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**A STUDY OF THE BARRIERS TO THE IMPLEMENTATION OF
COMPUTERISED INFORMATION SYSTEMS
IN THE NATIONAL HEALTH SERVICE**

by

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B.Sc. (Hons) MSc

A thesis submitted to the University of Plymouth
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ABSTRACT

In order for computerised information systems (CIS) to be utilised to their full potential they must first be successfully implemented. The acquisition and implementation process continues to be an area which is reported by the media to present problems for both public and private sector organisations (Keen, 1994; Collins, 1996). The process was originally considered to be a technical process only, but more recently there has been acknowledgement that there are human implications. The process of acquisition and implementation of CIS in the NHS has, therefore, been studied in order to identify the barriers which might be present.

The research commenced by conducting a comprehensive literature search which showed some of the barriers found by previous researchers. A number of theories were examined which it was thought would be helpful in approaching the subject. A change model was then identified (MIT90s, Scott Morton, 1991) which was used to structure the study and as an aid to analysis. The model would be examined for its utility as a change model in the NHS setting.

The research used both quantitative and qualitative methods of data collection. A macro view of the process was initially sought because this approach is seldom taken (Kwon & Zmud, 1987). The major part of the research consisted of 4 case studies and 2 survey questionnaires. One survey questionnaire was sent to IT/IS directors and managers about the process. It was sent to eight NHS Regions (359 questionnaires) and a response rate of 51.5% was attained. An additional questionnaire was sent out to human resource directors in the NHS. This was sent to 400 directors and the response rate was 48%.

The study identified a number of barriers to implementation in different elements of the organisation, one of the most important barriers being related to politics/power. It was found that the reasons for acquiring new systems are not always articulated, and if these are not in the interests of powerful stakeholder groups, then implementation may be more difficult. Labour process theory was helpful in examining this aspect (Dent, 1996).

Results show that existing models are inappropriate for the majority of CIS implementations. The MIT90s Model (Scott Morton, 1991) was adapted, adding the element of politics/power, together with money and time as major constraining factors. The element of strategy was given a more prominent position, to indicate a pivotal role and it is argued that the model should not be an equilibrium model because of the constant change necessary in the modern business environment. The previous model was expanded to show some of the important issues and questions which need to be addressed by those approaching implementation.

However, the research showed that the complexity of the process precluded any simple prescriptive answers to implementation problems being given. Models are little used by practitioners, but if they are used they need to carry a warning note that they are only an aid to preliminary thought, and much other background reading and analysis of the particular situation needs to accompany them.

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AUTHOR'S DECLARATION

At no time during the registration for the degree of Doctor of Philosophy has the author been registered for any other University award.

This study was undertaken whilst carrying out Dev R research for the University of Plymouth Business School.

Relevant seminars and conferences were regularly attended at which work was presented.

Conference papers presented:

Lankshear, G. (1996) 'Are NHS organisations making the best use of human resource management in information technology implementations?' *Paper presented at the Human Resource Management Conference* held at the Open University, Milton Keynes, 1-2 April, 1996.

Lankshear, G. & Badger, B. (1996) 'IT induced change - the place and use of the HRM department.' *IPD Devon and Cornwall Branch Conference*, Torquay, Devon. January, 1996.

Lankshear, G. 1996. 'Strategic Management, The NHS and IT Choices. How Labour Process Theory can aid understanding of information technology acquisition and implementation.' *Paper presented at the 14th International Labour Process Conference* held at Aston University 27-29 March 1996.

Lankshear, G. (1996) 'Successful Information System Implementation in the NHS?'. *Paper presented at the Business Information Technology Conference* at Manchester Metropolitan University, 7th November, 1996.

Lankshear, G. & Badger, B. (1996) 'Managers, Practice, Theory: Progress in Information Technology Acquisition and Implementation.' Refereed paper. Published in the *Conference Proceedings of the British Academy of Management* Conference held at Aston Business School, Birmingham on the 16-18th September, 1996

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 of Teeside, Middlesbrough.
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Glossary of abbreviations

BCS	British Computer Society
BJHC & IM	British Journal of Healthcare Computing and Information Management
BMA	British Medical Association
BMJ	British Medical Journal
CEO	Chief Executive Officer
CIS	Computer Information Systems
ETHICS	Effective Technical And Human Implementation Of Computer-based systems
HIS	Health Information System
HISS	Hospital Information Support System
HRM	Human Resource Management
HUSAT	Human Sciences and Advanced Technology
IM&T	Information Management and Technology
IMG	Information Management Group
IS	Information Systems
IT	Information Technology
ITD	Information Technology Deptment
LIMS	Laboratory Information Management System
MIS	Management Information System
OD	Organisational Development
PAS	Patient Administration System
PRINCE	PRojects IN Controlled Environments
RMI	Resource Management Initiative
SSADM	Structured Systems Analysis and Design Method
SSM	Soft System Methodology

CHAPTER 1

INTRODUCTION

1. INTRODUCTION

This is a study of a process within complex organisations. The process is that of computer based information systems implementation. The process is deemed worthy of study because there have been and continue to be difficulties with the process resulting in many unsuccessful outcomes. The aim of the study is to uncover the difficulties encountered in the acquisition and implementation of new computer information systems. The key words are:

Process - The implementation of computerised information systems.

Implementation - the Lucas's (1986) definition is used "Our definition stresses the long term nature of implementation; it is a part of a process that begins with the very first idea for a system and the changes it will bring. Implementation terminates when the system has been successfully integrated with the operations of the organisation. We expect most of implementation to be concerned with behavioural phenomena, since people are expected to change their information system processing activities."

Organisations - large complex organisations - often involving multi site locations - NHS trust hospitals and other healthcare organisations

Barriers (implementation issues) - factors which impede or stop the successful implementation of IT systems.

This study aims to take an initial macro view of the process. The difficulties inherent in this approach are acknowledged, but the argument for such an approach is that other approaches, whilst adding to overall knowledge of the process, could be missing the most important factors contributing to information technology implementation failure and thus hindering future success by creating a false sense of security regarding knowledge of implementation.

Kwon & Zmud (1987:231) argue that:

“most studies focus on small pieces of the MIS implementation puzzle, without considering larger issues.”

However, it is also acknowledged that although a macro view is initially taken, the subsequent study then focuses on a restricted number of key variables, because the number of variables involved in IT/IS implementation is so great.

A change model is chosen to aid analysis and to guide the study and the aim is to examine whether this model would be helpful to those implementing computerised information systems. If not, a new model would be constructed.

This study cannot include a comprehensive survey of all methods and instruments of organisational change or of all organisation theory, the range and complexity of the subjects precludes this. Those included have been chosen because they were considered to be amongst the most useful to aid discussion of the issues relevant to IT induced organisational change and because they make the underlying approach to the study transparent.

The study will utilise a number of research methods. A two and a half year longitudinal case study, three shorter case studies, qualitative face to face interviews and both a short and a long survey questionnaire about different aspects of the process.

This project was undertaken within the background of the changing NHS which has stated aims of becoming more efficient in its use of resources and more responsive to its customers. The new NHS has turned to managerial skills and new technology to aid the transformation which is required.

1.1 THE AIMS OF THE STUDY

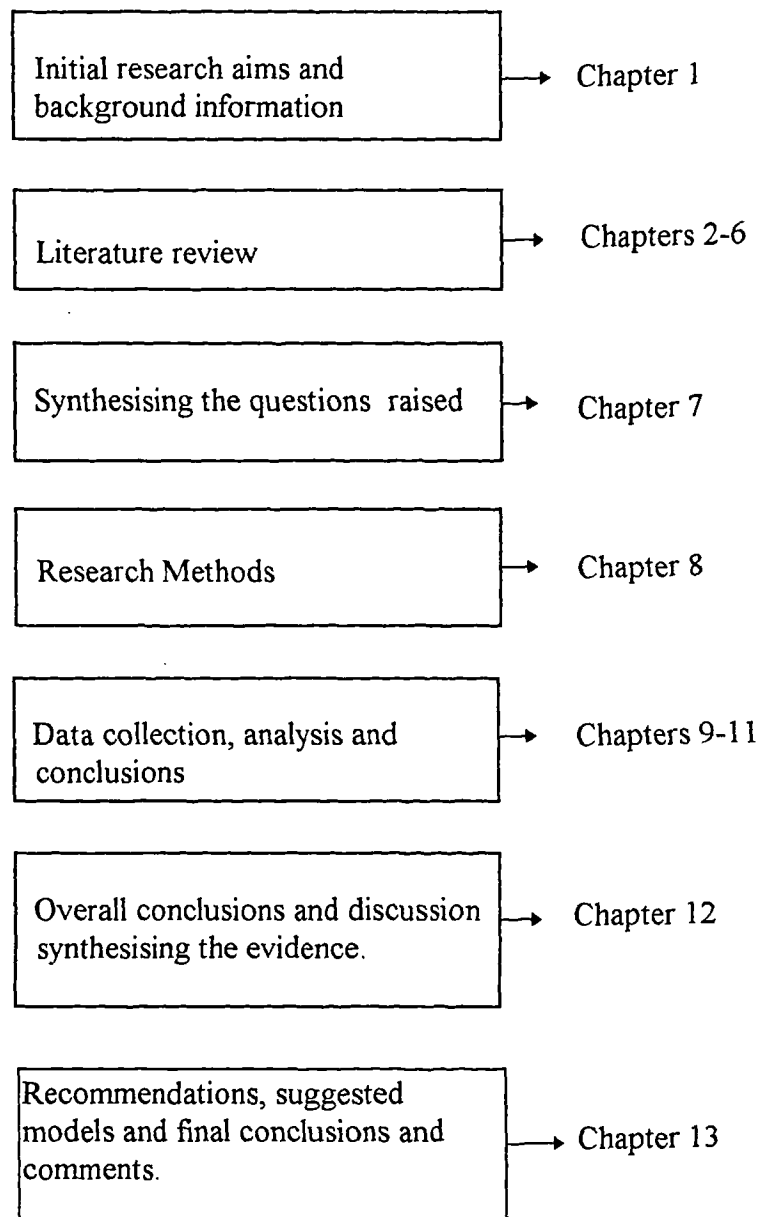
1. To find out what the barriers to information technology and information systems implementation are in the NHS.
2. To find out about the process of IT/IS implementation commonly followed in NHS organisations.
3. To suggest a change model for IT/IS implementation based on information gathered from the empirical research and from the literature review.

1.2 RESUME OF THE CONTENTS

The structure of the presentation is shown in Figure 1 but this is further described in the following section.

Figure 1.1

RESEARCH PRESENTATION



Chapter 1 introduces the research area and explains why the research was considered important. A brief background to National Health Service changes, discussing the problems faced by the NHS regarding IT/IS implementation is given. A discussion of the background literature, giving definitions of key words and discussing relevant issues then follows.

Chapter 2 discusses a number of the change models which were reviewed and examined in the search for a framework to guide the study and it explains the choice and use of the MIT90s Framework to guide the research process.

Chapter 3 discusses the organisation theory which underpins and informs the research. There is a wide literature and many approaches to studying and understanding organisations but the ones reviewed are particularly appropriate to the research and open up ways of understanding the complex reality.

Chapter 4 briefly introduces technology and defines and examines the 'methodologies' which are recommended in the literature for use by the information technology designers and the implementers of information technology. Also covered in this chapter is PRINCE project management, which is the NHS recommended project management method.

Chapter 5 discusses change in organisations and the related issues discovered in the literature. The idea that the implementation of a computerised information system is a process where change management expertise is necessary is explored. The role of strategy and its importance, together with the role of top management and management style and

expertise are examined. Finally, organisational learning is included in this chapter because this issue naturally follows ideas on managerial learning and management style.

Chapter 6 concentrates on human resource issues related to IS/IT implementation. Researchers (Willcocks & Mason, 1987b; Earl, 1988; Westerham & Donoghue, 1989; McLoughlin & Clark, 1994) advocate that there should be involvement of the personnel or HRM department in IT implementation because many of the difficulties encountered in implementation are related to employees and therefore it would be logical for the IT departments to involve the HRM departments in planning and implementation in a proactive rather than reactive way. Thus, some of the difficulties encountered might be averted.

This chapter therefore examines evidence from the literature on whether human resource departments **should** be involved, and if so, how they should be involved. The question of training is also considered. Resistance to change, its causes and possible counter measures are discussed. Finally, how computer information systems affect managers and professionals and their possible reactions are covered.

Chapter 7 synthesizes the questions raised in the literature and shows how the MIT90s Framework was used to guide the research questions and to structure the presentation of the results.

Chapter 8 discusses research methods, the difficulty of research in complex organisations and the reflexivity which is needed when undertaking this task.

The results from the case studies and the surveys are in Chapters 9, 10 and 11. The case studies which are briefly described in Chapter 9 are given in greater detail in Appendix 1 and whilst it is not absolutely necessary to read this appendix, to do so will greatly aid the understanding of the complexity of the implementation process. For ease of analysis and presentation only the most relevant information has been included in the analysis chapter.

Chapter 12 contains overall conclusions and discussions resulting from the three sets of data.

Chapter 13 gives recommendations based upon the evidence gained. The information from the three sets of data is used as a basis to construct a new implementation model for computerised information systems acquisition and implementation. Also included in this chapter are recommendations for future research and final reflections on the research process.

