

At the time of writing the IM&T strategy the Hospital X had no IT department but because of the problems with the PAS and the commitment of the Trust that “*Core*

competencies will not be contracted out' (Trust document, 1992) IT was regarded as a core competency and it was decided to develop an IT department.

The first appointment to be made was the IT manager who joined the Hospital X in August 1994 from the Cramlington based ITNET where he had been working as an IT consultant for them. He inherited two staff - Tony who had been in Finance doing user support and Simon who had been a chef by trade but his father was the Hospital X Information Manager. Both of these young men had limited training and ability but were trying to provide technical and software support for end-users within the Trust. However many of the users had more expertise than Tony and Simon and consequently had little respect for them. The IT department was under the direct control of the Finance Director who had taken on responsibility for RMI during the late 1980s. Before any new members of the IT department could be appointed the IT manager was tasked with writing the business case for the proposed HISS. As he had not been long as a NHS employee he had to familiarise himself with the macro as well as the micro levels of what is the largest employer in Europe. Added to his problems was the Trust being on three sites with completely different types of management and IT facilities.

Hexham General had been heavily involved in the RMI and although small by comparison to the Hospital X had 90 contemporary PCs networked throughout the site. They had no-one leading IT as such but had a couple of staff still with six months of their RMI contract to run out. Clinical as well as administrative staff had been trained in the use of the PCs and were quite comfortable with IT. The PAS system at Hexham was provided from Ashington and where there were Ophthalmology patients they were prefixed with an 'E' and this would result in 30000 patients needing to have their patient number changed before the joint PAS could be installed.

Newcastle General Hospital (NGH) on the other hand had 320 PCs of varying age and processing capabilities of which a small number were networked. NGH also had an IM&T manager who was very protective towards her site. She had been dis-established when the merger took place and consequently was less than positive about a new IT manager who would be her line manager.

The new Hospital X IT manager also had problems with accommodation in as much as he had been appointed without much thought going into where the new IT department would be housed. Tony and Simon had two PCs in the room that once contained the facilities managed PAS. It was next to the IM department but in a derelict state having been neglected for many years. It did have one or two old departmental systems still in the room but it had become the rubbish tip for much unused or discarded hardware. It was less than professional and did nothing to enhance the newly emerging IT department's reputation.

The IT manager was given temporary accommodation in a small office next door to the IM manager. He was not altogether happy with this and eventually had some space granted in the attic of the old, Victorian, Peacock Hall.

The Business Case for the integrated HISS

Up to this point the new IT manager had very little contact with the potential users of the proposed system. He had been assigned the task of writing the requisite Business Case for the HISS and he took about four months to complete it ready for submission to the Treasury. Treasury approval is needed for all large capital purchases and all must be accompanied by a business case. The IT manager did not feel the need to involve other members of the Trust except when he presented it to the Finance Director for approval (IT Manager, 1995).

The business case outlined two main objectives for the project:

- Leadership and innovation in the development of healthcare
- Delivery of healthcare services to contract

However the identified benefits of the HISS would be:

1. Reduced systems costs
2. Staff savings
3. Improved contracting
4. Re-deployment of staff
5. Improved information

The business case was not publicly released to the Trust. They hoped Stage 1 would begin in March 1995 with Stage 2 in the following year. In terms of the impact on the Trust it was not anticipated that Stage 1 would cause any real impact as it would just replace systems already in place and that would just require retraining. CMMS however was new and staff would need more training than those just converting. Stage 2 would impact greatly on the Trust as a whole and would have to be considered carefully when the time came. The Business Case went to the Treasury in January 1995.

Before considering the events which occurred during the months when the researcher was on site it is important to examine the groups of users who were going to be essential to the success of the HISS project. Much of the discussion about the HISS had taken place at Board level and very few people were aware that changes were going to be introduced which might affect the way they worked.

User groups and culture within the Hospital X

Even though healthcare is the main objective of the NHS it would be incorrect to assume that there was one dominant culture within the Hospital X and this greatly affected the HISS project.

The customs, practice and perspectives of groups within an organisation can allow insight into how and why events unfold during a project. Within the Trust a number of subcultures exist and have developed over time and it is enlightening to see how they behave and interact. First of all an overview of each of the subcultures will be provided and then consideration of the effects of the interaction of subcultures on process is provided.

The Senior Management Team (excluding Clinicians)

In April of 1992 the former unit general manager of the Hospital X became Chief Executive and a board of directors were appointed. In 1994/95 the Hospital X was

involved in a power struggle which saw it merge with two smaller units - the General Hospital (NGH) in Newcastle and Hexham General, fifteen miles west from the Hospital X and within two years they were responsible for three acute hospitals. The rationale for merging with the NGH was fairly easy to understand in terms of duplication of activities across two local sites but Hexham General could only be viewed as 'empire building'.

Each member of the Trust Board had a secretary who sat in an office outside their room and acted as a guardian for their respective boss. At the time of the research with the exception of the Finance Director none of the Board members had a PC on their desks though their secretaries did. E-mail was not available in the Trust and consequently all internal communications was done through memos, meetings, and telephone calls.

The senior management of the Hospital X were a group of people who had been managers in various guises prior to gaining Trust status. The Chief Executive was invisible for the most part and left the day to day running of the Trust to the Director of Finance. He too also adopted a hands off approach to management within the Trust especially where the clinicians were concerned. Management was devolved to the appropriate level and the management structure of the Trust was hierarchical in nature.

In their dealings with the staff at Trust level they appeared to want to inculcate a culture of team work and openness. Every month two members of the Board of Directors held an open meeting for Trust employees to attend when they reported on events, changes, new initiatives and other relevant news. They also allowed employees to question them on issues which might be pertinent to them. There was also a monthly newsletter in which both management and employees alike could express opinions.

The Board were not interested in conflict and appeared to avoid it where possible. They had taken almost three years to introduce the Clinical Directorate Structure whereby Clinical Departments took control of their own budgets and accepted management roles. At the time of the research this still had not been formally accepted by all doctors across the three sites and the Board were pursuing negotiations. This will be discussed further in the next section when considering the doctors.

The doctors

From a historical perspective the clinical subculture has been present in the Trust for many years. The Hospital X itself is a teaching hospital with a renowned reputation for clinical excellence. There are leading clinicians, professors and knights among the employees of the Trust. Yet there are students and junior doctors who are just beginning their career and take their role models from these senior individuals. These technocrats have developed practice through the pursuit of technical knowledge and believe in the supremacy of the scientific approach. Thus doctors are viewed as being highly intelligent and responsible members of society by the general public

However when the profession is examined more closely then the hierarchy begins to emerge where consultants are supreme, ruling their own kingdom with what can often be described as an iron fist and junior doctors are at the other end of the spectrum.

Consultants build for themselves and have built for them by their secretaries an impregnable wall which keeps the unwanted out. They have access to research funding which allows them to work independently of the Trust and not rely on devolved budgets. Their flexible contracts also allow them to take on private work and in some cases adopt a cavalier attitude to management.

Unlike management there does not appear to be a dress code and it was usual to see some eccentric appearances around the Trust.

Consultants see themselves as experts and as such expect to be treated with respect in every aspect of hospital life. The majority of them are IT literate and have to some extent access to internal research databases which they may have created themselves and external sources. Where respect is not given then an unwary member of the IT department might be faced with a three week wait for an appointment to see the respective consultant.

During the period of research it was interesting to observe the attempt by management to alter to some degree the professional relationships within the Trust by introducing Clinical Directorates which cut across all three sites. These Directorates called for senior staff to head up a team of consultants and doctors who did not necessarily share the same specialist interests or skills. They also required the new Clinical Directors to align themselves to a degree with management and pay regard to management issues such as budgets, staffing and resources. This integration of management and clinicians had been introduced in a number of Trusts during RMI but it was not attempted in the Hospital X until 1995.

The nurses

Another clinical subculture is the nursing subculture which also has a long history in the Hospital X. Up until the early 1990s the nursing profession had always been subservient to the doctors and were often treated as inconsequential in any management decisions.

However with the introduction of Project 2000 and the professionalisation of Nursing the status of the nurse has changed. Many nurses in Newcastle hold post-graduate degrees and a major centre for nursing research is based at UNN with a number of Professorial posts held by ex-nurses turned academics. Recognition of the status of the nurse is shown in the new directorate structures which acknowledge the importance of their views and opinions by having a Directorate Head of Nursing for each directorate (Trust Restructuring Document 1995). These heads then form a Hospital wide team led by the Director of Nursing. Gaining access to these people can prove as difficult in some instances as contacting a clinical consultant though on the wards staff are as busy as they ever were dealing with ill patients.

The nurses are the primary carers of patients in the hospital and are recognised as a group of people who work in teams within each department and although there is a hierarchical structure on wards this is not apparent in all cases as the senior nurses on the wards often do the same work as the juniors and then do their management tasks on top of this. Care Plans are central to the nursing process and these are negotiated with the relevant doctor and the patient where appropriate.

The Information Department

The Head of Information joined the Hospital X in 1981 as the Medical Records Officer and was responsible for completing returns for the District Authority. Over time he was promoted and now has responsibility for admissions, clinical coding, casemix and contracting with GP fundholders and local health authorities. The majority of staff who work for him are female and the main day to day running of the department is done by Lorraine (she was appointed as Senior Business Support Manager and then turned it down). The Head of Information is extremely astute and has very good interpersonal skills and his department are extremely loyal to him.

The IM Manager spends much of his day to day work meeting staff both internal and external to the Trust. He is able to network regularly and thus effectively extends his sphere of influence. He uses his deputy, Lorraine, to great effect as she is a hard task master with the other staff in the department. Information for contracting is usually delivered on time but it may be at the expense of the junior staff. Thus the Deputy IM Manager is feared and disliked by the staff in the department but the IM Manager himself is popular and also seen as a very effective manager by other staff in the Trust.

Where there are conflicts of interest the IM Manager would approach the individuals direct and begin negotiations or speak to someone with influence who could affect the outcome.

The IT department

Without an historical tradition to follow the IT department as developed by the IT manager evolved its own subculture. The IT manager had no formal university education in IT and had progressed his career through programming to project management. He had very few PC based skills and had no experience of networks.