1.3 BACKGROUND TO NHS CHANGES

The NHS has been the scene of continual change since its inception in 1948. There is general agreement that the service was 'administered' rather than managed for the first thirty years with major policy decisions made by Government but with professional autonomy for doctors. However, in the early 1980s Area Health Authorities were disbanded and individual unit management teams were introduced in 1982. There was a change from an administrative style of bureaucratic organisation to an actively managed service. From 1986 General Managers were appointed to districts and units, they were appointed on fixed term contracts and subject to performance review. Their remit was to manage and control scarce resources. The 'runaway' costs of the NHS were to be reined in, with managers actively managing doctors and nurses who had previously been self managed.

In 1989 the Government introduced and implemented the concept of the internal market and there were strong incentives for hospitals to take on the 'Trust' hospital status. These autonomous units, sometimes an amalgamation of a number of separate units, remain part of the NHS but each is responsible for its own administration and budgeting, acting as 'providers' of health care to district health authorities and general practitioners who are now called 'purchasers'.

Thus the NHS has moved from an administered system to what is now termed an 'internal market'. The ideas behind this move were said to be to promote greater efficiency and to give greater say to the 'customers' of the service. The drive towards greater efficiency and savings continues and as the greatest expense of the service is on personnel this remains a target for greater savings. Lower level personnel were targeted first, with many services

contracted out of the NHS to private firms who could undercut the in-house provision by paying lower rates, these were 'non-core' services such as catering, cleaning, laboratory services. Moves were made to have local pay bargaining for nurses and other professionals. Doctors at the moment have remained strong enough to avoid wrangles about pay or conditions, but this may change. Managers were very necessary to drive through changes in the service and so rates of pay were often generous but fixed term contracts mean that the government has considerable flexibility where these staff are concerned.

The British Journal of Healthcare Computing & Information Management (BJHC & IM, 1995:11) reported that the government aimed at trimming £140 m from the NHS administrative bill during the next year (1996). Stephen Dorrell, (Conservative Health Minister), announced that health authority spending on administration would be cut by 5% in 1996. Trusts would be required to publish figures showing their total spending on management and non clinical administration and these figures would be cut by 5% (in 1996). "These changes would release around £140m for improving patient care" he said.

Commenting on the proposals, the director of ICL Medical Portfolio, John Hilton, thought little would improve and the proposed savings from the administrative bill would be difficult to find until information technology was moved higher up the corporate agenda (BJHC&IM, 1995:11). He said:

"To be truly effective hospitals will need to link clinical data to administrative information. This requires acceptance not just by senior management but also by clinicians and, until this happens, I don't see how the government's target will be reached"

Mr. Dorrell also promised to seek a further reduction in "the burden of paperwork" in hospitals and health authorities (BJHC&IM, 1995:11).

The whole culture of the NHS is being changed. The NHS and Community Care Act of 1990 split the role of purchaser and provider. The move towards 'business' and 'business decisions' taken within finite budgets, seems inexorable given the Conservative government's apparent aims to reduce the cost of the NHS. Their view of the NHS seems to be that it has a potentially dangerous tendency to swallow money at an ever increasing rate but that if 'business principles' and 'efficiency' can be introduced, then the 'monster' can be controlled. That their views might be unnecessarily alarmist could be argued if the fact that the "UK spent proportionally less than any other Western European country" (Dent 1996a:3) is taken into account. Dent (1996a:3) quoted OECD data showing that the UK spent 6.2 per cent of its Gross Domestic Product (GDP) on health as compared to 8.8 per cent by France, 8.1 per cent by Germany and 7.7 per cent by Italy.

Roy Lilley (1994) chairman of the Homewood NHS Trust said that the field of health care has changed dramatically in the past ten years. The number of acute bed stays in the UK have fallen from an average of ten days to six and a half. Hernia operations that once required ten days in hospital now require only four hours. Half the UK's non emergency medical procedures are being carried out as day cases, while in the US the national average has reached 78 per cent. He said that radical new ways of thinking were necessary and one of his ideas was that pathology laboratories instead of functioning separately, each costing millions of pounds, could combine and a single laboratory could be housed in a warehouse on the edge of town where motorcycles could drop off samples. One lab could do tests for many hospitals and GPs and transmit results over an electronic network.

Such ideas may make business sense but they threaten the autonomy and power of a powerful professional group, the doctors. Such moves towards 'economies of scale' would

also result in less doctors and professional laboratory staff being needed. This point is rarely articulated. However, such moves in Canada have resulted in a very much smaller service with a resulting loss of jobs (Reiter, 1996:3.12).

In conclusion, moves towards securing a more efficient and lower cost NHS, mean that savings on staff are essential. Savings have been made on lower level staff and, with local pay bargaining, are nearer for nursing staff and other semi professional staff. Fixed contracts for managers, and the cut in funding for administration ensure further savings, however, clinical staff have so far escaped the pressures on other staff.

The implementation of information systems in all hospital departments, would allow management to cost and compare professional staff of all levels, and work towards greater efficiency of use of professional staff time such as doctors. However, although there has been some success in using such systems to plan nursing time, this has not been possible with doctors (Yates,1995).

1.4 THE PROBLEMS FACED BY THE NHS (AND OTHER ORGANISATIONS) WITH IT/IS IMPLEMENTATION AND THE GOVERNMENT'S REACTION.

“The problems with implementing IT would also appear to be serious. The NHS Review effectively committed the NHS to major investments in the new systems, but evidence suggests that it has a moderate-to-poor track record in implementing them.” (Keen, 1994:1)

In the past, discussions of Information Technology (IT) focused on the technical aspects of new systems. There was an assumption that as long as the IT worked technically the system was a success. However, more recently, whilst obviously the technical aspects are still

recognised as important, it has emerged that IT can fail in meeting the targets set because of badly executed introduction and management of the system. Implementation of new systems is thus given a high profile. The phenomena labeled as 'the human aspects' of IT implementation has actually been identified and written about for the past 20 years but in spite of this the problems continue. (Willcocks & Mason, 1987b; Preece, 1989)

Researchers claim (Long, 1987; Preece, 1989) that IT may be failing in a number of ways. First it may not be doing the job it was supposed to do; second, the job may be the wrong one in the first place; third, users in the organisation may be under utilising the system for a number of reasons; fourth some systems although procured, designed and put into place are not actually used at all, they are abandoned (Walsham, 1993; Sauer, 1993). This is a cause for concern for those purchasing expensive systems whose effects when utilised to their full capacity can enhance organisational efficiency, or when under utilised or abandoned, merely add to costs.

Wright and Rhodes (1985:2) said:

"Most organisations believe that they have successfully implemented new operating technology when two conditions are met. First, when all the bugs have been ironed out and that it is working technically. Second, when the operation is working reliably ... however, when you probe beneath the surface, one must question the success of 'successful systems'."

Obtaining the best results from IT goes far beyond anything to do with the capabilities of the technology itself.

There are cases reported where expensive systems go through years of procurement and design stages and actually reach the desks of the users but are then deemed failures and abandoned (Sauer, 1993). It is difficult to know what percentage of systems fail in this most

dramatic way. There is a suspicion that in many organisations such mistakes are underplayed and hidden where possible. Those failures reported are often spectacular in their failure. The Stock Exchange Taurus System (Winch, 1996) was abandoned completely after a spend of £200m. The Wessex Regional Health Authority system (Collins, 1996c) was abandoned after spending £60m. (There are contradictory reports on the amount spent on this system.)

Another computer failure was the NHS HISS (Hospital Information Support System) which Computer Weekly (Collins, 1996b) had investigated and about which they had sent reports to various members of parliament. A parliamentary committee was set up which interviewed Alan Langlands the CEO of the NHS about this failure. Alan Williams a Labour member of the committee asked Langlands:

“If you saw someone walk into a brick wall, and pick themselves up and walk into the brick wall again, would the thought perhaps cross your mind that they might be drunk or of unsound mind?” (Collins, 1996b:30)

Langlands after a pause said “I think it would be surprising.” Williams continued:

“But you did, not you personally, but that’s exactly what you did. Wessex was a gross failure, not just in the way that the Comptroller and Auditor General said. It was not just propriety that went out of the window. It was £60m. It was not just a conduct problem. It was a failure of technology and management of that technology.”

Langlands insisted that the Wessex and HISS systems were different problems and that Williams was oversimplifying the problem. Williams then said:

“You make it sound as if HISS has all been a great success. You paid suppliers £106m for a project that saves you £3.3m and you incurred further costs of £3.7m. No wonder there are more suppliers now. If they can find anyone as daft as yourselves willing to finance all their research and failures, no wonder they are flocking to your door.”

The special report by Collins (1996b:30) also drew attention to the Auditors report in 1992 which said:

“The IT problems that have arisen in the Wessex Region... are by no means unique to the Wessex Regional Health Authority. They may well reflect a national problem.”

Collins (1996b) lists some of the problems identified as; specifications too ambitious; costs higher than expected; key decisions rushed because of an artificial sense of urgency, arising from an impatience to meet the ideological aims of the scheme; suppliers chosen with unseemly haste; no end user focus; no patient focus; opposition from clinicians who thought the money could be put to better use.

Collins (1996b:30) reports from some of the evidence he has seen that the Department of Health shows no sign of accepting that it is capable of making serious mistakes. He quotes the department's spokeswoman as saying:

“On the subject of an edict from Downing Street, well there wasn't one. On the subject of HISS being implemented too quickly, it is not felt that it was.”

Collins (1996b:31) concludes that:

“There is a repetition of mistakes, particularly with regard to over-estimating what suppliers and technology are able to achieve for a given price, and not paying enough attention to the criticisms of the end-users of the technology.”

Reading the literature on systems implementation shows the continual and repeated surprise at the unforeseen complexity and difficulties which seem to surround new systems implementation.

The study of IT/IS covers computer science and management but in particular IT/IS implementation and change management. There are distinct differences, with two separate areas of literature both areas contributing to understanding, with IT/IS adoption being seen as related to but more specialised than general 'change management'.

The important questions being asked by managers according to writers such as Preece (1989:3) in his book 'Managing the adoption of new technology' were:

“What should I/we do to get new technology successfully introduced into our organisations?

What are some of the potential problem areas in adopting new technology?

Are there particular ways of introducing new technology which are more likely to gain the acceptance of the people affected than others?”

Although Preece stated that he was being asked these questions in 1989 a point for concern is that, although not documented in the literature, it may be the case that the managers in many organisations are still making assumptions that the acquisition and implementation of IT systems will be problem free, and therefore, do not even ask the above questions.

The Harvard Business Review leader article in Summer 1992 said that the rate of technological innovation in the past twenty years has indeed been mind boggling. Not so the rate of organisational or social change. This article confirmed the fact that too often IT is still considered as an 'add on tool' which will need or result in little organisational or social change. Although the discrepancy between technical innovation and organisational innovation is being increasingly recognised in the literature, organisations still rarely have a person responsible for managing technology-driven organisational change, for learning about available technologies and how they can be applied to critical business issues, and for acting as a champion for change. The successful development, implementation and use of IT in organisations may depend on such expertise being available.

Although writers acknowledge that the implementation of computer based information systems (CBIS) are a major force for introducing and supporting organisational change (Keen, 1991; Harrington, 1995; Davenport 1993; White & Swann, 1995) there appears to be a tendency for this aspect to be ignored initially so that reactive rather than proactive management action is taken (White & Swann, 1995).

Rockart and Hoffman (1992) studied how leading edge organisations were approaching development of applications. They found that the best firms invest substantial time in planning and forecasting the firm's projected business, systems and development environments before they even consider one development tool over another, or in-house development over purchased systems. They believe that *managing* the development process presents, if anything, more challenges than the technical development itself.

Similarly, writers on IT implementation (Willcocks & Mason, 1987a; Preece, 1989) consider that *managing* the implementation of a system is also most important and however perfect the system is technically, problems can occur if this process is not approached in a sound fashion. Willcocks & Mark (1989) point out that in the public sector the Comptroller and Auditor General (CAG) has produced several highly critical reports of IT applications in the Inland Revenue, the Social Security System, the National Health Service, and Civil Service generally. In the Inland Revenue a major computer project was abandoned in 1985, leading to losses of £16.5 million. The weakness was blamed on:

- project management
- design

- staffing
- particular problems emerged in the management of human resources.

Benjamin and Levinson (1993:24) state that IT- enabled change is somewhat different from change driven by other concerns, but a number of models from change management literature can be useful. Their framework provides a common language for managers implementing IT-based change and shows how technology, business process, and organisation must be adapted to each other for such change to be effective. They say

“We continually find that managers involved in these changes are hungry for models and principles that can form a common language for talking about and coping with change issues.” (Benjamin & Levinson, 1993:24)

However, it must be noted that their research was carried out in the USA.

One of the models used by Benjamin and Levinson (1993) is the Management of the 90s Model to illustrate the fact that change moves an organisation from an old state of relative equilibrium to a new one. From the beginning of the process, change managers need to understand how all the organisational elements must change and what actions and resources will bring them back into equilibrium.

Thus, the importance of the *management* of the processes is highlighted. This management of processes needs a high level of expertise which is not always present. In order to address these problems the government set up the NHS Executive, Information Management Group, who launched an IT Strategy and Implementation Initiative in 1992, which aimed to bring such problems to the fore and to address them.