The IT manager's first appointments were made in February 1995. The Network Manager was appointed from a commercial media organisation. His skills were technical in nature and had no experience of the NHS. The other appointment was the Senior Business Support Manager who actually worked for the Information Manager and was basically his deputy. She decided against taking the post and it was offered to Sue who had worked at Calderdale Trust. However Sue was not appointed as Senior Business Support Manager and was told she would 'have to prove herself' during the first six months of the job. Of those in the senior posts within the IT department Sue was the only one who had NHS experience and had proven interpersonal skills having worked as a systems analyst in her two previous jobs. However from the start the IT manager seemed to value her skills much less than those of the Network Manager. She did not talk in technical jargon and was given tasks which brought her into contact with the users in the hospital. His Network Manager was very technically oriented and liked nothing better than talking in technical jargon. However his technical skills came into question when he appointed a Network administrator, Noel, who was obviously well versed in Novelle networks. Noel was a mature member of the department who had been made redundant some months earlier from a position in the brewing industry. He was extremely astute and the Network manager was wary of him.

A further appointment was made at analyst/programmer level, Robin, who could only be described as a 'maverick'.

Appendix F

Background to the Research in Hospital Y

Hospital Y opened at the end of 1977. The origins of Hospital Y are difficult to rationalise. There were already two major hospitals within the City of Newcastle and why there was a need for another one is unknown (Director of Business Development Hospital Y, 1996). However once the service was supplied the demand grew to match it.

Regionally Hospital Y became a centre for certain specialities. For example all cardio-thoracic services/surgery were centralised there. Previously some were at Seaham and Shotley Bridge. Also in the middle of the 1980s ENT which had been fragmented was unified within Hospital Y and this provided a 'critical mass' - pulling expertise together rather than single specialists. This concentration on specialisation also took Hospital Y out of competition with the Hospital X and General Hospitals which both had accident and emergency departments.

Before 1984 the management structure of Hospital Y was similar to the Hospital X with a Unit General Manager reporting to the district general manager in the district health authority. However as the NHS reforms of the 1980s began to progress Hospital Y was at the forefront and got heavily involved in mechanisms for costing services. Out of that costing of services came budget management and from that work came RMI and Hospital Y were one of the first six pilot sites.

This enthusiasm to be at the leading edge of developments partly arose from the younger clinicians who had begun to work at Hospital Y when it opened. The Director of Business Development at Hospital Y believes that they had something to prove with two older and more traditional hospitals in town. That assisted management because the clinicians were working with management from the start to develop and establish the hospitals reputation. The culture in the hospital was different from the start. It was a more performance based culture rather than a traditional culture and that has grown through the years.

The Resource Management Initiative was particularly attractive to Hospital Y because they were a specialist hospital and were attracting work from all over the region. If it were tied to a budget from the local HA they believed they would not get enough recognition for the regional work they did. So the opportunity to use information to demonstrate what they could do, what they did do and how successful they were at it would allow them to profit from their work. Hospital Y were given funding by Government to purchase various systems including departmental systems such as Pathology, Radiology, Nurse Management as well as a Casemix. Unfortunately the Casemix was less than successful from a clinical perspective and the Nurse Management system was abandoned. One success that Hospital Y did feel was achieved through RMI was the establishment of Clinical Directorates with specialty managers in place to manage at clinical level.

Before the RMI was evaluated at Hospital Y the Government had moved the NHS into the purchaser/provider quasi-market and the clinical benefits of RMI were forgotten. Also Hospital Y applied for Trust status in 1991 and was one of the 61 1st wave Trusts. They believed that having a regional catchment it was illogical to be tied to one HA when they were receiving patients from many HAs and could demonstrate that the work they were getting from outside Newcastle was specialist work. They felt they could control their own destiny. There was a mixed response to Trust status within the hospital as groups of different political persuasion emerged. Some staff were concerned about their jobs too. However now the anxiety has died down and Hospital

Y Group of Hospital Trusts comprise Hospital Y and Walkergate Hospitals and the Northern Centre for Cancer Treatment at Newcastle General Hospital.

In 1993 the Acute Services Review took place in Newcastle with the Chief Executives of both Hospital Y and Hospital X looking at the changes in clinical technology over into the millennium, the reductions in length of stay that that would create and need for beds that would engender - in fact was there a need for three hospitals ? [This issue is still current in 1999].

The tensions between the Newcastle Trusts was evident in 1996 when the project began. However it is fair to say that Hospital Y had no intention of being subservient to the Hospital X. The Chief Executive actively encouraged his staff to be innovative and look for ways of making money above and beyond their hospital duties. Pathology carried out health checks for insurance companies; domestic services had contracts in other Trusts.

However one area which lacked any real sort of development was IM&T where there had been very little investment apart from the original RMI funding. Where many departments were leading the country in clinical technology and skills the IS/IT area was very poor. There was no IM&T representation at Board level and in fact the two managers of the respective IM and IT departments were relatively low level management. IT was seen as unimportant by the Chief Executive who did not use a PC at all.

The History of IM&T in Hospital Y

Although one of the original RMI pilot sites Hospital Y had not invested in information systems for a number of years choosing to concentrate its efforts in gaining Trust status in the early 1990s. Consequently some of its systems were in need of replacement. With the introduction of the purchaser-provider split in 1991, Trust status and the contracting process, the Trust has had to react to the need to manage its own finances and remain financially viable. It appears to a great number of staff that all of the hospital's activity revolves around contracting, which is a central process currently, and the devolved autonomy which was promised to the directorates under RM has failed to materialise. Hence there is a tension present within the hospital between the central business functions and the directorates. This tension is manifest in the current debate within the Trust about data quality and the ownership and responsibility of information.

Historically the hospital is suffering from a legacy of systems dating back to the early 1980s which run on different platforms and provide the Trust with many problems of data transfer. This legacy also applies to the microcomputer systems. Departments appear to have been allowed a great deal of autonomy and consequently appear to have randomly purchased hardware and software for their own use without reference to the Trust as a whole.

Hospital Y Hospital probably has a bigger contracting load than any other hospital north of Leeds. It contracts with eight Health Authorities from the Tweed to the Tees and because it is a regional hospital it has a large number of GP fundholders (93 in 1996/97 financial year).

The information the Board gets in relation to contracting comes in the form of the Board Papers. These papers are produced around the 12th of the month from data contained in CFIS (Clinical and Financial Information System). The information

produced in the Board Papers is based on data collected for the previous month's activities and is not real-time data. The information systems currently used in the hospital cannot produce information which is more timely and consequently when the internal staff get to see the contracting information they have very little confidence in it.

Since the introduction of the Patient's Charter waiting list information has also become very important. Currently the Clinical Directorates keep the waiting lists and pass information down to Information Services which presents the figures for the Board. However there is no standard method for maintaining these waiting lists and there is a suspicion that the directorates are not keeping accurate up to date waiting lists. It appears that waiting list information is a contentious issue for all in the Trust as the Directorates have an alternative perspective on the subject.

One area of information which the Trust is not gathering is that relating to referral patterns. It appears that GP referrals are going up 'through the roof' for many specialties. If the Trust knew the source of demand and why it is happening then they could take action. At present they only see the end-point where they see 'x' patients per district.

In the coming financial year the Trust is due to join the **Nation-wide Clearing Service (NCS)** at a cost to the hospital. There appears to be a lack of clarity as to how it will impact on the contracting process within the Trust. It is unclear how they are going to disaggregate the GPFH activity from the district activity when it goes through the NCS and its affect on the purchasers - the Trust appears to have regular debates with GPFHs about charges and who pays.

Data quality will be vital for transmission of contracting information through the NHS network to the NCS. Any data which contains errors will incur financial penalties for the Trust as amendments will not be done by the NCS.

Another area which might impact on the Trust in the near future is the 'Evidence based Contracting' initiative which the NHS Executive are discussing with purchasers [See paper by Nuffield Institute]. To provide the information the purchasers require more clinical information will need to be available and in the correct format.

Performance management is another issue which will be on the political agenda whichever party governs in the next five years. Performance in terms of delivering the services promised for the agreed financial remuneration and to the Charter Standards. How the performance of the Trust will be monitored will provide a challenge and collecting of the evidence to support performance will be difficult using current information systems.

The Trust has little or no marketing information relating to the services provided by other hospitals and relies on regional office to produce their compendium of prices. However other hospitals are trying to attract business away from the Hospital Y and are aggressively marketing their particular services. Pathology services within the Trust have suffered as a consequence of action taken by another local Trust and once business is lost it is difficult to get it back.

A business case had been submitted for a new and much needed Pathology system which is hoped will facilitate electronic links with GPs and improve the Trust's competitiveness . The Trust is involved in the NHS Electronic Patient Record (EPR) pilot and it is looking towards replacing its PAS system which dates back to 1985. The IM&T strategy group had only just been formed with a remit to 'get things moving' and the Computer Services Manager was new to the Trust having only been in post a matter of four weeks. Improved communications and a reduction of the flow of paper between departments in the hospital were seen by the strategy group as desirable by many staff. There was a backbone IT fibre optic network in place around the Trust but what was needed was an understanding of the issues involved in trying to implement a software solution which could provide the facilities they believed were required. They had already tentatively considered a software package which was being offered by a local supplier. The software would allow document flow between departments and email.

Appendix G

Background to the Research in Hospital Z

Hospital Z hospital was built in the 1950s to address a perceived need for hospital care for the Gateshead and surrounding area. Unfortunately the hospital is only about three miles from the RVI separated by the river Tyne. This close proximity to a leading and prestigious teaching hospital has always caused Hospital Z to be seen as second-rate in the eyes of the public on Tyneside. However in 1996 Hospital Z hospital provided emergency and planned healthcare for over 200,000 local people.

In April 1992 the hospital began a three year Resource Management programme and as part of the programme it procured a Casemix Management system and a Nurse Information System. As part of their RM programme they also agreed to purchase a Maternity Information system. The hospital has other clinical systems including Pathology, Radiology and Pharmacy systems. Unfortunately all of these systems run on different hardware platforms using their own particular software which does not integrate with anything else.

Hospital Z and Bensham Hospitals became the Gateshead Hospitals NHS Trust in April 1993. This was a third wave Trust where Hospital Z has approximately 458 beds providing acute services including hospital and community based maternity services and the Bensham hospital with 162 beds which concentrates primarily on the provision of rehabilitation services for the elderly.

Since becoming a Trust the Chief Executive and the Trust Board have committed the Trust to major service improvements and developing a 'quality culture'.

In January 1997 the Trust began discussions on a merger with Gateshead Community Healthcare Trust and at the time of the research this merger and the uncertainty it created had some impact on the Payroll/Personnel Project. The merger was completed by August 1997 after some deliberation by central government.

Hospital Z hospital has a typical Trust management structure where the hospital has been involved in the Resource Management Initiative. The development of effective Clinical Directorates has been a high priority in the Trust and there appears to be a strong commitment to the structure from clinicians and management. The Trust is still in the change process with regards to these new Directorates and a recent addition is Gynaecology where the Clinical Director is supported by a new Business Manager. It is interesting to note that the Business Manager of Gynaecology is male while all of the other Directorate Business Managers are female and ex- senior nurses.