The NHS Executive, Information Management Group, ran regular advertisements in the Health Service Journal offering managers advice on IT. A copy of part of one such advertisement dated 22nd June 1995:14 follows.

"Information Management Group (IMG) is charged with providing an NHS wide strategy for delivering effective healthcare, through better use of IT resources. We understand the management and implementation issues of IM&T, can suggest ways of presenting the concept of IM&T to management and then help to draw up a nationwide strategy of clearly focused delivery.

And because we've worked on every type of project across the NHS, our unrivaled experience means you can enjoy the best systems and help drive efficiency through the NHS. In other words, make plans and take action to implement the IM&T strategy and its infrastructure.

After all, information is more than a resource, it's a shared strategy."

This advertisement also said "Can we talk? Just pick up the phone!" It would appear then that NHS Managers should have available the expertise they need to guide them in the implementation of IT systems.

The availability of such expertise was discussed with a leading NHS IT expert, whose name is not disclosed for reasons of confidentiality. His comments were that unfortunately people still seem to prefer to learn for themselves, and although in many cases 'organisational learning' should have taken place, people leave, politics with a small 'p' take place and the same mistakes are repeated.

There is also the added difficulty that in spite of the fact that there is a rhetoric of 'Information needs to be shared.' and a realisation that a 'Learning Organisation' ethos where mistakes are allowed and the lessons learned should be shared would be an ideal, in reality, two questions arise. Firstly, can mistakes be allowed in a NHS setting? Secondly, if they are made, is anyone really willing to have them documented and 'publicised', which is what is

necessary for an organisation the size of the NHS to do, if lessons are to be shared and learnt by the organisation.

After criticisms of the Information Management Group of the NHS Executive whose job was to improve patient care and increase information by introducing new technology Chris Smith, the Shadow Health Secretary (Labour party) said that the Secretary of State should:

“.....take the whole information technology systems within the National Health Service by the scruff of the neck and sort them out because they aren't working well at the moment” (Kennedy, 1996:8).

The National Audit office are reported to be studying documents obtained during an investigation by BBC Radio 4's 'The World This Weekend'. There were claims that a small group of health service bureaucrats wasted £500 million on virtually worthless computer systems. Kennedy (1996:8) claims that Philip Hunt, director of the National Association of Health Authorities and Trusts said chief executives were frustrated by the problems and urged the NHS Executive to sort them out.

The picture which emerges from secondary data found in the press and other media reports is one of political wrangles between the Information Management Group, the Government Policy Makers, and the Chief Executives of the Trusts who have to implement the Government policy of introducing new systems which can be expensive and by their innovative nature untried.

Collins (1996c:30) reported that the Conservative Party said it would set up a taskforce to tackle serious problems with information technology strategy in the NHS. He said that this followed just two weeks after Labour pledged to abolish the NHS Information Management Group which has overall responsibility for NHS IT strategy. A leaked copy of a

forthcoming government paper on the NHS said that John Horam is to head the new task force and Ken Jarrold director of human resources at the NHS Executive will also sit on the task force alongside the head of an NHS trust, yet to be chosen. (Within a year Ken Jarrold had left this post to take up a post with a regional health authority.)

The first news item in the 'IMG News, January 1997' was by Ken Jarrold who said:

"IMG is experiencing a period of major change and uncertainty. There is strong support for the information management and technology (IM&T) vision and the principles on which it is based. However, it is clear that the IM&T strategy needs radical review. The recommendations of the *Efficiency Scrutiny* have shown the way. The current agenda is too large. We need to do less."

Jarrold (1997:1) also said that:

"We have to give careful thought to the future of IMG. Proposals are under active consideration."

Information gained from the computer journals seemed to show that both the Conservative government and the Labour members of parliament were equally critical of the IMG.

It appears that the IMG is the scapegoat for general failure of IT policy and implementation in the NHS. However, this seems too simplistic an answer. The IMG blames the lack of knowledge and lack of attention to IT at board level in the NHS trusts for many of the failures. Ray Rogers, Director of the NHS (Computing, 1995:8) is quoted as saying:

"In most hospitals, the chief IT office is several layers down the hierarchy and is not part of top management. I know very few hospitals where the chief IT officer is represented on the Trust Board."

Rogers, admitted to being frustrated by what he saw as the blinkered attitude of the top bosses of most UK Trusts. He said:

"Most senior hospital management is not seriously connected to any serious view of how IT might be used."

It has been the aim of government to have an integrated infrastructure in place to enable Trust authorities to account for spending and income. However, Rogers pointed out that this strategy will be seriously undermined unless it is adopted by all the NHS Trusts.

In 'Computing' (July, 1995:8) a member of the computer industry John Hilton, director of ICL's medical group is reported as saying:

"Within the NHS there is no universal recognition of the benefits of IT or the business case for it."

He also said:

"The uneven nature of this knowledge makes it difficult for the IMG to pitch information at a level which communicates the benefits of having and following an information strategy. With an increased knowledge of IT, chief executives would be in a position to improve patient care as well as administration."

In an attempt to encourage forward thinking and planning in relation to IT implementation the NHS Executive specify that it is **mandatory** to use Prince Methodology as a planning tool for all IT acquisitions (Capital Investment Manual Page 4 and HSG 95(48) Paragraph 12, sub paragraph H). The recommendation to use Prince Methodology is a relatively new phenomena. Additionally, the IMG are also advocating the use of Checkland's 'Soft System Methodology' and have published a guide to its use.

The problems of computerised information system acquisition and implementation can, therefore, be seen to be of concern to the government and to those involved in their purchase and implementation. This background information shows the key place given to the IMG by the government but seems to raise the questions, are trust staff taking advantage of the information and expertise available to them from the IMG? If they are, are they finding it useful? What are their perceptions of IMG?

1.5 INITIAL BACKGROUND LITERATURE GIVING DEFINITION OF INFORMATION TECHNOLOGY (IT) AND INFORMATION SYSTEMS (IS) AND DISCUSSION OF RELEVANT ISSUES.

This section gives definitions of IT and IS and discusses some of the issues which form part of the background of the complexity of IT acquisition and implementation. This background knowledge also draws attention to the fact that it is difficult to separate IT/IS acquisition and implementation into two distinct and separate processes. Acquisition affects implementation. Eason (1988) stresses this point when he says that he has often been asked to assist organisations with implementation procedures when a system is ready for installation but he contends that at that stage it may already be too late to resolve implementation problems. He argues that if the traditional process of design has been followed then the technical design will already be fixed. To deal adequately with organisational change issues they must be addressed much earlier in the design process so that the technical and organisational work can proceed in parallel rather than in sequence.

1.5.1 What is information technology (IT)? What is IT's relationship with information systems (IS)?

Information technology (IT) is a term used to describe any equipment or mechanism involved in the processing, storage, display or communication of information or data. Wright and Rhodes (1985) argue that its importance is perhaps less in the definition, than in the fact that such words are important enough to be added to the general vocabulary. Modern IT is revolutionary, enabling the collection of information and the use of statistics to a level where many organisations can reach 'information overload'. Hence the importance of the initial planning and strategy relating to IT introduction.

The introduction of IT (in the context of this study) is synonymous with Information Systems (IS). The study of IS is concerned with the development of new information technology but also with questions such as: how they can best be applied, how they should be managed and what their wider implications are.

IS (Information Systems) is a combination of two primary fields - computer science and management. However, it has a host of supporting disciplines: psychology, sociology, statistics, political science, economics, philosophy and mathematics (Walsham 1993).

1.5.2 Definition of an information system (IS)

"A system which assembles, stores, processes and delivers information relevant to an organisation (or society) , in such a way that the information is accessible and useful to those who wish to use it, including managers, staff, clients and citizens. An information system is a human activity (social) system which may or may not involve the use of computer systems." (Buckingham et al 1987 quoted in Avison et al 1988:8)

This study is concerned with IS and IT which together comprise computerised information systems.

There is a difference between information systems and data processing systems. Information systems reflect management requirements for information, for example, information about work output. Information systems also reflect the desire for integrated systems which are more than one-off solutions to immediate problems (Buckingham et al 1987).

"The essential difference between data and information, therefore, is that data are not interpreted, whereas information has a meaning and use to a particular recipient." (Avison et al, 1988:6)

1.5.3 Should IT be used?

"Actually realising the potential benefits of IT is not easy." (Wright & Rhodes, 1985:8) In private industry much emphasis is put on the fact that IT should be used for strategic advantage. It should enable a 'cheaper good' to be produced and this will benefit the supplier and the customer. It will allow a competitive edge to be gained by those in the forefront of IT.

If we are, however, examining IT adoption in the NHS are we confronted by the same considerations? According to Conservative Party Government objectives for the NHS, with NHS Trusts theoretically in competition with each other, then the answer must be yes. If individual hospitals or groups of hospitals are to be run as business units (Trusts) then they must provide costings of all the work that they do to charge their customers the true price for the work carried out. This will enable the units to compete for work and there is a possibility that some of those units could 'go out of business' and be closed down if they are seen as inefficient.

In theory there should be an option not to use information technology. However, this option may be viewed as the most risky option of all, because if it proves to be wrong, it is the most visible, and open to criticism. There has been almost an IT implementation fever present in the years 1990 to 1994 in the NHS, however, in 1995 The Health Service Journal, (Cross, 1995:8) reported that "No NHS Trust has signed a major computer order so far this year". This was thought to relate more to the private finance initiative than other considerations. (Cross, 1995:8)

1.5.4 Private IT/IS Consultants

The level of expertise needed to deal with IT adoption is recognised as problematic within the NHS (Jagodzinski, 1994). One of the remedies for this has been the hiring of outside IT consultants.

The closure, or privatisation of former regional computing centres has released on to the market a flood of freelance experts in NHS computing. Charges in 1995 range from £250 to £1,000 per day (Cross, 1995:8). Accurate figures for the NHS's spending on IT consultants are hard to assess. Parliamentary questions show spending gradually declining from a peak of £13.4 m in 1992-3 but there are also probably 'hidden' costs. Murray Bywater of the specialist market research firm Silicon Bridge says that it is difficult to distinguish between financial and IT consulting and:

"Then when you get into procurement and implementation of systems, a myriad of consultancies get involved. These tend to be small organisations and their fees get lost in financial budgets so they will never show up." (Cross, 1995:8)

Bloomfield & Danielli (1995) explored the role of management consultants in the development of IT in organisations using an NHS implementation as a case study. They write of the way consultants place themselves between IT suppliers and clients offering advice on the selection of systems, developing IT strategies, and developing and implementing a system. They portray themselves as independent and objective advisers.

"With our assistance, you will be able to make an objective choice of supplier, supported by a documented and logical analysis, showing that the risks of the decision have been minimised" (Bloomfield & Danielli, 1995:29).

Little seems to be written on the effect of the presence of consultants on the final result of IT acquisition and implementation, that is, whether their presence means that an implementation is more likely to be successful (Bloomfield & Danielli, 1995).

The Information Management Group of the NHS Executive is trying to tighten up procedures by updating its guidance for NHS managers who are considering hiring consultants. It says organisations should ask themselves three questions before hiring outside consultants:

- * Are consultants being asked to do routine work?
- * Are there skills within the organisation that could be used instead?
- * Can the work be separated into that which can be done in house and that for which external skills are needed?

If the answer to any of these questions is yes, then the organisation should seriously consider whether the use of consultants is appropriate.

The problem for those managers involved in IT acquisition is not only the level of expertise needed but also the extra time necessary to make informed choices and to manage change.

1.5.5 IT Suppliers

Preece (1989:58) discusses the importance of suppliers. They are important and influential in design and implementation. Preece thinks their importance is ignored and neglected. This is an important aspect in view of the low level of knowledge of many purchasers and

their dependence on the expertise of the supplier. Preece also comments that lack of knowledge, and dependence on trusting the supplier can mean that purchasers become 'locked in' to one supplier. He says that major suppliers use as part of their marketing/selling technique a 'holding their hands' and 'taking them to the promised land' type of strategy.

Collins (1996a: 14) reports that:

“Health service IT suppliers Oracle, HBO and MDIS have all resolved lengthy disputes with users over allegedly inadequate systems by arranging private settlements, rather than risk airing their differences in court.”

His report mentions seven hospitals who had demanded from suppliers that more work be done on their systems to make them usable. Lack of knowledge and foresight from purchasers of systems can mean, however, that where systems do not work as expected, if they have already paid for the system, it is difficult without lengthy and expensive court proceedings to force suppliers to bring the system 'up to the purchasers expectations'.

In fact suppliers are often also 'learning as they go' with new complex IT designs. They have difficulties in quoting prices for systems and sometimes they do not want certain jobs because of the difficulty in quoting costs. (Preliminary research interview with IT director, November, 1994.) Some suppliers have lost millions on systems they mis-costed and therefore mis-quoted! Or, more correctly, on systems which were impossible to pre cost.

1.5.6 Benefits from IT/IS

Many organisations acquire IT in response to competitors use of IT. They do not wish to be 'left behind'. They may have some 'vague' expectations of operational savings in that they

may then be able to operate with less staff, or process more work with the same number of staff. McBride (1994:164) says that:

"IS procurement often depends on management champions who encourage procurement on the basis of gut feeling or knee jerk response."