The senior management within the Trust appear to have a team approach to the running of the Trust and this is characterised by the 'open door' policy of the Chief Executive. He shares the same floor in the management block as many of the other middle and senior management and is often to be seen out around the hospital.

Unfortunately the IT department in the Trust has had a difficult history over the past five years where implementations have failed. In 1995 the then IT manager had a long period of stress related illness and the department was left without any leadership.

Many departments within the Trust began to take more responsibility for their own IT with the consequence that the IT department virtually became irrelevant.

The newly appointed IT manager now finds himself only involved in technical issues and support and is rarely asked to get involved in implementations except when technical advice is required. He has thus adopted an attitude where he is not proactive and prefers not to get involved in any software issues.

The History of IM&T in Hospital Z

As has already been mentioned the Trust was involved in RMI and acquired a number of departmental systems through government funding, all running on different platforms. The Trust also has a mainframe PAS which dates back to the 1980s and is in need of updating. However it is reliable and well supported by the software company. The PAS is used for outpatient clinics management as well as in-patient management but some clinical departments still prefer to manage their own clinics and this causes problems for the Trust and the contracting process.

Prior to the start of the research at Hospital Z the Trust outsourced its payroll management to an external company. Unfortunately the relationship between the two organisations had deteriorated to a point where the Trust wanted to bring the system in-house.

All of these different infrastructure issues had grown from a lack of understanding by the senior management of the need for an IM&T strategy which would allow the Trust to progress to a point where systems were able to at least communicate with one another at a technical level. The lack of an IM&T strategy did not seem to cause the senior management any difficulties and they continue to adopt a laissez-faire attitude to new systems.

There was no-one at board level to champion a Trust approach to IM&T and the IT department were not viewed as particularly important. The IT manager appeared to accept a low-profile role and was uninterested in getting to know the business.

The Payroll/Personnel System

Outline Project History

In April 1997 Hospital Z Trust had two separate departments - payroll and personnel housed in the same building but carrying out different functions. Both departments were experiencing difficulties in their own areas:

1. The Payroll was run by an FM company whose service was becoming less and less reliable over time. Staff were expected to process data in a particular way and then send it via a BT link to the FM company. The quality of the information received from the company was poor and reports were completely inflexible. There was also the issue of escalating costs.
2. Personnel were also experiencing difficulties in relation to the quality of their data and the inability of the 'old' system to produce reports relating to absenteeism, training etc. Management throughout the hospital had no confidence in the system and the credibility of the Personnel Dept. was low. Medical staff had a high turnover - this is not unusual do to them moving around for experience. Also medics and nursing staff regularly attended training courses - there was no central record of who was doing what/ or who needed to go on which course.
3. Both payroll and Personnel had different databases of staff using different staff numbers. There was no link between them.
4. Payroll ran GCT payroll but GCT had their own personnel system. What that was debatable - a mixture of paper and PC.
5. Management at board level had decided that it could improve the situation by purchasing new systems or an integrated payroll/personnel system. It was essential

that the executive managers had the information they needed in relation to staffing resources.

6. There were difficulties within departments in relation to time-sheets. Everyone up to CE was expected to fill one in every week even when they were salaried staff who worked regular 9-5 hours.

Both Heads of the Personnel and Finance department had made deputations to the Chief Executive for new information systems but individual departmental ones.

However the Trust Board suggested that the two departments should look for an integrated system which should simplify certain issues from a management perspective. It was no secret that a merger was being planned between Hospital Z and GCT but initially the procurement of the new system had been going ahead without acknowledgement of the fact. A project board had been set up of people who were prepared to authorise the new system/systems. This consisted of The Chief executive, Director of Finance, Head of Information and the Director of Personnel. In the Trust a project team was established whose brief was to consider purchasing an integrated system but if none met the requirements then to examine individual systems. This was headed by a Project manager due to his experience in procurement. The IT department was significant by their absence. Their reputation was that of a technical department who knew nothing of business.

Apart from the Project manager none of the team had ever been involved in a procurement before and he had never run a project before. The Project manager's main expertise was in drawing up specifications on behalf of other people. Initially they had to prepare a report for the project board about the system they wanted. Most of the input came from the Project manager - costs/needs etc. and he drew up a spec according to NHS guidelines. They eventually placed an advert in the European Journals (February, 1997) and soon after companies prepared their tenders and sent them into Hospital Z.

Prior to the tenders coming in the project team had to deal with a number of inquiries from smaller companies. Eventually they went through a short listing process - documents were divided up within the team according to the expertise of the individuals and they came up with a short list. They all agreed they were looking for an integrated system - however if there wasn't one which was good enough then they would purchase two individual ones - payroll was seen as vital. This process took a lot of time - sometimes out of hours and was done using a marking system. This was intended to help in establishing a comparison with what they had all come up with - pros and cons for both the personnel and payroll sides of integration.

There is a limited choice of payroll/personnel systems on the market due to the requirements of the NHS i.e. Whitley council and local pay bargaining must be incorporated into any system for, say, nurses pay.

Companies were invited to come to Hospital Z and give a demonstration of their systems. The project team prepared a script for the companies to follow (borrowed from another Trust). The team tried to encourage as many people as possible from both departments to go to the demonstrations (in lunch times mainly). They felt it proved interesting for all who attended but it was a difficult period as all the demos were done within 7-10 days - but at least each system was fresh in the minds of staff. Every member of staff who attended the demonstrations was given guidance as to

what to look for -each one received the same script with a score sheet. The script took a new starter through the system and they were asked to score the system on ease of operation etc. and then give it a score.

The decision based on the outcome of the demos and the tender documents was to go with PerPayCo. It was not the best system from the Personnel perspective but they felt as an integrated system it was the best - 'there had to be compromise' (Lilian) and Payroll liked it.

The project team visited other sites to see systems of companies on the short list in operation (2 main integrated systems). The rejected system had too much detail and would have required a lot of work on behalf of the Personnel dept. to get it to work the way they wanted. Even so the PerpayCo.system would still require a lot of work.

The team found their visits to the demonstration sites very interesting and it gave them insight into their internal problems. For example one site had bought the rejected system and had only managed to get it to work as well as the old one after two years.

Another PerPayCo. site in the NE (Freeman) was only using the personnel side of the system and trying to operate it in the same way as they had operated their old IPM system.

It was felt that the PerPayCo. system was not the problem itself but the way it had been implemented. Exeter had implemented Payroll before Personnel - with the difficulty of personnel trying to catch up. This they were told was due to political problems.

They returned from these visits to find that the Trust board had proposed formally a merger with Gateshead Community Healthcare Trust (GCHT). This was hugely disappointing for Hospital Z staff because they were told that they could not go ahead with the procurement - they must consider the other Trust.

GCHT had a head office in Low Fell, about two miles from Hospital Z. It was a fairly large community Trust covering Gateshead, Felling, and some parts of Washington with a decentralised management structure to the various local healthcare centres. However it did have its own Personnel department but relied on the Hospital Z for the management of its payroll. In other words they prepared their own time sheets, overtime and other related documents and then they were passed to Hospital Z who then put it into the correct format for the transmission to the FM company.

Appendix H

GATESHEAD HOSPITALS NHS TRUST

Queen Elizabeth Hospital

Sheriff Hill, Gateshead, Tyne & Wear, NE9 6SX. Tel: 0191-487 8989 Fax: 0191-491 1823



Your ref:

Our ref:

Theresa Waring

Newcastle Business School

24th July 1997

Dear Theresa

BUSINESS PROCESS RE-ENGINEERING OF PERSONNEL & PAYROLL FUNCTIONS

On behalf of the Trust I would like to thank you for your invaluable help in training and facilitating members of the project team in BPR. As you are aware the project has not been the most straightforward involving as it does different disciplines and separate Trusts, who are involved in a merger and all the potential conflicts that are potentially involved in that process.

I believe that your professionalism and independence from the trusts enabled a successful process in which new concepts of working and information flows that may not have been considered without the methodology were fully investigated.

I would also like to extend the gratitude of the project team who have gained significant benefit from your involvement and arrived at a solution that will improve working practices, and put in place the building blocks for the eventual integration of both trusts departments by standardising processes now. If the Trust can assist you in any way regarding further research regarding the implementation of these processes post April 1998, please do not hesitate to contact me.

Yours Sincerely

CP Macklin
Director of Finance & Information



INVESTOR IN PEOPLE

Appendix I

Background to the Research in Gynaecology- Hospital Z

Traditionally the Directorate of Gynaecology had until recently been part of obstetrics and gynaecology. However it had built for itself a national reputation specialising in gynaecological cancers and had become a regional centre for gynaecology with geographical boundaries stretching westwards to Carlisle and Cumbria and southwards to North Yorkshire. The whole of Cleveland, Durham, Tyne and Wear and Northumbria are covered and in addition patients may be referred from outside the area for specialised treatment.

The department has a long history and has been influential in the development of gynaecological oncology as a clinical speciality in its own right. It is considered to be one of the principle centres in the UK for the treatment of gynaecological cancers and is well known internationally, particularly in the development of standards and training. Patients are referred either directly from GP's or from other hospitals and although some procedures may be carried out by other hospitals in the region the department tries to keep track of all patients within the area that have gynaecological cancers. This is done for the Northern Gynaecology Group (NGOG) using a simple Microsoft Access database set up by one of the consultants.

As well as patients who are referred for specific symptoms, referrals may also result from abnormal cervical smears.

Treatment of patients diagnosed with cancer is generally by surgery, which ranges from simple procedures performed under local anaesthetic to major surgical events. Radiotherapy and Chemotherapy complement surgical treatment and are carried out by other specialists within Hospital Z.

In addition the department has a significant research output with some doctors working purely on research projects. All clinical staff are involved in research projects from time to time and the progress of projects is reviewed by the whole department at weekly meetings.

Although the department is administered from its own separate offices within the hospital grounds, clinical work is undertaken within the main hospital. Clinics are held in the Outpatients and Endoscopy departments (and in other local hospitals such as Hospital X). Surgery is performed in the shared hospital theatres and some procedures are carried out on a day case basis.

Two consultants, the Clinical Director and Mr G, head the department. The Clinical Director is the more senior and was appointed in 1974. He has a significant national and international reputation in the field. Mr G was appointed in 1995 but has been with the department for approximately ten years in total, having been promoted from the role of senior registrar.

Two senior registrars and a number of more junior doctors support the consultants. The majority of the clinical staff are from overseas, gaining experience of gynaecology or undertaking research projects. During the research period doctors from Poland, Malaysia, Hong Kong, Australia, The Bahamas and Trinidad were in residence, demonstrating the reputation that the department has beyond the UK. Within the main building of the hospital the care provided for the Gynaecology patients is on Ward 14a. This is a high dependency ward where patients are often extremely ill and need a great deal of nursing. Besides having an experienced ward sister there is also a sister experienced in the delivery of chemotherapy supported by a team of highly committed nurses.

The Business Manager works for the department on a part time basis and he works for the NHS on a contractual basis overseeing various development projects. The decision to make Gynaecology into a Directorate was taken in 1996 because it brings in a great deal of money to the Trust in Extra Contractual Referrals (ECRs) and with the recent Government initiative to develop cancer services it was an opportunity to develop a centre of excellence and bring in extra funding.

On the administration side there are two secretaries, Eileen and Angela who work for the Clinical Director and Mr G respectively but they also undertake secretarial duties for the other doctors in the department. The department has an Administrator who looks after some of the research database work and two clerks one of whom is part-time.

The History of IM&T in the Gynaecology Department

The department, where the doctors are housed when not on the ward or in operating theatres, is in an isolated part of the hospital grounds and as such has seen itself isolated from the main business of the hospital and the NHS reforms which introduced the purchaser/provider split. This isolation has been reflected in the small independent information systems which have grown up within the department.

Prior to the appointment of Mr G a student on placement built a small administrative system using Wordperfect™ and Dataperfect™ applications held together by macros. This system was specifically designed for use by Eileen and as such reflected how the Clinical Director worked. Eileen was not particularly IT literate and was *“terrified of the new system and became quite obstructive”* (Interview with PC Support Officer, 1997). However it did allow patients' details to be recorded, clinic appointments and clinic lists to be produced. Response letters to GPs and patients are produced on the system but only the most recent letter is recorded, hard copies of all letters being held in patient files. Each patient is allocated a 'W' number, which is the patient identifier reference for the department and this identifier in no way relates to Hospital Z identifier which is held on PAS for the same patient. Patient records at the time of the research totalled around 18000 having been accumulated over 30 years.

It was not intended for multiple users so when Mr G was appointed there had to be some 'fiddling' to get it to work. This situation has continued up to the time of the research and will cause real difficulties when they appoint another consultant gynaecologist to the department as the system will not accommodate another clinician.

The Clinical Director also was responsible for the development of a DOS based clinical database (Dbase IV™) used to store data about operations and subsequent treatments. Information is hand written onto forms by doctors before being entered onto the database. A patient may be entered into the database several times as they undergo different treatments. This clinical database is used for research and performance measuring and there is very little in the way of patient demographics included in the data. The quality of the data collected within this database relies to a greater extent on how effective the junior doctors attached to the department are in completing the data entry forms. From their perspective this is often seen as the lowest priority as they struggle to carry out their departmental duties.

The regional database for the Northern Gynaecology Group (NGOG) is a comparatively new addition to the department and hold approximately 700 records.

This was written by Mr G to record all gynaecological cancers in the region and depends upon hospitals forwarding information to the department. The database includes some patient demographics as well as limited clinical data and its objective is to assess numbers of different types of cancers and their outcomes with the data then being broken down into hospital and local area statistics.

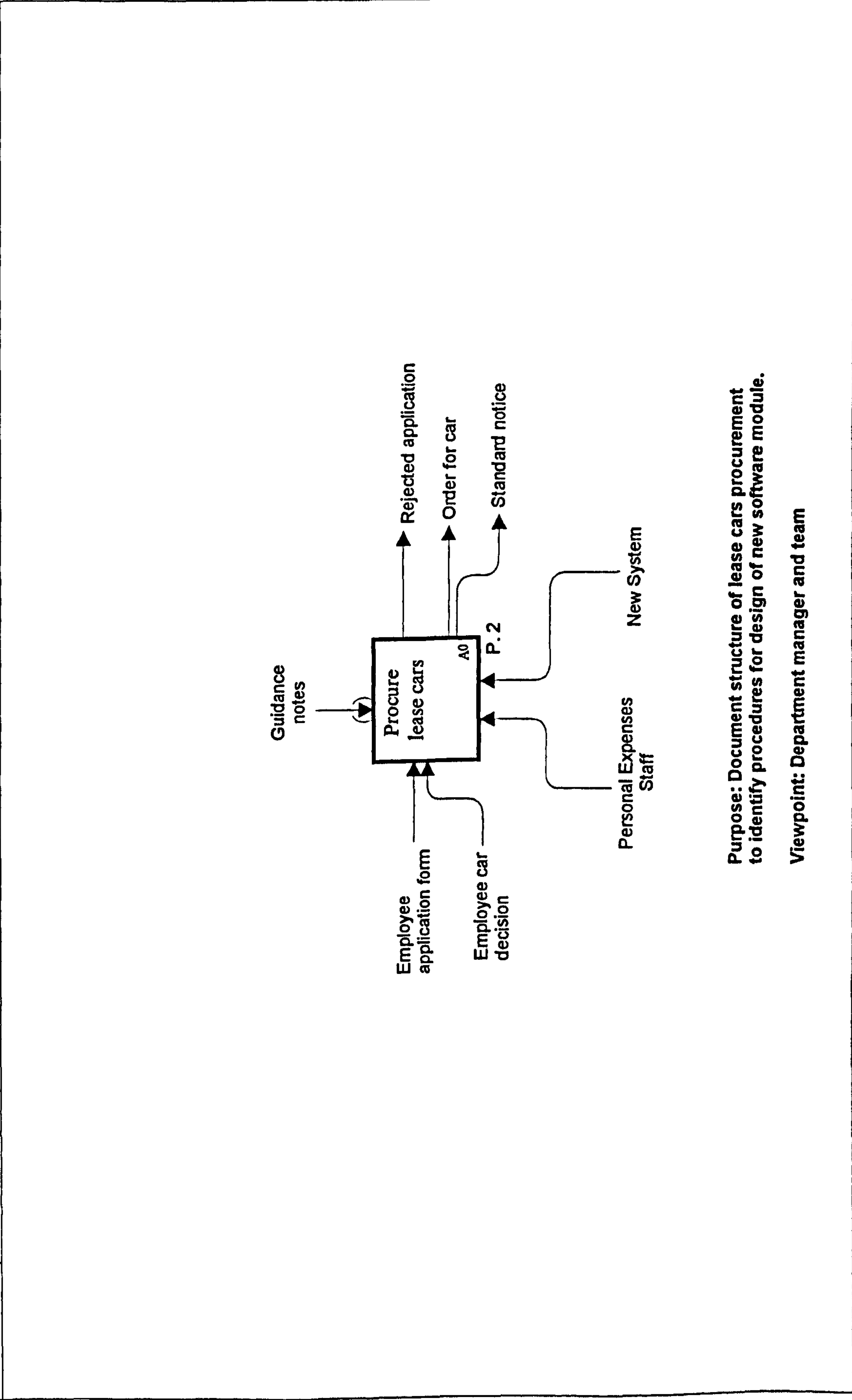
When the department was given Clinical Directorate status it was assigned a Business Manager and was expected to conform to the requirements of the Trust in relation to all Clinical Directorates. One of these was to produce a Business Plan outlining the proposed developments within the directorate. The Business manager sees his role as to ensure that activity is maintained within the department and examine ways of developing the department. Activity in this context is contracting activity. With the co-operation of the clinicians he wants to develop the service and develop the Ward 14a to achieve a greater throughput. To this end he believes that the directorate needs to be integrated more fully with the rest of the Trust. Up until this point they have done their own thing and it has survived because it receives charitable funding from those people and their relatives who have died of cancer. Now that it has its own budget it must be more accountable (Interview with Business Manager, 1997).

This lack of accountability and integration with the rest of the Trust was manifest in the way Gynaecology dealt with outpatients clinics and waiting lists. They never used the Trust PAS system and all communications with the staff in the main hospital was done at the last minute through the secretaries going over to the main building with lists for the clinics that week. This caused real problems with staffing for the clinics and getting the correct skills mix. The new Business Manager was tasked by the Trust Board to sort these issues out as well as others such as lost ECRs which for a major operation followed by intensive chemotherapy could amount to a great deal of money.

He saw the possibility of a new information system as a way to address a number of problems in one, to develop some team building and to give the department a system which might be taken as a blue-print for other clinical departments within the hospital.

Appendix J

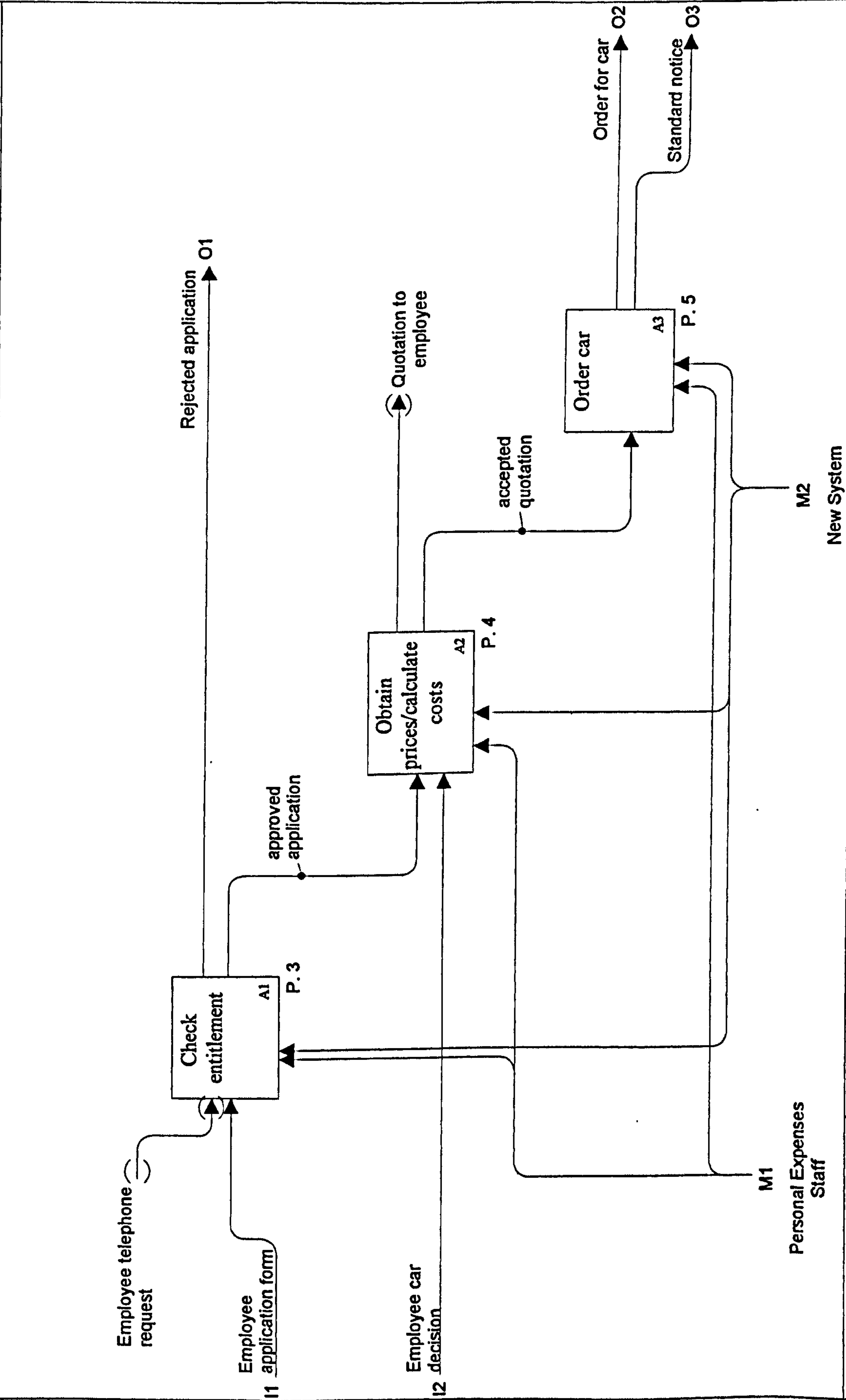
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	PROJECT: Payroll/personnel project	REV:		DRAFT			
	NOTES: 1 2 3 4 5 6 7 8 9 10			RECOMMENDED			
				PUBLICATION			