However, in order to justify the acquisition of the system to organisational members such as finance staff, formalistic methods of investment appraisal are used to produce hard figures as a formal justification for acquiring the system. These 'hard figures', however, are often in reality fictitious and according to Walsham (1993) the process becomes one of ritual in which a technical veneer is applied to justify investment in IS and to demonstrate business value. McBride (1994:165) says:

"Both the intuitive, leap-in-the-dark approach and the pseudo-scientific approach demonstrate the poverty of understanding of the business value of IT. The application of the same financial costing approaches that would be applied to material resources is seen as increasingly inappropriate to information systems. Managers have only their previous experience, their inadequate knowledge and their own insight to guide them."

Long (1987) believes that it is increasingly being recognised that the major benefit will not come from 'automation' of the support staff (i.e. clerical and secretarial) but from applying the technology to professionals, semi professionals and managers. For example, studies have indicated that secretarial and typing activities typically account for about 10% of office labour costs compared to 60-75% for managers and professional staff (Wynne 1983). Of these latter groups, those most at risk of being 'automated' are the semi-professionals who perform the routine aspects of professional work, and those bureaucrats and supervisors who perform only routine control and co-ordinative roles.

For managers and professionals, implementation of the new technology will be successful to the extent that it puts a flexible tool into their hands, and for managers at least, this mainly means a communications and information support tool. Long (1987) considered that

because of their power, both managers and professionals will be much more able than lower level employees to shape the use of the new technology in ways favourable to them.

Organisations can be seen as formal tools designed for achievement of specified goals but they are also complex systems of power and influence through which resources are directed to a variety of goals, some of which are ambiguous, shifting and conflicting.

"Because of the diversity of goals, as well as the uncertainty about how to attain them, decision-making is (inevitably) less a structured rational process than a political process in many instances." (Long, 1987:39)

If this is correct, decisions on acquisition of new IS/IT systems may not be entirely rational or objective or informed by perceived benefits.

Many writers (Walsham, 1993; McBride, 1994) comment that when evaluating systems it is important to stress effectiveness rather than efficiency and there is a danger in using traditional cost-justification procedures and narrowly based measures of results. The qualitative benefits are rather intangible and difficult to quantify. Grusec (1985:14) contends that the real benefits are transformative - outputs are qualitatively altered. He says "Once again we are faced with the virtual impossibility of assigning dollar values to outputs and benefits." (Quoted in Long 1987:49)

Ward (1994:9) in a paper 'Information Systems - Delivering Business Value?' said:

"Much of the recent literature also suggests that it is becoming more and more difficult, given the nature of modern IS/IT investments, to predict, successfully, in advance exactly what benefits might accrue. Whilst many organisations are nowadays holding post-implementation reviews of IS/IT projects, very few of those reviews (as far as our surveys show) are expected to identify further potential benefits that become available once a system has been successfully implemented. In many cases the review does not even evaluate whether the **expected** benefits have or have not been realised."

Ward (1994) found that only 5% (N=1) of his sample had a comprehensive, documented process for identifying and managing the benefits of a system. This organisation was a NHS organisation.

Ward (1994:11) contends that the first assumption to challenge in relation to IT/IS is that it actually delivers benefit! He argues that the IT system produces 'change' and the change can produce effects which are either positive (beneficial to the business) or negative (causing problems to the business). Prediction of some changes can be made based on thorough investigation and/or prior experience. However, Ward believes that some changes are not predicted and are often unexpected. He says

"The skill of course is in predicting what will happen, dealing with potential negative effects by appropriate action and ensuring that positive effects occur, and hence the required business improvement is achieved."

Even when positive effects are predicted and expected they do not always occur. The failure of the TAURUS stock exchange system, or the Wessex Regional computer system are two examples. In some cases the benefits expected were never achievable because of the limitations of the technology, but in some cases there are other factors which prevent the expected benefits from occurring. Ward (1994:10-12) considers that it is worth changing the term of benefits to one of outcomes. He then for the purpose of analysis splits this into:

“1. Positive/Expected Outcome

This would normally be that expressed in the investment justification and, provided that the benefits had been well thought out and understood, should be achieved by good management practice.

2. Positive/Unexpected Outcome

This means that benefits following the systems implementation that were not or could not have been predicted at the time the investment was justified, can now be identified. These are effectively a bonus that, with focused reassessment as the project proceeds or

when it is complete, can be realised. It may of course be possible to transfer experience from one project to another and hence increase the ability to identify more of the likely benefits in advance - another argument for a benefit-based post implementation review.

3. Negative/Expected Outcome

Most IT investments cause some negative effects in organisations. For instance whilst 'staff savings' are often a key benefit, the affect on staff morale of pending or actual staff cuts can have serious consequences for the IS/IT project that is producing them. Changes to staff locations, re-skilling of staff and organisational changes are all examples of the 'price worth paying' in many cases to obtain business improvements. The impact of these needs to be recognised and as far as possible minimised by appropriate action as the project proceeds. Again experience can often be transferred from project to project.

4. Negative/Unexpected Outcomes.

By definition these cannot be predicted in advance within the particular project! However, based on either generally available or organisation specific risk assessment processes experience of what can go wrong can be applied to a new investment. However, once more, most risk assessment methods tend to focus on the IT parts of the system to answer the question "Why might it not work?" rather than the business aspects of "Why might we not get the benefits?" (Cranfield has already developed a risk assessment process that attempts to address the latter question.(Ward 1992)"

Ward (1994) also advocated the identification of all stakeholders with respect to the required improvements. This is not simply whoever is paying for the system, or the IT specialists, or the actual end users of the computers/software. Anyone affected by the system can be viewed as a stakeholder and the view they take of the investment may influence the outcome. This can then involve other parts of the organisation.

Ward's (1994) research has resulted in a 'good practice' check-list to be used in management processes. This list is already being used by the organisations sponsoring his research. See Appendix 2.

McPhee et al (1994) examined user management perceptions of IT within hospital departments and found the following:

Table 1.1 The Perception of IT status within hospital departments (McPhee et al 1994)

	Percentage
Money used for IT is generally well spent	54
Use of IT has improved patient care	56
Better use of IT could improve patient care	82

It is difficult to comment objectively on this finding without some back-up qualitative evidence. If 54% thought money used for IT is generally well spent, what did the other 46% think?

If 56% thought use of IT has improved patient care, what about the other 44%?

If 82%, a staggeringly high percentage, thought better use of IT could improve patient care, in what way do they think the improvement could be realised? Did this mean the present systems were not considered 'successful' or 'beneficial'?

This research seems to open up more questions than it answered. However, it is one of the most up to date pieces of research and the IT scene is changing rapidly so only the most up to date research may be relevant.

1.5.7 Risks and risk analysis.

If the media stories on information systems failure are correct then there are risks attached to the acquisition and implementation of new computerised information systems. Risk analysis

is, however, a step which with a few exceptions, is largely missing from the literature on implementation.

McGaughey, Snyder and Carr (1994), however, discussed approaches to risk analysis appropriate for IT and suggested tools for risk analysis and management. They point out that although authors have advocated the use of information technology to gain competitive advantage they devote little attention to the risk of failure or the risk associated with disruption of critical IS support. Their article, however, concentrates on the idea of a 'value chain analysis' being used to identify ways to use IT for competitive advantage and assess the level of risk attached to the alternatives explored.

The writer's ideas about risk analysis are that a type of risk analysis should be carried out at top strategy level, very much after the style of Lewin's Force Field Analysis. Within this area (risk analysis) there is a danger of using definitions which are interpreted differently by different people.

1.5.8 Success or Failure of Systems?

Sauer (1993:18) says there is no generally agreed account of the nature of failure. Abbott (1995) says the judgment of success or failure of an IT system should be; if the system is threatened to be removed the users are anxious and asking how they will manage without it and what system it will be replaced with. In this instance the system may be judged to have been a success. It has provided support to the organisation.

Sauer (1993:4) in a similar vein argues:

"What counts is that the project organisation obtain sufficient support to enable it to continue to exist and to continue to service its information system. If it cannot manage this, then it is a failure. By contrast, more traditional approaches measure performance against such metrics as cost-benefit, user satisfaction, or schedules. These will generate useful evaluations but they do not constitute the very essence of failure."

Sauer (1993) points out that our understanding of the nature and causes of failure still has some way to go, however, specialist literature has converged on the view that social and behavioural factors are more important aspects of information system failure than the technical. Sauer (1993) reviews the literature on failures from Ackoff (1967) to Boland and Hirschheim (1987). He considers that although there seems to be a consensus, he sees it as a very limited conclusion. He thinks that:

"it offers no coherent account of what constitutes information systems failure. Baldly stated, it offers no suggestions for avoiding failure other than attending to the social and behavioural factors, advice which scarcely counts as practical." (Sauer, 1993:22)

Sauer (1993:22) uses Lytinen and Hirschheim's (1987) approach to analysing failure as a starting point, and their definitions follow. However, Sauer devotes a chapter of his book to this complex subject and although its importance is acknowledged it is beyond the scope of this work to include such detail.

Correspondence failure is a matter of failure to meet predefined design objectives. The system implemented does not correspond to what was required.

Process failure comes in two forms: failure to produce a system at all, and failure to produce it within reasonable budgetary and timescale constraints.

Interaction failure concerns levels of use and degrees of user satisfaction. It is not uncommon for systems which do reach implementation to fail to satisfy their users. Sometimes they are left totally unused, sometimes only partially.

A fourth concept encompasses the above three concepts.

Expectation failure which is the inability of an IS to meet specific stakeholder groups expectations." (Lytinen and Hirschheim, 1987 Quoted in Sauer, 1993:22)

Lyytinen and Hirscheim (1987:263) say that information system failures:

"signify a gap between some existing situation and a desired situation for members of a particular stakeholder group."

Sauer(1993:30) criticises some aspects of the above analysis and summarises by saying that systems can have all kinds of adverse outcomes yet not be described as failures.

"Systems can be delivered late, at inflated cost, with inadequate functionality, and may be largely unused, all without necessarily being failures. So long as the project organisation can command the resources and power to sustain its system, it will not be counted a failure because it is serving some organisational purposes."

This then almost returns to the Abbott (1995) definition of failure.

1.5.9 Termination as a view of failure

One of the virtues of this view of failure is that a process need not be judged a failure the moment it encounters unforeseen difficulties. Even if a system is performing below expectations this may be only a temporary state. Further work may remedy the perceived faults. Users may indeed over time change their views of the system. Innovative systems by their very nature create uncertainty and unforeseen problems to be overcome. This difficult phase needs to be foreseen.

Sauer (1993:31) makes some interesting and pertinent points. He says that ultimately 'failure' is a judgment; and expressions of dissatisfaction which impute failure may be part of a political game of wider dimensions. So, final perceptions of a system have to be viewed with caution. Additionally, a supporter may refrain from criticism in the hope of obtaining preferential treatment from the IS/IT department in some future project. He says it is for this reason that behaviours "other than just linguistic utterances" are considered.

One of the main points to emerge is that there is a possibility that some information systems cannot realistically satisfy the expectations set for them, or at least the expectations of **all the different stakeholders**. Thus judgments of the system by the different stakeholders may differ. It may be impossible to satisfy fully the interests of all stakeholders but this will not mean that the system is a failure.

Sauer (1993:316) suggests that:

"to use 'failure' as freely as we have in information systems has not been good public relations."

More importantly, the use of the word failure has implied that the professionals involved **'should have'** done a better job, **'could have'** avoided the happenings which were viewed as 'mistakes'. Missed deadlines, budget overruns, flawed systems could and should have been avoided by professionals who were adequately trained, experienced and intelligent. This idea has encouraged a narrow view of the information systems process, one where problems can be simply avoided by adequate planning. Prior knowledge will make the next implementation better. Sauer (1993:317) says:

"By contrast, a more complex view that admits correspondence, process, interaction, and expectation failures as normal problems in the information systems process and that sees the process as beset by a wide variety of constraints and contingencies, not all avoidable, may encourage a correspondingly richer and more complex response."

1.5.10 Evaluations of computerised information systems(CIS)

i) Questions to be asked.

After reading literature (Checkland, 1981, 1990; Sauer, 1993) on evaluation of CIS the following questions appeared to be relevant.

Without evaluations we would not know the success of the IS/IT implemented. Or, would we?

Who carries out the evaluation? Management ask users? Or management bring in external consultants as evaluators?

Who receives results? Management, yes. But which department? Users? sometimes.

What happens about results and recommendations? How are they fed into the system?

(ii) Available information on evaluation

There appears to be little literature on the above questions. That is on how evaluations enter into the information systems 'process'. Sauer (1993:91) presumes that supporters of information systems evaluate the system to determine whether they serve their interests, and on the basis of the evaluation decide what support to provide. Methodologies usually give evaluation as the last step in the planning process, but loop it around to feed back into the system in a circular fashion. This does not actually appear to reflect reality, which (in the limited experience of the writer) usually has ongoing evaluations throughout an innovatory process. Sauer (1993) points out that most evaluation literature concentrates on the 'how' of evaluations rather than discussing their role or effects.

Evaluation could be viewed as a political resource because it can serve the interests of some stakeholders rather than others. The perceived outcome of the evaluation can effect the amount of future support the IS receives.

However, it should also be understood that although the result of the evaluation may influence decision-making, the **context** of decision-making must be remembered. There may be organisational factors, internal or external, which will influence decision-making regardless of the evaluation results. Thus a negative evaluation might be viewed in the light of the fact that competitors have a system in use which appears to be useful, this outside fact may influence decisions and the organisation may decide to persevere, even though investment may be much higher than was envisaged. There could be a perception that 'sunk costs' are so great that the system cannot be abandoned.

In information systems situations, rational facades can obscure from view political aspects of behaviour. (Boland & Pondy, 1983) The complexity and the possible importance of the evaluation process is a factor to be noted.

1.6 BRIEF DISCUSSION OF THE DIVERSITY OF LITERATURE CONSIDERED RELEVANT AND THE TYPE OF RESEARCH CARRIED OUT IN THE AREA.

The disciplines which deal with general IS implementation are diverse. One starting point for specific NHS information systems literature is the NHS Information Management Group (IMG) who publish literature which is aimed to give examples of good practice for NHS organisations to follow. The Audit Commission has also carried out work in this area, and there is a weighty volume from The Institute of Health Service Management (1992) 'Information Technology in Healthcare' (Abbott, Barber, Peel (eds). Relevant journals to be consulted are those such as The British Journal of Healthcare Computing and Information Management (BJHC & IM), The Journal of Information Technology, The

Health Service Journal, and for weekly up to date coverage of progress on Information Systems issues in the NHS, Computer Weekly makes valuable contributions.

In addition to these starting points there is much of interest in specialist conferences such as the Business Information Technology (BIT) Annual Conference, and MEDINFO (Medical Informatics) Proceedings.

However, in addition to such sources, there is a width and breadth of literature, much from the USA, which is from a number of disciplines, but which can add to the necessary background knowledge when IS implementation is being researched and studied. Management science and operations research (MS/OR) implementation literature can be of use and the MIT's (Massachusetts Institute of Technology) Management in the 1990s programme produced a variety of IS/IT based research and reports which add to the IS implementation literature. Additionally, information system literature, change management literature, human resource development literature, general management literature, sociology based literature and others contain relevant information. Boland & Hirscheim (1987) consider that the work is diverse both in its topics and its outlets for publication. Thus the initial and subsequent literature searches involved in IS implementation research are no simple task and a comprehensive search involves literature from a wide number of disciplines.

One key work on information research is, however, Kwon and Zmud's (1987) illuminative chapter in Boland and Hirschheim's book 'Critical Issues in Information Research' which provides an invaluable overview of the information systems implementation literature up to that date. According to Kwon and Zmud (1987) information systems implementation is a

research area that has received much attention in the last two decades. However, they carry on to criticize the research area saying:

“Yet, little of a unified, coherent body of knowledge has resulted from the effort.....While important findings have occurred, our understanding of IS implementation is surprisingly incomplete.” (Kwon & Zmud, 1987:227)

They argue that Keen’s (1977) criticisms of a decade ago still hold true:

- “ (1) no consistent definition of IS implementation has taken root;
- (2) the IS implementation literature remains fragmented with most studies following quite narrow research perspectives and few studies conceived as a well-defined research programme;
- (3) the lack of a dominant paradigm with which to frame IS implementation research efforts.” (Keen 1977, cited in Kwon & Zmud, 1987:227)

In their review of the literature they found four rather narrow research streams accounted for the majority of research undertaken. These were: a factors research stream, a mutual understanding research stream, a process research stream, and a political research stream. They also identified a fifth stream which they classified as a prescriptive research stream and they argued that this tended to adopt a broader perspective on IS implementation. “It focuses on implementation risk factors and prescribes factors for overcoming these risks.” (Kwon & Zmud, 1987:228)

Kwon & Zmud (1987:231) argue that:

“most studies focus on small pieces of the MIS implementation puzzle, without considering larger issues.”

This research aims to follow their recommendations in that a macro view of implementation is taken and the MIT90s research paradigm is adopted to structure the study. The study fits most closely into their fifth stream, because although the aim is to examine and understand the implementation process, it is done so (within a Business School setting) with the aim of identifying barriers to implementation.

CHAPTER 2

A DISCUSSION OF THE CHANGE MODELS AND PLANNING MODELS EXAMINED TO GUIDE THE STUDY

2. A DISCUSSION OF THE CHANGE MODELS AND PLANNING MODELS EXAMINED TO GUIDE THE STUDY

General change management literature (Burns, 1992, 1996; Mabey & Mayon-White, 1993; Huczinski, 1987) and operations research (OR) literature (Lucas JR, 1981; Schultz, Slevin & Pinto, 1987; Srinivasan & Davis, 1987) provides a base to begin an assessment of change models which might be useful in aiding managers implementing IT based change. Literature more specifically related to implementation of information systems is also helpful. (Willcocks & Mason, 1987; Bailey, 1993) Reisman (1987:114) however, provides a warning “Students of management beware, or you shall be buried in models!” Reisman warns that although models are useful he is concerned that we are losing sight of the problems facing us while we seek to mould answers. Box (1993) has similar reservations on the use of models and said “All models are wrong, some models are useful.” (Quoted in Burnes, 1996:xiii)

In spite of the caveat ‘buyer beware’, the successful study of technology-induced organisational change can be aided by some framework to help in identifying various factors affecting the change outcome in complex organisational settings. Burnes (1996:xii) says that:

“for those wishing to understand or implement change, the prime task is not to seek out an all-embracing theory but to understand the strengths and weaknesses of each approach and the situations in which each can best be applied.”

After reviewing a number of models from a wide range of literature this review picks out a selection of the most used models, discusses their merits and concludes by giving the reasons for choice of one particular model to guide the study.

2.1 THE THREE-STEP MODEL

Lewin (1958) developed a three step model which argued that for change to be successful there should be 'felt need' by the actors involved. The steps were: (1) Unfreezing the present level. (2) Moving to the new level. (3) Refreezing the new level.

A central feature of Lewin's theory was the concept that an analysis should be undertaken of the pressures for and against change and this he labeled a force field analysis. He saw individuals as part of work groups and therefore he saw the unit of change as the social group to which individuals belong and from which they derive their values.

The force field analysis carried out before the change, should then promote awareness of any restraining forces (resistance) so that action could be taken to deal with any potential problems. This has similarities to 'risk analysis'. However, Lewin suggests that rather than increasing pressure for change which is likely to lead to equal opposite forces, focus should be on reducing restraining forces. Johns (1983) claims that resistance to change can be reduced by involving those who are the targets of change, in the change process. He argues that this strategy should increase commitment to change by giving the involved individuals 'ownership' of the change process.

Worker participation is a cornerstone of this approach to organisational change. The theory highlights the negative forces leading to resistance to change which can develop when changes are imposed. It also promotes the idea that there are benefits to involving employees in change through prior participation rather than an autocratic approach.

Problems identified by Guest (1984) about this theory are that there is a tendency to ignore other key features of change, that is the content of the change, the technical system, the politics of change, the economic and power related bases of the different stakeholder groups. Additionally, Sofer (1961) accused the approach of being a sophisticated form of manipulation.

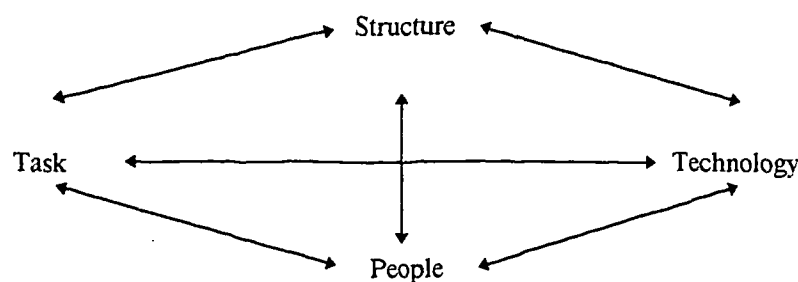
In spite of their apparent simplicity Lewin's theories have had a great influence on subsequent theories of organisational change, and the force field analysis has similarities to the current idea of a prior 'risk analysis' phase before change is undertaken.

Lewin's theories have been quoted and used consistently to the present day and many subsequent models are based on his theories. Srinivisan & Davis (1987) criticised this model's current relevance (10 years ago). They argued that major assumptions underlie this model. First, that implementors are change agents, which they refute because of the prevalence of relatively autonomous end user computing. Second they say that the model assumes resistance and this behavioural rigidity cannot be assumed given the recognition of the importance of computer skills and general familiarity of the population with computers. Third, they see the 'group' as a unit of analysis applied to users as ambiguous. These criticisms whilst having some logic have been proved incorrect. One of the reasons for failure of implementation might be that implementers are change agents, but are not taking this side of their role seriously. Resistance might not be an absolute but it does continue to be a problem in spite of computer familiarity. There are other reasons for resistance to computer information systems which are not related to familiarity but to control and transfer of power. Finally, stakeholder groups as a unit of analysis continues to be suggested by writers such as Willcocks & Mason (1987).

2.2 LEAVITT'S 'ENTRY POINTS' FOR CHANGE

When considering the implementation of change, the framework originally proposed by Harold Leavitt (1964) (but extended and refined by many later writers) can also be a useful starting point.

Figure 2.1 The Leavitt Model (1964)



Leavitt (1964) argued that it could be useful to view organisations as multivariate systems comprising of four key interdependent variables. Because of their interdependence, if there was a planned change in one variable, this would most probably result in changes in the other variables. It is worth pointing out that even in 1964 Leavitt was using theory prescriptively and arguing that changes, including technology should be anticipated and planned for. Leavitt (1964) argued that change could be directed at any one of these change variables. He considered them 'entry points' for efforts to bring about organisational change. Managers who wish to introduce organisational change in a conscious and planned way, can intervene at the task, technology, structure or people variables. Earl (1996:70) considers that it is significant that this model:

“became the core and driving conceptual framework for MIT’s Management in the Nineties programme (Scott Morton, 1991)”.

2.3 BULLOCK AND BATTEN'S (1985) REVIEW OF PHASE MODELS & INTRODUCTION OF A SYNTHESISED MODEL. THE ORGANISATIONAL DEVELOPMENT (OD) APPROACH

Subsequent writers have elaborated the three step model and various phase or sequential step models have been designed. Bullock and Batten (1985) in approaching the study of organisational development have reviewed and evaluated over thirty phase models. They identify three approaches, the theoretical approach, the historical approach and the intervention approach. They considered that the historical approach did not generalise to other change programmes. The intervention based phase models were also found to lack generality. The theoretical models were so diverse they had to be analysed individually. This resulted in the finding that 'The Planning Model' satisfied all but one of their criteria for suitability.

This led Bullock and Batten (1985) to propose a new four phase model built upon past approaches. One of the criticisms they had of the variety of models was that because there was a lack of comparability between the models used in organisational development (OD) case studies it has been difficult to accumulate knowledge across studies. Phase models provide an organising framework that allows examination of how intervention activities differentially affect results.

Bullock and Batten (1985) say that the four stage phase model first provides an overall structure for planning and reporting interventions, which allows more rapid understanding by others of the intervention and its effects. Second it identifies strengths and helps prevent omissions in reporting to ensure a more balanced representation of the entire case. Finally, by providing a balanced and standard mode of presenting OD case studies the model creates

a solid foundation for accumulating knowledge across case studies and for testing OD theories and hypotheses using rigorous statistical methodology.

Table 2.1 Outline of Four Phase Model (Bullock & Batten, 1985)

<u>CHANGE PHASES</u>		<u>CHANGE PROCESSES</u>
1.	Exploration	a. Need awareness b. Search c. Contracting
2.	Planning	a. Diagnosis b. Design c. Decision
3.	Action	a. Implementation b. Evaluation
4.	Integration	a. Stabilisation b. Diffusion c. Renewal

(From Bullock, R.J. & Batten D. (1985) 'It's just a phase we're going through.')

The Bullock and Batten (1985) analysis of models is helpful but in comparing their 4 phase model with, for example, the Kolb & Frohman model (1970) (see Table 2.2 Below) it can be seen that both are very similar and the 4 phase model actually contains all the steps of the Kolb and Frohman model.

Table 2.2 Comparison of the Kolb & Frohman Model and the Bullock and Batten Model

<u>Kolb & Frohman (1970)</u>		<u>Bullock & Batten (1985)</u>	
1.	Scouting	1.	Exploration
2.	Entry		
3.	Diagnosis	2.	Planning
4.	Planning		
5.	Action	3.	Action
6.	Evaluation		
7.	Termination	4.	Integration

2.4 THE 7S FRAMEWORK

Another framework used to analyse change is the 7S Framework proposed by Peters and Waterman (1982) in their book 'In Search of Excellence'. The framework views every organisation as a unique blend of change variables, comprising systems, style, structure, skills, staff, strategy and shared values. This framework was designed as a conceptual tool to guide groups and organisations engaged in change projects. Definitions of the terms used are given in Table 2.3. According to Huczynski (1987:278):

"The framework represents an assertion of the belief that productive organisational change is more than the outcome of the interactions between structure, objectives and strategies".