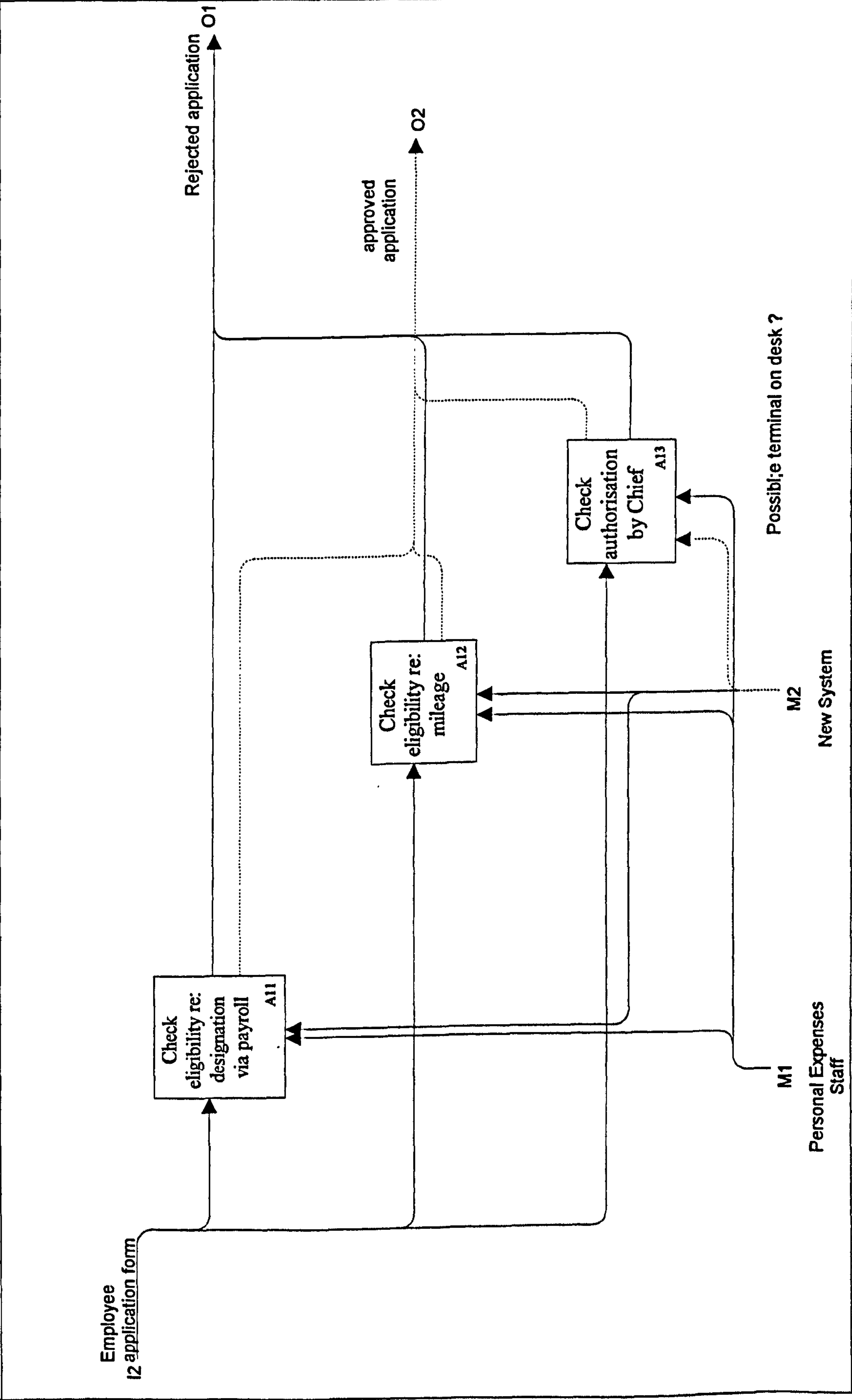
Purpose: Document structure of lease cars procurement to identify procedures for design of new software module.

Viewpoint: Department manager and team

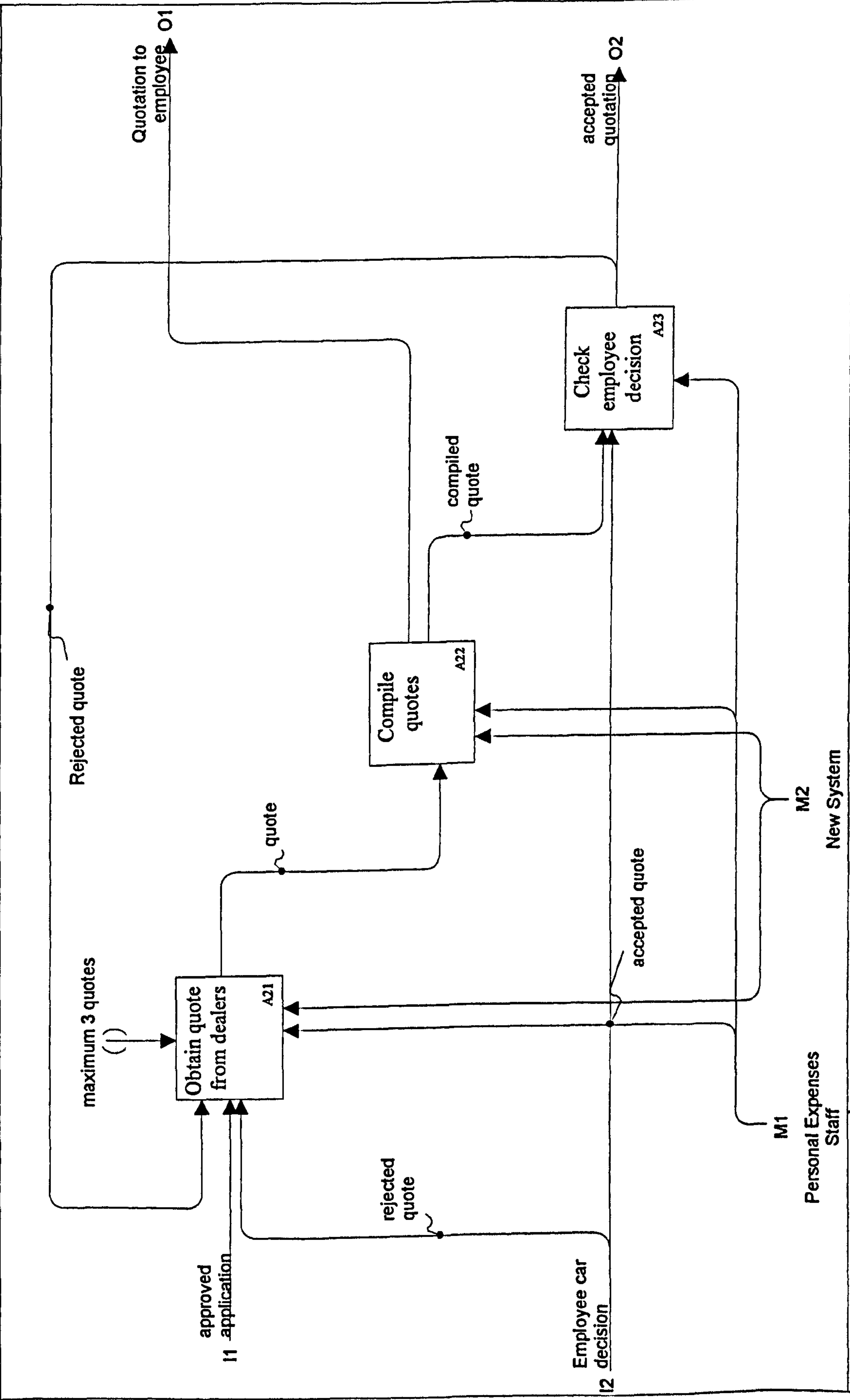
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			PUBLICATION			



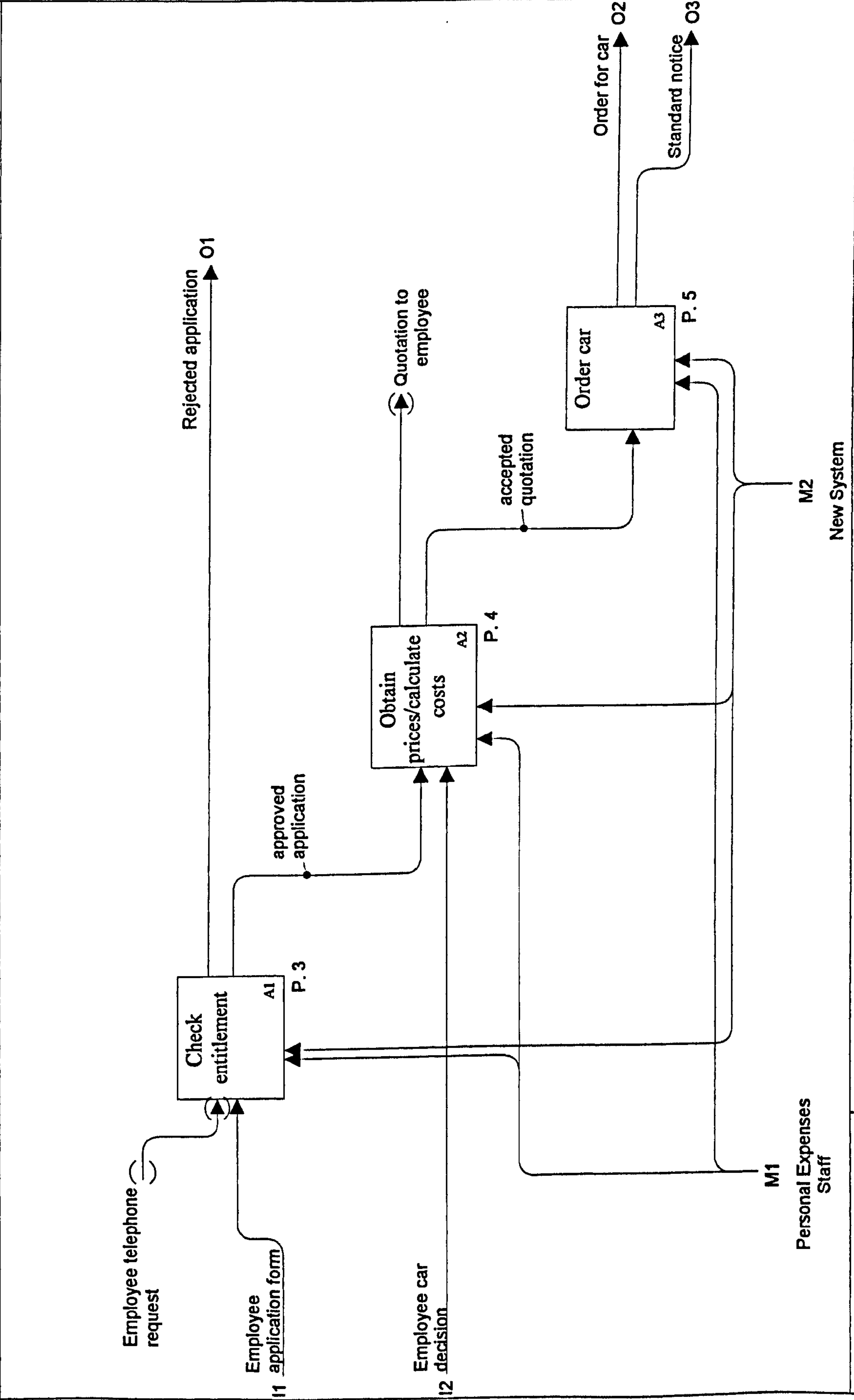
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			PUBLICATION			



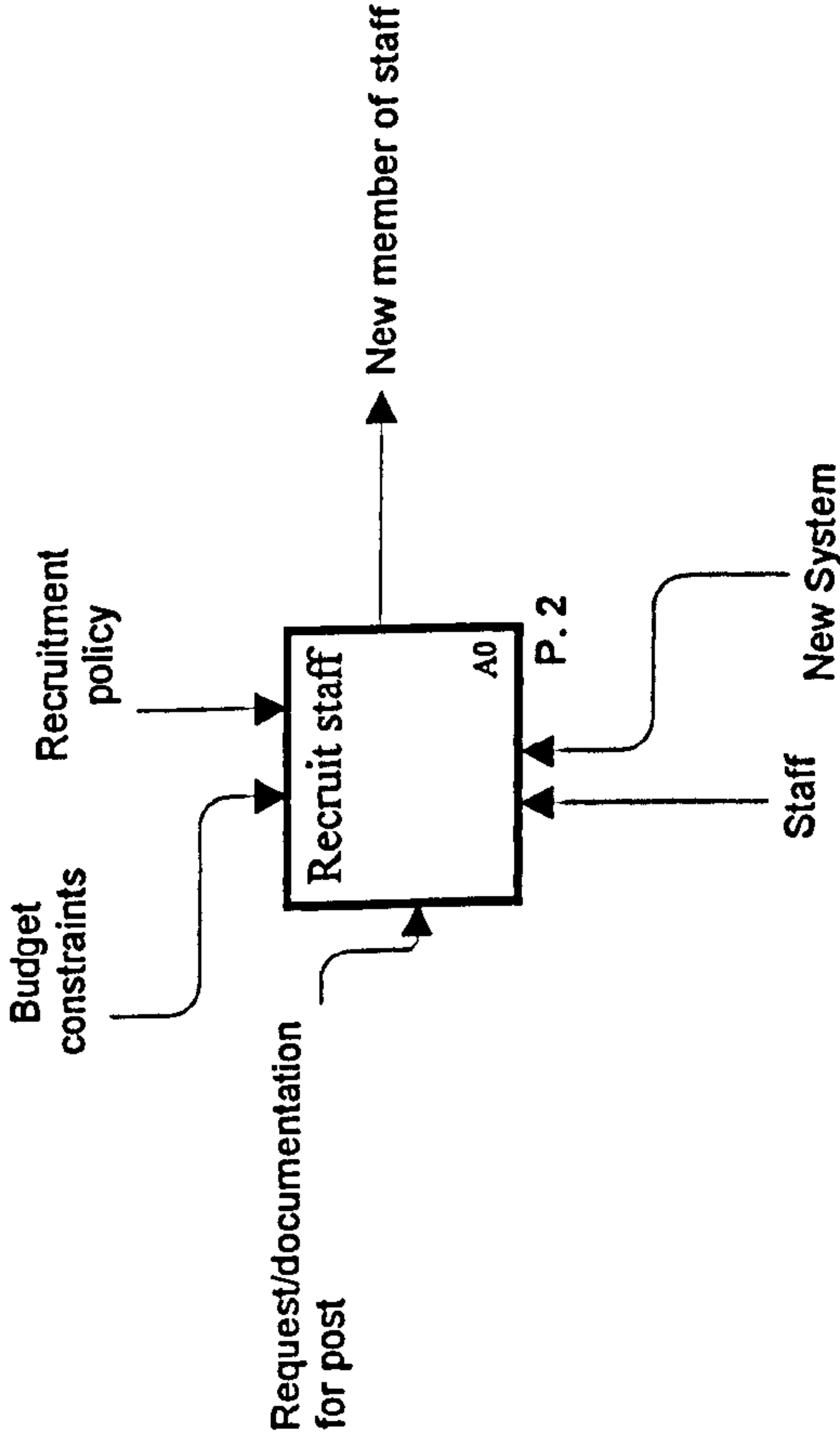
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USED AT:	AUTHOR: Elaine, Expenses manager	DATE:	WORKING	READER	DATE	CONTEXT:
	PROJECT: Payroll/personnel project	REV:	DRAFT			
	NOTES: 1 2 3 4 5 6 7 8 9 10		RECOMMENDED			
			PUBLICATION			



USED AT:	AUTHOR: Personnel staff	DATE: REV:	x	WORKING	READER	DATE	CONTEXT: Top
	PROJECT: Payroll/personnel			DRAFT			
	NOTES: 1 2 3 4 5 6 7 8 9 10			RECOMMENDED			
				PUBLICATION			