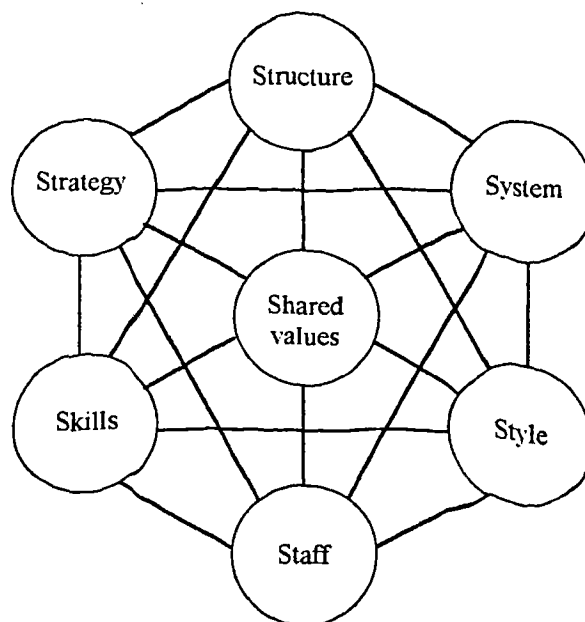
This model infers that at least seven (possibly more) variables influence an organisation's ability to change, and also they dictate the mode of change. It stresses the interconnectedness of the variables and this draws attention to the fact that ignoring one or more of the variables can result in failure of change projects.

This model shows all variables as equal in importance. This implies that any one or more of the variables can be the driving force for change. All the variables are affected by political, economic, ecological, sociological and psychological influences. A number of organisations including the World Bank have developed diagnostic tools that make practical use of the 7S Framework to guide a change programme (Peters & Waterman, 1982:10).

Table 2.3 The 7S Model (Peters & Waterman, 1982)

Shared values	are the shared aspirations which go beyond a company's formal statement of objectives. They represent the conceptual foundation on which the organisation stands.
Strategy	the art of devising and employing plans that respond to and counterbalance the changes in the internal and external environment.
Structure	divides functions, defines relationships and accountabilities, and provides a means for co-ordinating and integrating action.
Systems	covers all the formal and informal procedures and processes in an organisation that help it to function.
Skills	refers to the expertness and adaptiveness of the organisation itself, under the guidance of its managerial leadership. It concerns those things that a company does well.
Staff-	are the employees of the organisation.
Style	refers to the distinctive, characteristic performance that is a reflection of managerial leadership.

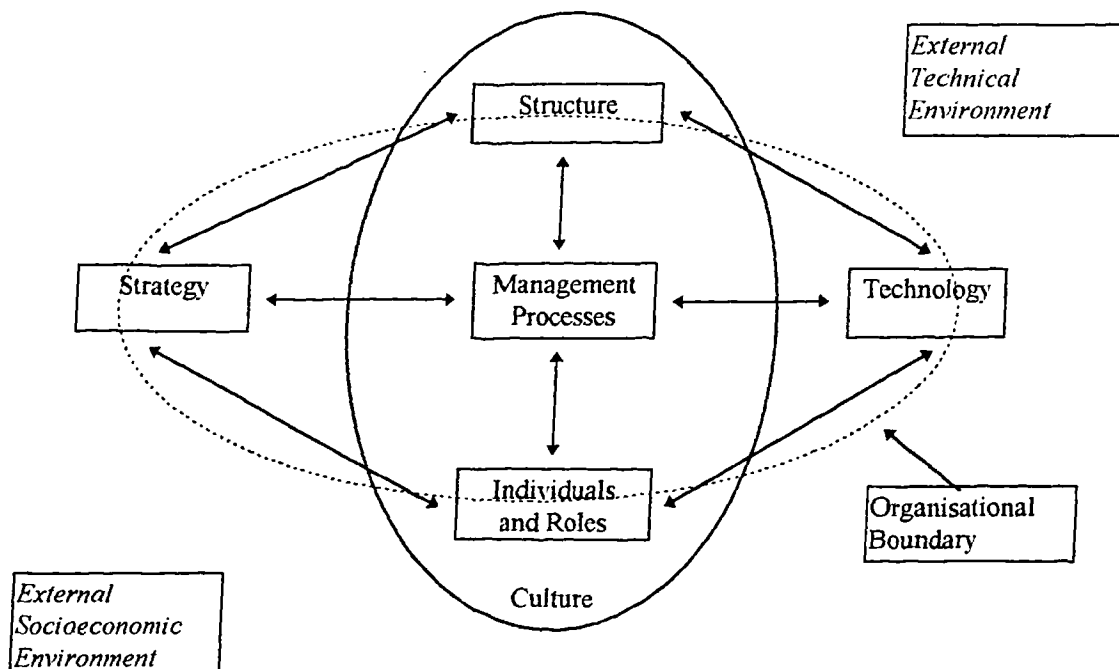
Figure 2.2 The 7S Framework (Peters and Waterman 1982:10)



2.5 THE MIT90S FRAMEWORK

The MIT90s (Massachusetts Institute of Technology) research programme was conceived in very broad terms and it was posited that no one discipline or research methodology could yield the 'truth' on problems of such complexity. Multiple faculty and research methods were used to probe the basic questions. More than 36 projects were undertaken by 25 faculty members. The different approaches used all shed some light on the central questions and suggested that the challenge of exploiting the power of IT is not the provenance of any one point of view, function, or person. The MIT90s team developed a model to serve as a research framework. The model was based on the work of Chandler (1962), Leavitt (1964) and Wack (1984). The model represents the five set of forces that exist in dynamic equilibrium within the organisation. The model became known as the MIT90sFramework.

Figure 2.3 The MIT90s Framework (Scott Morton, 1991)



In this framework there is the strategy of the organization, the mission it wishes to accomplish, and all the tasks that make up that mission. There is the organization structure and, very importantly, the corporate culture that makes that structure become "alive and vibrant". (Scott Morton, 1991) There is also the 'people' aspect, including the roles they are asked to play. The remaining set of forces are the technologies that are available. Holding all these four forces together are the management processes; the planning, the budgeting, and the control systems as well as the informal processes that represent the way the organisation does its business. All the sets of forces exist in an external environment which consists of the social, political, economic and technical forces.

The MIT research points out the fact that management of the change in the organisation brought about by turbulent outside conditions together with the introduction of IT needs three stages (Lewin 1982) unfreezing, change, and refreezing. The changes induced will cause redistribution of power and control and this must be recognised and new methods of planning and control must be designed.

Although Scott Morton (1991) and others say that changes will cause redistribution of power and control within organisations they do not label politics or power in their framework. This is considered by the writer to be an omission and has been added to the MIT90s model for use in this study. The original MIT90 model and the revised model are further explained in Chapter 7.

2.6 CONCLUSION ON CHANGE MODELS

The reviewed models all offer aid in the understanding of change and organisations. These change models have been designed to be used in the planning of change but are equally helpful in the study of change. Two other models were considered to be particularly helpful and they were by Willcocks & Mason (1987) and Bailey (1993) but they are not included in the review as they are similar to the MIT90s model.

It is perhaps wise at this point to articulate the assumptions behind some of the models used. A model such as the Leavitt (1964) model or the MIT90s Scott Morton (1991) model uses the model as a type of shorthand and, although presented simply, to aid a macro view of situations each element of the model can be thought of as a 'bullet point' or heading under which a range of organisational variables will be tacitly assumed

All of these models have advantages (and many more are available), but none specifically represent the aspect of politics in the diagrammatic model (though they may 'assume' that politics will be understood as existing within the element of culture). There may be good reason for this. The aspect of politics is often viewed with distaste and there is an inclination to 'avert the gaze' and hope that all will turn out well. However, from the literature on IT implementation, and on change in general, there appears to be something in the politics arena which is interfering with change and so should be included in the models of change. For this reason, for use in this study, the original MIT90s diagrammatical model has been expanded to include politics/power. See Chapter 7.

CHAPTER 3

UNDERSTANDING ORGANISATIONS - THEORY

3. UNDERSTANDING ORGANISATIONS - THEORY

3.1 INTRODUCTION

As most computerised information systems are designed and used in organisations and, as according to Scott-Morton (1991), they are likely to affect all elements of the organisation, then some understanding and thought about organisations is necessary. This chapter examines some of the theories about organisations which have influenced the writer.

3.2 DEFINITIONS OF AN ORGANISATION.

“Organised body, or system, or society.”

The Concise Oxford Dictionary of Current English. (1964)

“Organisations are social arrangements for the controlled performance of collective goals.”

Huczynski A. & Buchanan, D. (1985:7)

“Consciously created arrangements to achieve goals by collective means.”

Thompson & McHugh, (1995:3)

Understanding organisations requires the appreciation of a range of competing theories, each drawn from many disciplines and perspectives. However, Max Weber’s work is usually taken as the starting point in the discussion of organisations. Weber thought that a particular form of organisation, bureaucracy, was becoming the typical model. He saw bureaucracy as concerned with the controlling, managing and coordinating of a complex series of tasks.

Theory has been strongly influenced by ideas of a rational co-operative social system existing in a state of equilibrium. The organisation as interrelated parts working towards a common goal.

3.3 THE STUDY OF ORGANISATIONS.

Organisations are made up of groups of people and the study of organisational behaviour is:

"the study of the structure, functioning and performance of organisations, and the behaviour of groups and individuals within them." Pugh (1971:5)

This idea by Pugh that the study of organisations can be fully informed by information gathered within the organisational boundary has been challenged by writers such as Thompson & McHugh (1995).

The functioning of the organisation may be impossible to understand without consideration of the environment in which the organisation operates. Thompson and McHugh (1995:8) say:

"It is impossible to study satisfactorily something like the division of labour or hierarchy of groups in a business, without an understanding of the broader social division of labour and power structure."

Rationality and harmony within organisations is based on a 'taken for granted' view of organisations but this view is being challenged by such writers as Willcocks & Mason (1987) and Walsham (1993) who draw attention to the sometimes very different goals of different 'stakeholder' groups within an organisation. "Commonsense is not an adequate guide to the anatomy of an organisation." (Stamper 1973:340) and for this reason a range of theories are necessary to guide the understanding of organisations.

3.4 THE USE OF METAPHOR TO AID ORGANISATIONAL UNDERSTANDING

One approach to understanding organisations is the use of metaphor. A metaphor is defined as the:

"Application of (a) name or descriptive term or phrase to an object or action to which it is not literally applicable" (Concise Oxford Dictionary, 1976).

This approach is richly illuminative but has the drawback that the very suggestion of the metaphor, with its rich picture, may influence the initial thinking about the organisation, even before a study is undertaken. Mangham and Overington (1987) use the metaphor to provide fresh insights but they warn that the use of metaphors can remove the power of insight. As a conceptual tool to aid analysis of organisations it may be wise to gain insight using a number of metaphors but realise that there may be no best one. Each may provide new insights:

"For organisations are complex and paradoxical phenomena that can be understood in many different ways. Many of our taken-for-granted ideas about organisations are metaphorical, even though we may not recognise them as such." (Morgan, 1986:12)

Canadian academic Gareth Morgan (1986) takes a multiple perspective to organisations in his book 'Images of Organisation'. He presents eight metaphors which invite us to see organisations as: machines, organisms, brains, cultures, political systems, psychic prisons, systems of change and transformation and instruments of domination. Morgan's approach which he describes as a diagnostic reading and critical evaluation of organisations is complex but ensures that a number of approaches are used which might stimulate a more innovative way of looking at organisations.

Two metaphors which appeared appropriate to inform this study were organisations as cultures and organisations as political systems. Organisations as cultures was considered useful because many writers comment on organisational culture (Peters & Waterman, 1982; Bailey, 1993) and culture is one of the MIT90s Framework elements (Scott Morton, 1991). Organisations as political systems seemed to be equally relevant because writers such as Willcocks & Mason (1987) and Markus (1983) talk about stakeholder groups with different interests. (The discussion that follows is, however, based on work of a number of writers taking the same perspective and not solely on Morgan.)

3.4.1 ORGANISATIONS AS CULTURES

The concept of culture within organisations has become increasingly dominant. Walsham (1993) uses culture as shared meaning, linked to symbolic anthropology (Geertz, 1973). From this perspective, for the purpose of organisational analysis, culture is conceived as a pattern of symbolic discourse. It, therefore, needs interpreting, reading, or deciphering. This view of organisations recognises the transitional nature of the complex picture. Smircich (1983:354) comments:

"Symbolic organisation theorists are concerned with interpreting or deciphering the patterns of symbolic action that create and maintain a sense of organisation. They recognise that symbolic modes, such as language, facilitate shared realities, yet these realities are fleeting, always open to reinterpretation and renegotiation."

If culture is defined as 'the way we do things around here' (Peters & Waterman, 1982) there is an inference of continuity of practices and repetition of actions. However, such repetition is not rigidly enacted. Giddens (1984) discusses the link between action and structure in his structuration theory.

Culture is presented by many writers on IT/IS as one of the most important aspects to be acknowledged but the very fact that it is not static or tangible presents problems. There seems to be general agreement that culture within the NHS is changing but exactly how and to what extent is not known. A further problem is that with the size of the NHS and the different organisational groups present, the acquisition of knowledge is complicated by the fact that there are various subcultures within the NHS. Even within one 'Trust Organisation' there can be multiple sites, each potentially having a different culture. The term subculture implies a subgroup within a broader social unit, who share sets of meanings which perpetuate their distinctive character within the unit as a whole.