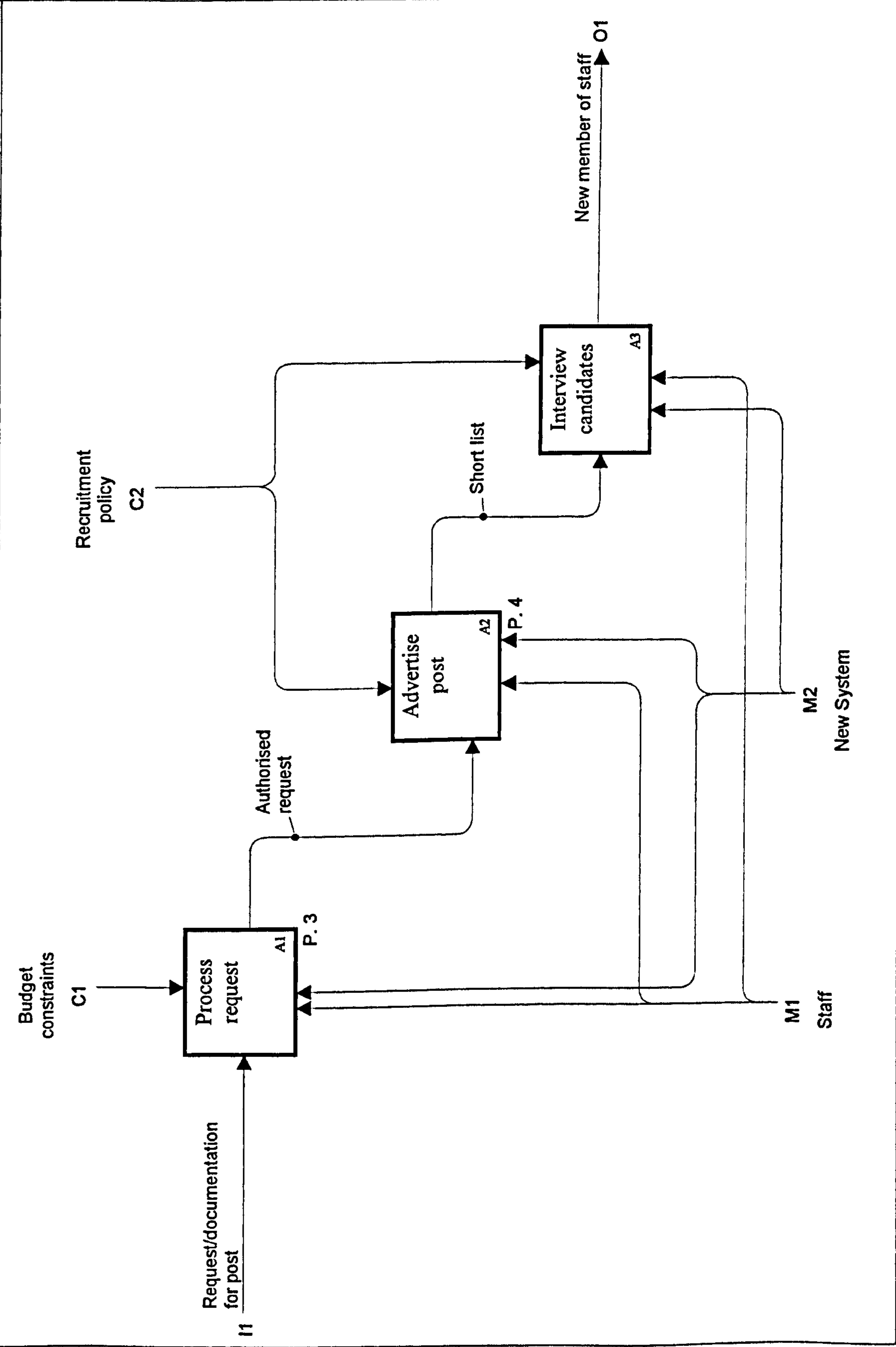


Purpose: To consider the operation of the integrated personnel/payroll system

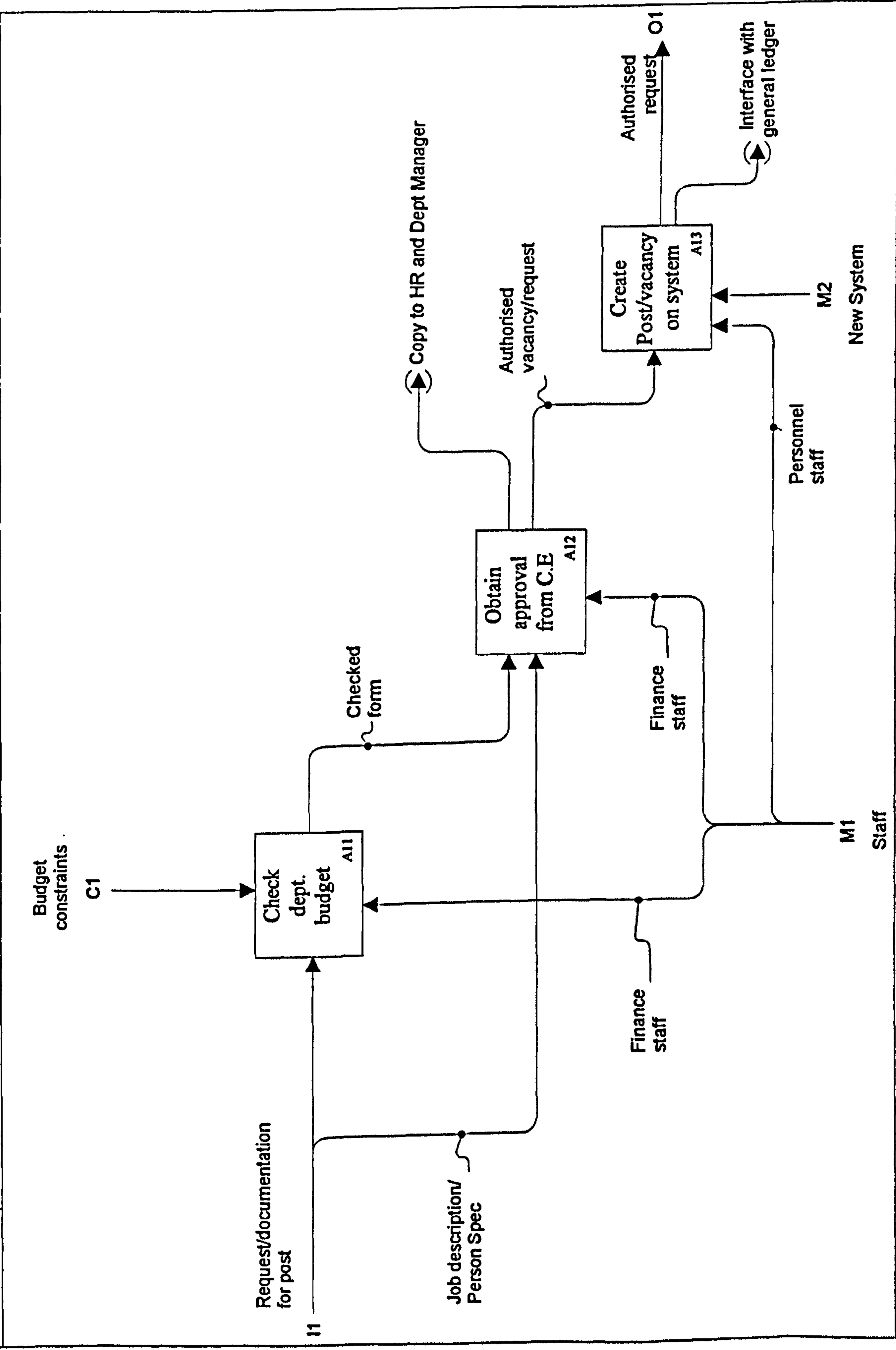
View point: Senior Personnel Staff

USED AT:	AUTHOR: Personnel staff	DATE: REV:	WORKING	READER	DATE	CONTEXT:
	PROJECT: Payroll/personnel					
	NOTES: 1 2 3 4 5 6 7 8 9 10					

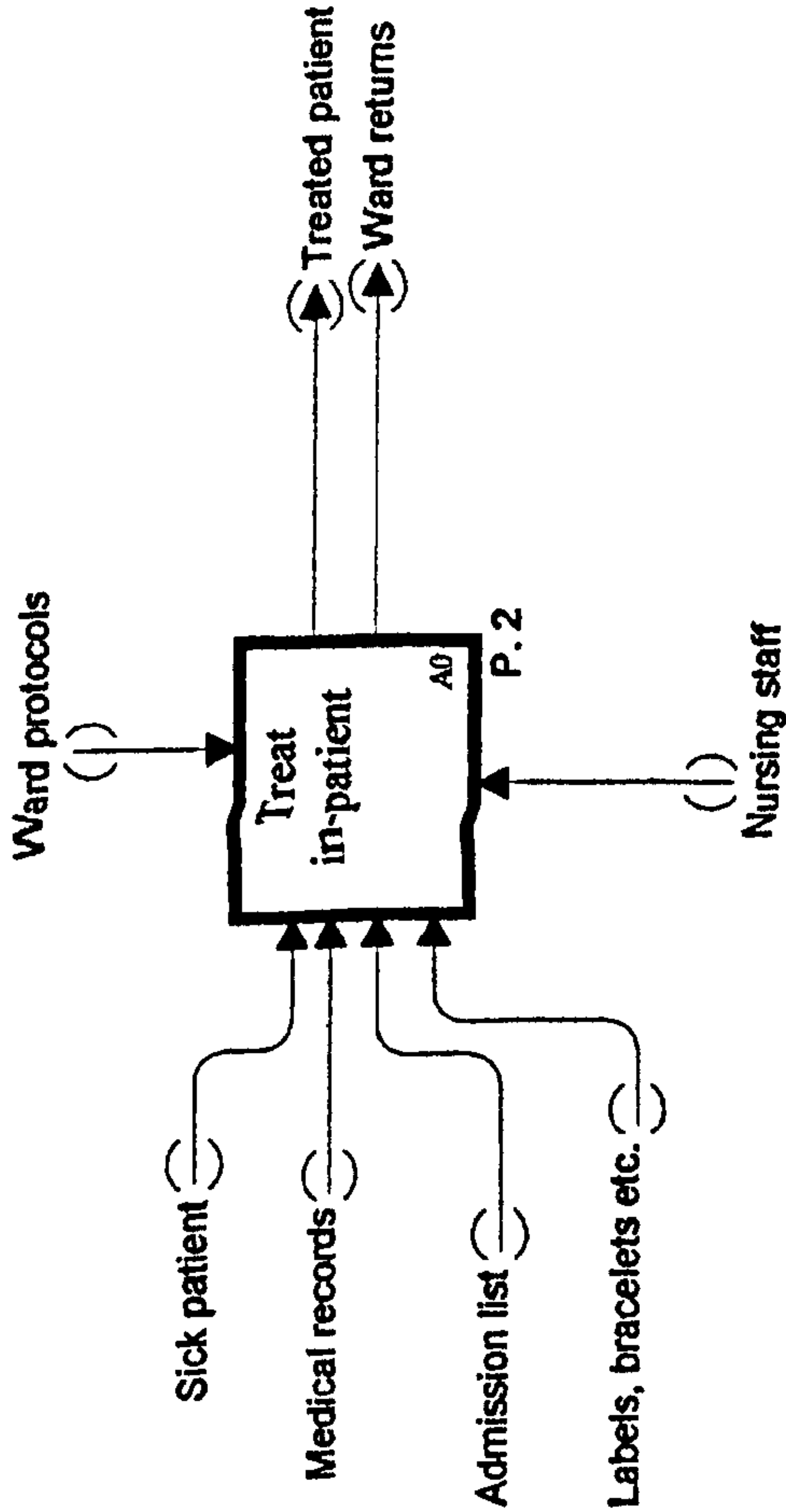
x	WORKING	READER	DATE	CONTEXT:
	DRAFT			
	RECOMMENDED			■
	PUBLICATION			



USED AT:	AUTHOR: Personnel staff	DATE:	WORKING	READER	CONTEXT:
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			PUBLICATION		<input type="checkbox"/>



USED AT:	AUTHOR: Teresa Waring PROJECT: Treat in-patient NOTES: 1 2 3 4 5 6 7 8 9 10	DATE: 12/02/98		x	WORKING	READER	DATE	CONTEXT:
		REV:	DRAFT					
			RECOMMENDED					
			PUBLICATION					
								Top