There is little work in the current literature which addresses the issue of subcultures in relation to information systems (Walsham, 1993:37) and there is no analysis of the maintenance and change of subcultures. Information on culture in a seminar paper on change management by Whiting (1995) of Devonport Dockyard described how he believed he had brought about changed culture in the department of 250 which he managed. (This culture he saw as different from the main organisation.) He promoted shared meaning and values in the top management team by weekends away on Dartmoor. New ideas were then passed on to the work groups. There was no academic study of this change, but his reflections on the change were that within one year the culture had changed, and by year two this translated into changed work practice and ethos. However, he reflected that on his leaving the organisation, if an internally trained manager should take over the post, the culture would quickly revert.

This manager's reflexive account serves as an illustration of the possible transience of cultural change. This makes study and prediction using culture as a base rather problematic, but does not negate the fact that culture should be brought into the organisational picture.

Culture has become a popular topic in management literature, typified by the Peters and Waterman (1982) style of prescriptive writing. For the study of IT/IS the idea of culture (and possibly sub cultures) as influential is important. It draws attention to the complexity inherent in large organisations. Smircich (1985) argues that we should take a positive view of multiple realities, instead of treating different interpretations as 'communication problems'. Using this viewpoint the aim should be to manage *for* multiple realities not *in spite of* multiple realities.

The contents or elements of culture are listed by Deal & Kennedy (1988:13) as:

“type of business environment values, seen largely in terms of corporate necessity, and mission heroes that personify the corporation's values and provide role models' rites and rituals, that define day by day life in the company; the embodiment of company values and norms; and the cultural network, which is the primary, yet informal, means of communicating culture - the storytellers, spies, priests, cabals and hidden hierarchy of power”.

This, again links with Giddens Structuration Theory and Ott (1989:3) says that patterns of behaviour and decisionmaking are 'almost predetermined' by what occurred before.

There are, therefore, perhaps two concepts of culture. The corporate culture approach (Peters & Waterman, 1982; Deal & Kennedy, 1988) which sees culture as being open to control and manipulation by management and the organisation culture concept (Meek, 1994) which is related to the whole organisation and as such is less open to manipulation by management.

The situation is complex and the culture/organisation is made up of groups of actors (or stakeholders) with differing backgrounds and interests who view situations from different perspectives and therefore sometimes make different judgments about them. Thus, within a 'culture' there may be different groups with different interests and different senses of identity. This view of reality is not shared by Peters and Waterman (1982) who claim that the vision and mission statement of the organisation set the culture and with this strong vision, leadership control is less necessary, because there is 'commitment' to the vision from the workforce. All organisational members are assumed to be following the vision and working towards the 'organisational good'. This infers that less formal management control will be necessary - people will work in teams - self regulation will occur. This might be the concept of culture in the MIT90s Model (Scott Morton, 1991), though it is never clearly explained.

3.4.2 ORGANISATIONS AS POLITICAL SYSTEMS

The idea of organisations as political systems has been more rigorously explored. Morgan (1986) when using this metaphor sees organisations as loose networks of people with divergent and conflicting interests but who gather together for the sake of expediency. The idea behind the use of the metaphor of organisations as political systems is to bring to light the concept of power, its presence and its use, which may be, if not overlooked, ignored.

The definition of power is not simple. Power relations exist within social interaction. Those recognised as powerful (possibly bureaucratic power) are seen to be able to dominate others and gain their will, however, this does not mean that those lacking in obvious power

are actually powerless. Resistance can be seen as a type of power which is used against the more formal power of others.

Power is defined as:

“the capacity to get decisions and actions taken and situations created which accord with, and support, one’s interests.” (Dawson, 1992:163).

Clegg (1994) says that there is a pervasive tendency to think of power as a thing without considering that it must also be a property of relations. It is not a characteristic of an individual but is a property of a relationship between people. Wrong (1979:13) contends that:

"Politics includes both a struggle for power and a struggle to limit, resist and escape from power."

Such comments infer that power and resistance stand in relationship to each other (Knights & Vurdubakis, 1994) and one rarely has one without the other.

There does not have to be overt and obvious conflict for resistance to be occurring. However, Barbalet (1985) defines resistance as the "efficacious influence of those subordinate to power." Which infers that the resistor has some success, however small. If there is no overt and immediate resistance this might infer that there is an agreement of objectives by all concerned. However, because of the nature of IT/IS systems and the fact that they affect different groups involved, in different ways, it is likely that there might be resistance, either overt or covert, by at least one group at some point in an implementation process.

Burnes (1996:126) points out that the very “public manifestations of power battles in organisations represent the tip of the iceberg.” He argues that protection or promotion of

one's own or one's groups interests are nearly always justified by claims that actors are acting in the best interests of the organisation. He surmises that:

“it is not that they necessarily believe their own propaganda, though often they do; it is that, without it, they would find it very difficult to justify, to themselves and their allies, the use of blatantly illegitimate tactics such as challenging, undermining or explicitly ignoring their organisation's official goals and policies.” (Burnes, 1996:126)

He carries on to say that those indulging in even a low level of political behaviour rarely openly declare their own personal interest in the outcome. A significant feature of political behaviour is the attempt to conceal its true motive. (Pfeffer, 1981) The reason for this concealment has been researched and it is perceived by the actors involved that their attitude and behaviour towards the change would be judged unacceptable or illegitimate by other in the organisation, therefore, a 'substitute' but more acceptable motive is presented instead (Allen et al, 1979; Frost and Hayes, 1979; Drory & Romm, 1988). Dawson (1992:165) has drawn up a useful table showing the conditions for the overt and covert expression of conflict and exercise of power. (See Table 3.1 below)

Table 3.1 Conditions for the Overt and Covert Expressions of Conflict and Exercise of Power (Dawson, 1992:165)

Expressions of conflict	Knowledge about issue over which there is conflict between interested parties	Action of interested parties to press own interest
Overt	Known to all parties	All parties press own interest
Degrees of covertness	Known to all parties	Some parties 'choose' not to press own interest because they consider they will be unsuccessful, or otherwise fear consequences
	Known to all parties	Some parties 'choose' not to press own interest because they consider the dominance of another partner is legitimate
	Known to some parties but not to others	Some parties excluded from pressing own interest
	Not seen as an issue, part of taken for granted world	No specific action.

Foucault (1979) introduced the idea of multi types of power and argued that its use pervades all action and discourse in organisations and the exercise of power is a continuous process.

As computer based information systems (IS) within organisations can be an important way of using power (by use of the information gathered, or use of surveillance etc.) (Zuboff, 1988; La Nuez & Jermier, 1994; Dent, 1996a) then the importance of power and political action related to their acquisition, implementation and use, should be realised.

Keen (1981) pointed out the importance of the politics of organisational change related to computer based information systems. Marcus (1983) described power and political action over an extended period of several years in the introduction of a financial information system which had significant effects on both divisional and centralised accounting functions and was the source of a major conflict between them.

Table 3.2 Some key elements of the cultural and political metaphors. (Walsham 1993:47)

	Cultural	Political
View of Organisation	Organisations as patterns of symbolic discourse and action	Organisations as loose networks of people with divergent interests
Some Key Ideas	Culture is an active, living phenomenon through which people create the world in which they live. Subcultures maintain distinctive character and ascribe different meanings to same events.	Power is intrinsic to all human activity. Exercise of power is continuous with subtle local properties. Morality is involved in exercise of power. Can include domination, but this is never total.
Management	Cannot control culture, but can influence its evolution. Need to manage for multiple perspectives.	Need to actively manage the precarious balance between autonomy and control at multiple levels.

Politics and power are emotive words and have a tendency to be, if not ignored, treated as part of 'tacit' knowledge often considered best left undiscussed. The adage 'least said, soonest mended' appears to be descriptive of the treatment of power and politics within organisations. In academic business literature, which traditionally prefers quantifiable 'facts' to observation and a more 'vague' analysis of situations and outcomes, the study of power is not common. One of the exceptions, Markus (1983) mentions power and politics saying "Politics is the process of exercising power." Power can be defined as the ability to get one's way in the face of resistance or opposition (Pfeffer, 1981). Power is usually considered to be an attribute of individuals, related to their ability to influence others to do what they want. In this view, an individual has power to the degree that he or she possesses certain things or characteristics that generate power, such as charisma, expert knowledge, resources or formally designated power (French and Raven, 1959 cited in Markus, 1983).

Markus (1983) relates that Pettigrew (1973) for example has described a case involving the decision to purchase a computer. A manager favoured one computer manufacturer over the vendors that were chosen by his subordinates. Although the manager may have lacked some of the technical expertise of those reporting to him, he was able to 'swing the decision' his way because he made the presentations about the various computer models and their capabilities to the people who made the final decision. Pfeffer (1981:55) gives many other examples of the control of information in the politics of decision making.

3.5 LABOUR PROCESS THEORY

Although formerly Labour Process studies have concentrated on the private sector, more recently there has been interest in looking at the public sector using this approach (Cousins,

1986; Dent, 1991, Coomb & Jonsson, 1996). The argument by Thompson and McHugh (1995:8) that it is impossible to study satisfactorily some aspects of what goes on inside organisations without taking account of the broader social division of labour and power structure in society is important. Burnes, Knights and Willmott (1988:2) say that it is regrettable that governments, organisations and even trade unions have failed to take any critical stance and ask questions regarding the way new technology is developed and used. There has been a tendency to think of the technology as a 'mere add on, progressive tool' and a fatalistic attitude has been taken, a form of technological determinism.

Burnes et al (1988:3) contend that the problem partly stems from a tendency to treat new technology as a:

“self-contained, uniform phenomenon, isolated from other societal and organisational influences and having an inexorable momentum of its own.”

They argue that what is needed are studies of new technology:

“within the context of political, socio-cultural and organisational developments; its treatment not as an isolated or uniform phenomenon, but as something that varies depending on its particular form and on the nature of the organisation, industry and society in which it is developed and used; and finally, a view of new technology and the social organisation of production linked to historical change.”

They contend that the last point is important, because it is through historical comparisons that a fuller understanding of the significance of contemporary developments in new technology may be gained. This same point is made by other writers such as Pettigrew (1973, 1985), Pettigrew, Ferlie & McKee (1992) and Willcocks & Mason (1987).

If a more historical stance is taken, and an overview of the 'whole situation' is used then the 'neutral' position of technology as 'just a way to efficiency' can be seen to be questionable.

At this point it is constructive to examine Labour Process Theory and its applicability to this

process. Labour Process theory begins from the analysis of the separation of work into constituent elements as a means of cheapening parts and ensuring managerial control. Much of the recent writing on Labour Process Theory has been influenced by Braverman's (1974) *Labor and Monopoly Capital* and social scientists are now asking questions about the politics and human choices relating to work and technology (Mumford, 1981; Willcocks & Mason, 1987).

Thompson (1989:84) says that the major schools of industrial sociology have always been more interested in the behaviour of workers than in the nature of work. He argues that:

“who owns, controls and designs work has largely been taken as given, as have the consequences of these social relations on forms of technology and division of labour.”

The reactions of workers and their reasons for ‘restriction of output’ have been the focus of many studies and this is related to managerial concerns and to the kind of studies that will attract sponsorship and be approved and allowed access into factories and organisations. Thompson (1989) also says that there has been a belief that industrial behaviour can be explained and changed within the workplace and this ties in with the ideas underpinning the empirical research being reported here, the idea that if the individual barriers to implementation can only be found, the process would progress smoothly.

Thompson (1989) reports that until recently it has been the convention to describe Taylorism as a partly failed system. Ideas of the factory as a social system, presented by the ‘human relations movement’ focused on the culture and conditions of the workgroup which were thought to affect and often restrict output. Mayo (1933) saw the system as containing two interrelated aspects, its technical and human organisation. He argued that the human or

informal organisation can secure harmony, and that managerial action could modify social processes, improve efficiency and meet social needs.

“The Human Relations Movement demonstrated in numerous studies how the style of supervision and composition of different groups affected their work performance and satisfaction.” (Argyle, 1972:6 quoted in Thompson, 1989)

Mayo (1933), therefore, put forward recommendations to management to improve social skills of supervision, create better working conditions, counselling etc. From this perspective managers appear as a mediating and conciliatory force between capital and workers.

Many of the studies of the influence of technology on work have focused on user attitudes towards types of technology. The technology itself has been defined as the hardware of tools and equipment but the underlying labour processes have rarely been examined. Thus resistance has tended to be contributed to individual attitudes or irrationality, or technical imperfections in the system. There is little written which takes a wider view as advocated by Kwon and Zmud (1987).

Assumptions have been made of work resulting in rising skill and responsibility with less definition between manual/white collar workers and between administrative/managerial work (Kerr et al, 1964; Crozier, 1983; Argyle, 1972). In relation to white collar work there has been the argument that new computer systems would informate rather than automate and this would increase the job satisfaction and blur the difference between manager and administrator (Zuboff, 1988). Little has been said about how managers would feel about this. Managers might prefer to keep a more obvious distinction between their work and that of administrators, in order to retain both their status and their pay differentials. Additionally, there has been an assumption that, as this would increase job satisfaction for

the administrator, this would, in general, be 'a good thing'. Markus (1984: 50) says it is important to note, however, that planning and decision systems are used more extensively by managers and professionals than by the blue collar and clerical workers who are assumed to be the usual victims of contraction in career prospects and the elimination of job skills. If, as is inferred by Markus (1984), the new 'victims' of computerised working are to be managers and professionals, then we may suspect that they will not always submit readily to the implementation of new systems but might resist in either overt or covert ways. We might also theorise that their ways of avoiding new systems (and ways of working brought about by new systems) may be subtle and not easily detected.