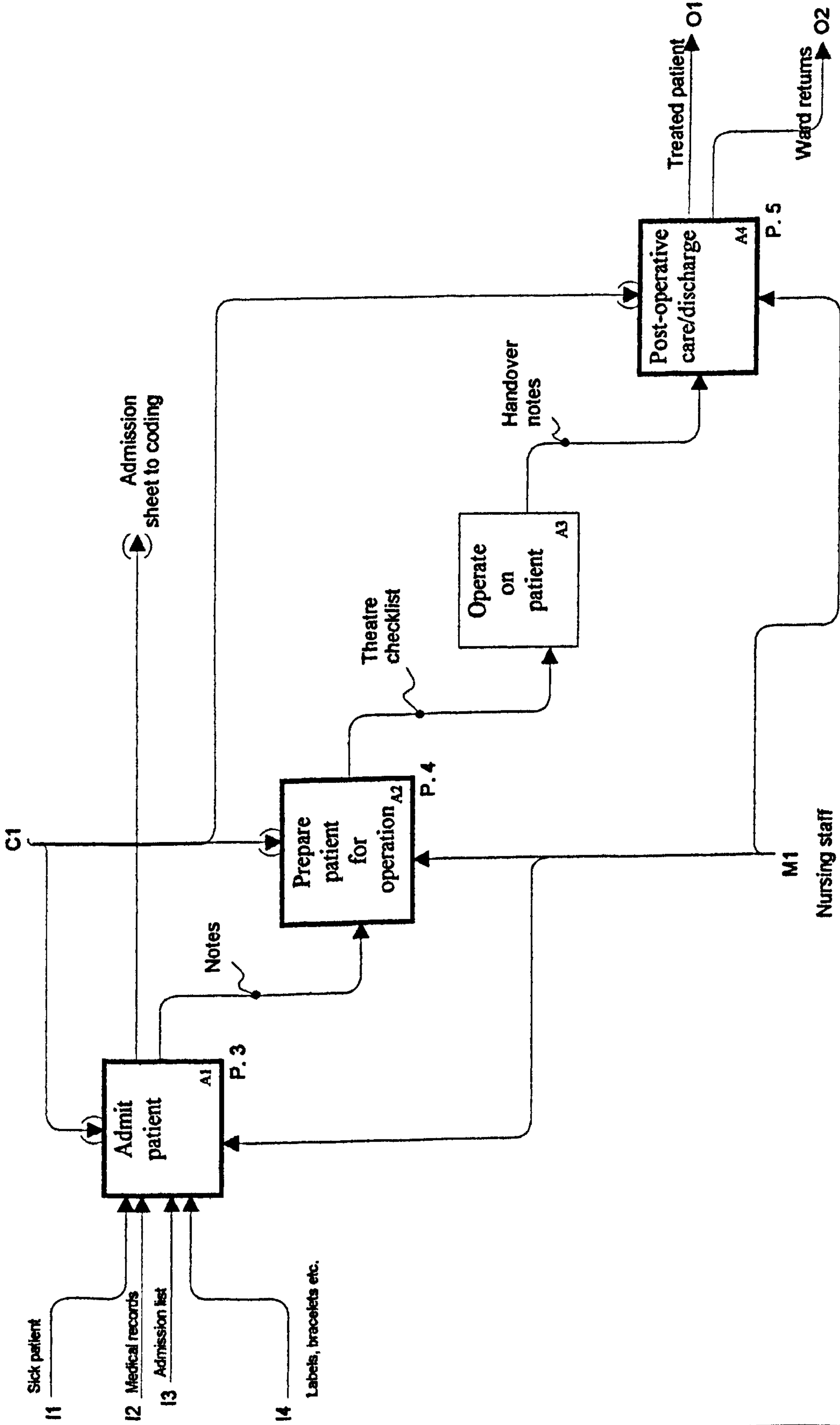


Purpose: To investigate how an in-patient is cared for on Ward 14A

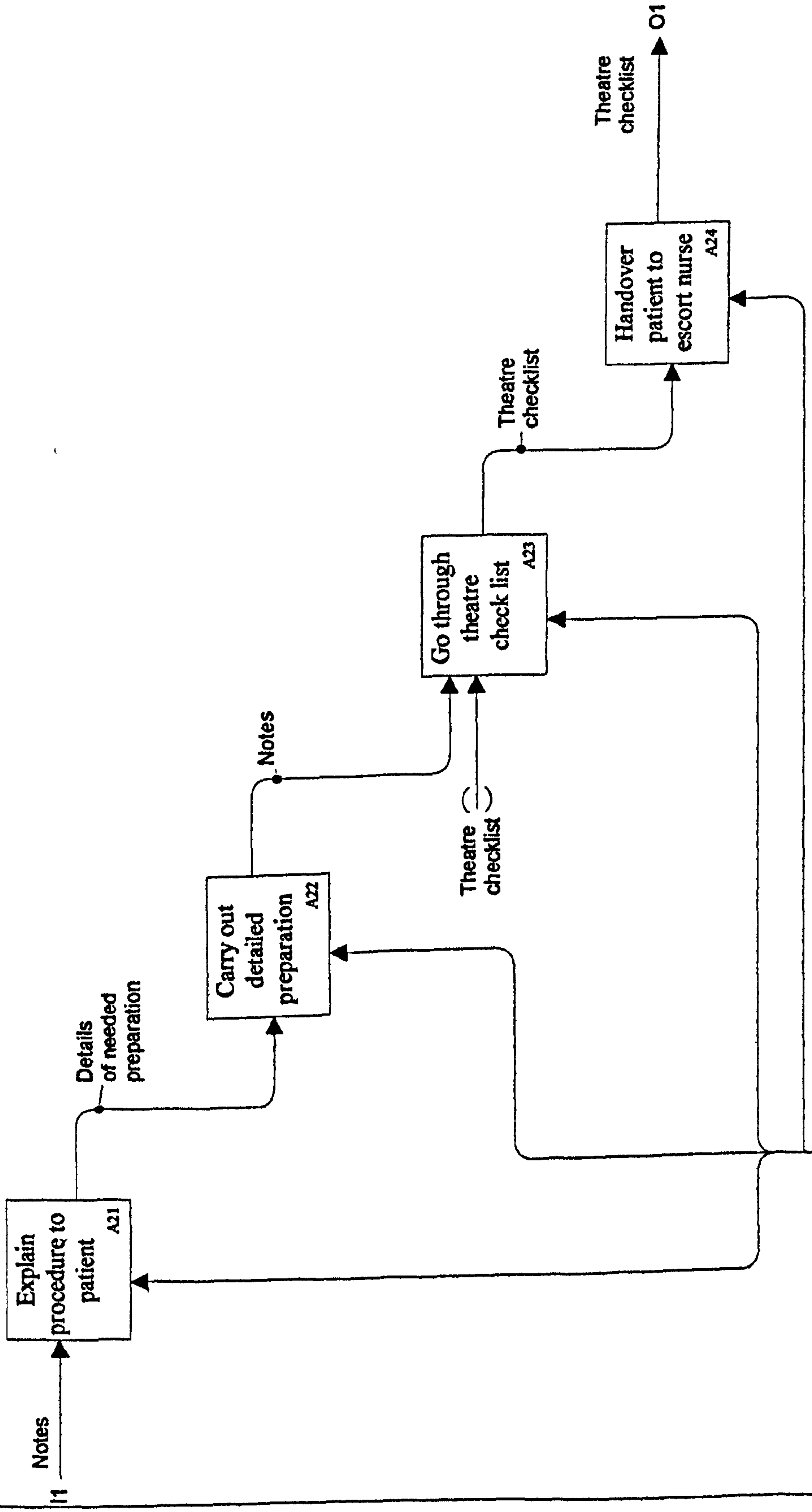
Viewpoint: Nursing staff

USED AT:	AUTHOR:	DATE: 12/02/98	WORKING	READER	DATE	CONTEXT:
	PROJECT:	REV:	DRAFT			
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			PUBLICATION			

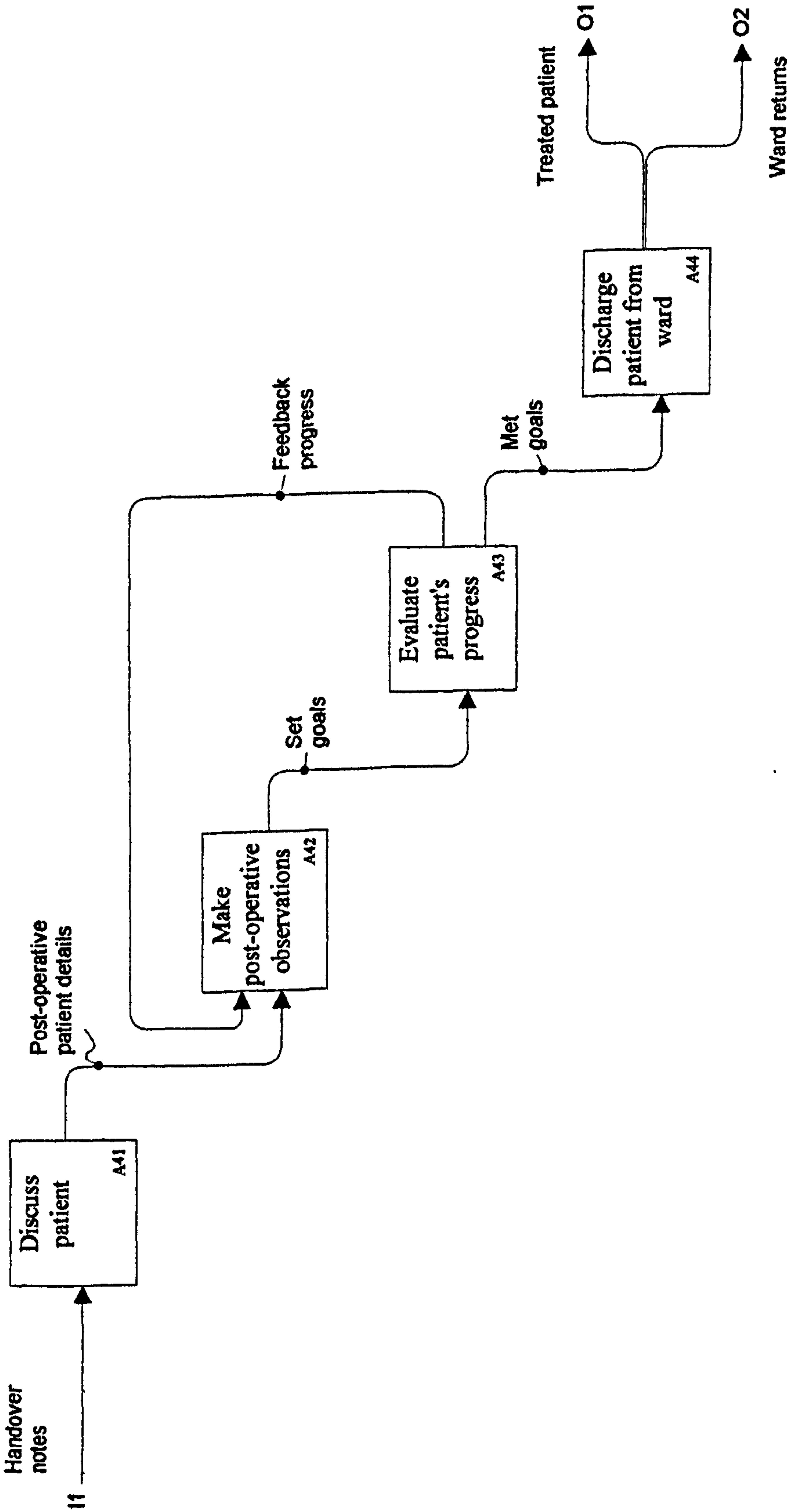
Ward protocols



USED AT:	AUTHOR: Teresa Waring	DATE: 12/02/98	WORKING	READER	DATE	CONTEXT:
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USED AT:	AUTHOR: Teresa Waring	DATE: 12/02/98	WORKING	READER	DATE	CONTEXT:
	PROJECT: Treat in-patient	REV:	DRAFT			<input type="checkbox"/>
	NOTES: 1 2 3 4 5 6 7 8 9 10		RECOMMENDED			<input type="checkbox"/>
			PUBLICATION			<input type="checkbox"/>



M1