Since the 1958 publication of Leavitt and Whistler's now classic article 'Management in the 1980s' people have speculated that the computer will induce changes in managerial employment and career prospects similar to those observed in certain lower-level occupations. The authors predicted that computerisation would automate the jobs of many middle managers and would reduce the prospects of those remaining, for promotion to top management. Leavitt and Whistler (1958) also predicted that the use of computers in managerial decision making would sharpen the distinction between planning and doing, that planning would be forced higher up in the organisation, then middle managers would be left with jobs bereft of decision making. Until recently, very few high-level managers have used computing in a direct hands-on way and investigators have produced little evidence to prove any use of computers by high level managers. In spite of this, within the last few years, there have been increasing concerns about the elimination of management skills.

As the electronics revolution takes hold and offices and factories become computerised, data can flow directly from the shop floor to the executive suite, making many middle managers

redundant. It is thought that those who survive will have far different jobs to do and that there will be less management jobs in total.

It is felt by Thompson (1989) to be remarkable that there has been no solid explanation of the 'source' of the continual battle over output. He says that various studies have referred to workers' irrationality, managerial inefficiency and monetary motivations, but this has been abstracted from any analysis of the nature and purpose of production under capitalism.

Thompson (1989:23) says:

“Yet it is the struggle for profitability that impels capitalism to transform and control the labour process, shaping and stimulating workers' own battle to satisfy economic and social needs. Without this insight, restrictions of output simply appears alongside lack of motivation, difficulties of communication and conflict between groups as pathologies departing from the norm of harmony.”

This was one of the reasons for the use of Labour Process Theory as an aid to this study. The initial approach to the study was to examine ideas behind human resource management, organisation theory, IT implementation theory, traditional change management theory, but none of these specialisations seemed to explain why, when for (it appeared) ten to fifteen years there seemed to have been a myriad of prescriptive advice for managers on IT acquisition and implementation there still seemed to be areas where IT implementations were not progressing in the smooth way that management assumed that they would. Indeed, on examining the literature on IT implementation it would appear that the 'norm' is a 'very rocky road' to implementation and subsequent 'full use' of systems.

This led to suspicions that other factors were affecting the process. The fact that our initial theories and approaches might mean we miss important points for analysis was inferred by Burowoy (1979:5):

“With the subsumption of industrial sociology under organisation theory, the distinctiveness of the profit-seeking capitalist enterprise is lost.”

Thus the ‘right’ questions are not asked. However, if we look back to Thompson’s comments about what is deemed ‘researchable’ and what will be funded then we can guess that there might be little funding for a project setting out to use Labour Process Theory. Additionally, access to sites would be difficult to say the least. In attempting to study and analyse strategy, for example, there are problems even for researchers using the most ‘conventional’ and acceptable (to management) approaches. In a paper given at the British Academy of Management Conference, Fredericks (1995) said that it took 7 years to negotiate access to the organisation she wished to study with respect to their strategy. Obviously, access to study strategy decisions as they are made, or at least discussed in the boardroom, can pose a threat to those involved and (unlike workers) they (directors) have the power to deny access.

Initially, the idea of using Labour Process Theory in relation to the NHS was thought to be problematic because the majority of studies using this approach focus on blue collar workers. There is a denial that Labour Process Theory can be applied to managers or professionals. Additionally, is the National Health Service a capitalist enterprise? However, subsequent thought over the concept seemed to suggest that although the NHS is not strictly a capitalist enterprise making a profit from production, since the changes brought about by the NHS and Community Care Act (1990) the NHS does imitate a capitalist enterprise. Smith et al (1996:2) say in relation to the public sector:

“The organisation and control of work is increasingly treated as if labour were there to generate profits.”

With regard to Labour Process Theory applying to managers and professionals it can be argued that, certainly within the NHS, the professionals are being increasingly controlled and

directed in their work (Harrison & Pollitt, 1994) in an effort to cheapen 'production' (the product being for example medical procedures such as operations). Managers are also facing a degree of 'de-skilling' and loss of power and autonomy because many new information systems allow a wider access to management information and also the possibility of easier comparison of their practice.

Increasingly, the separate organisations within the NHS umbrella are charged with the task of imitating capitalist enterprises. They have customers, who are charged for the service they receive. To put it crudely, the labour process used to deliver the 'product' must be the 'cheapest' possible so that the customer can have the best possible 'deal' from the service.

Economy and efficiency have been two key words used by the government and these are increasingly to be attained by using market-like principles. The pre 1982 manager was described as a diplomat and the consensus team model was used for decision making. Increasingly a more aggressive managerial stance is being taken and this presents problems. If professionalism involves autonomy and judgment, and managerialism involves control, then there is potential for conflict.

Harrison & Pollitt (1994:137) point out that compared to 20, or even 10 years ago the average professional's work today is much more likely to be:

“costed, audited, used as an input for performance indicators, subjected to explicit budgetary or workload ceilings (possibly embodied in a contract or service agreement) and/or included within the scope of patient satisfaction surveys.”

They conclude that professionals are likely to retain considerable autonomy so long as they continue to monopolise their particular skills and control their supply of labour. They argue

that doctors have managed this so far but nurses have been affected by the creation of health care assistants (thus de-skilling aspects of the profession.)

Dent (1996a) draws attention to the fact that research and attention have been centred on manufacturing and service sector work within the private sector and oriented to the issue of managerial control. This has resulted in a lack of attention to the role played by other groups, especially the professions and technical specialists. Dent (1996a) argues that although Thompson, (1990:110-111) infers that labour process theory would appear to be inadequate for the task of analysing professional work within the public sector, such an analysis is precisely what is needed. Dent's recent work (1991, 1993, 1996a, 1996c) discusses the aims of the state to control clinical costs and the fact that these aims conflict with the medical professional's objective of retaining autonomy. A final point needs to be made about managerial strategy. Dent (1996a:65) said:

“On the one hand, the managerial strategy at the Department of Health (the state) was to directly involve doctors in the controlling of clinical costs and generally improve efficiencies. While on the other, the medical profession responded by attempting to develop their own system of ‘audit’ which was concerned with the quality, rather than the cost, of care and entirely under their own collegiate control.”

It may, therefore, be the case that the difficulties experienced by those seeking to implement information systems in the NHS can be better understood if they are analysed in relation to labour process theory. Conflict and power struggles are not always visible. The failure to implement information systems which enable the measurement and comparison of the work of professionals and managers is often blamed on the failure of technical aspects of the system, or on the user unfriendliness of the system, but overt reasons for dislike of using systems may be masking other reasons which are best unspoken. If a new information system is to be successfully blocked by those who would be expected to use the system and

who would be 'controlled' by the system, then if they are to subvert the process, their strategy must be one of 'rational' and 'reasonable' reasons for non use of the system. Thus, research into resistance needs to address all possible reasons for dislike or non-use of new systems and not rely only on empirical evidence.

Use of the deskilling and deprofessionalisation debate (Dent 1996a; Metcalf, 1996) can aid analysis of the complex processes related to the implementation of information systems in health service organisations. It is argued that the interests of managers and professionals may not be in line with the interests of 'capital' and that as NHS organisations are now increasingly run in capitalist style these occupational groups may use subversive means to protect their interests.

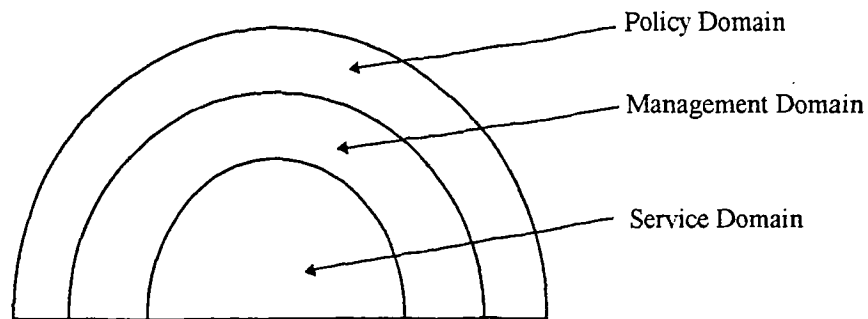
The conclusion is that analysis and insight into complex organisations and complex processes is enhanced by the use of macro theory such as labour process theory. Analysing the failure of information systems could too easily revert to 'cosmetic' reasons given by those who wish the systems to fail. La Nuez & Jermier (1994:245) discuss sabotage behaviour and argue that existing research on workplace sabotage has been largely descriptive and impressionistic in nature but that managers and technocrats do appear to practice sabotage and it is not as was previously claimed exclusive to working-class employees.

"Managers and technocrats have sufficient motive to resist corporate demands and undermine the productive process." (La Nuez & Jermier, 1994:245)

Labour process theory continues to aid the analysis and understanding of empirical research and is of particular relevance in the new NHS organisation (Dent, 1996a).

3.6 DOMAIN THEORY

Figure 3.1 Domain Theory (Kouzes & Mico, 1979)



The final theory to be used in the initial theorising is Domain Theory. This was used and found helpful by Windle-Taylor (1994) who is himself a consultant in the NHS. It is helpful in giving another perspective on what is taking place in organisations. The social and cultural features of an organisation are an important feature in understanding how systems will impact on organisational life. There are distinctive differences between other business organisations and NHS healthcare organisations. Some of those identified are motivations of organisational members, a greater pluralism in setting goals and objectives and the existence of a number of powerful professional groupings with allegiances that extend beyond the employing organisation. (White & Swann, 1995)

A model of conflicting domains is suggested by Kouzes and Mico, (1979) which was originally proposed to explain anomalies in the application of the science of Organisational Development where it impacts on the public sector. Kouzes & Mico suggested that the classical hierarchical theories of bureaucratic business organisations were not applicable to human service organisations (HSO).

They theorised that HSOs were made up of three Domains each having the following major characteristics:

- Separate identities
- Different perceptions of reality
- Different norms
- Discordance between domains
- Struggle for power and control
- Different rhythms of change
- Uncertainty during periods of change

This model shows that the hierarchy model of organisations which is the accepted norm may not be the only explanation of reality within NHS organisations. Three identifiable domains are present, the policy domain, the management domain and the service domain.

The Policy Domain for NHS organisations is theoretically still the Department of Health, however, even further difficulties arise from the fact that individual hospital trust organisations are instructed to act as individual 'business units' which can stand or fall on their own business acumen. Central direction from Government and local autonomy, do not always sit easily together. However, the policy domain refers to the level of the organisation at which governing policies are formulated. It is concerned with the translation of public policy and in bargaining and negotiating for resources (White & Swan, 1995).

The Management Domain is located within the individual NHS organisations and its task is to implement policies decided by national government and Trust directors. According to White and Swann (1995:420) it tends to reflect a:

“technocratic-bureaucracy paradigm. This now includes the assumption that hospitals should be more ‘business like’ and in the NHS in recent years it has generally assumed responsibility for the information systems developments.”

The Service Domain consists of those who provide the services to the clients and is dominated by professionals. The professionals claim the right to control what they define as professional practice. Autonomy and self regulation are key factors in this domain.

Domain Theory aids understanding of the complex struggles that can occur within the NHS organisation.

“It defines and describes the various factors which cause conflict and give rise to organisational tensions.” (Windle-Taylor, 1994:16)

3.7 DISCUSSION OF HOW THE ORGANISATION THEORY DISCUSSED AIDS ANALYSIS AND UNDERSTANDING OF THE DATA GATHERED AND THE QUESTIONS ASKED.

The complexity of organisational life means that it is necessary to draw on a number of theories to approach the task of understanding organisations. Much theory is read, assimilated, and becomes part of ‘tacit’ knowledge used by researchers (and others) and only the most relevant theories used to aid understanding and probing of the data gathered have been included (if somewhat briefly, because of limited space).

Morgan's (1986) use of Metaphor Theory opens up ways of interpreting data using his perceptions of organisations as cultures and as political systems. The idea of organisations as cultures reinforces the MIT90s model being used, which includes culture as an organisational variable. Willcocks and Mason (1987) say that organisations consist of different 'groups' of actors and sub cultures may exist within large organisations (Sauer, 1993), so that complexity is introduced by the fact that these different groups may act and react and perceive differently

The theory that organisations are political systems (Morgan, 1986) adds validity to the writers decision to add the variable of politics/power to the revised MIT90s organisational model. Power and political analysis may play a particularly important part of explanation where a radical change is involved. Such analysis is not simple because of the propensity of those most powerful to use their power in a subtle and covert manner, and the possibility of those without formal power using a covert approach to resist changes which they perceive to be against their interests (LaNuez & Jermier, 1994:246).

Domain Theory is seen to have relevance in view of the threatened position of the medical profession (Harrison & Pollitt, 1994) and the 'possibly' deteriorating power base of managers (Markus, 1983). The autonomy of medical consultants is being threatened by the increasing pressure for efficiency (from the policy domain). The latest ideas emerging from the Government (1997) are that GP's who were traditionally 'self employed' should now have the choice of a salaried position. This may be a further move towards controlling the autonomy of professionals within the NHS. Thus if the Policy Domain is seen as having different perceptions of reality and as struggling for power with the Management Domain and the Service Domain then there are clearly reasons why the domains might have different

aims and objectives which clash. This theory also opens up possibilities that at times each domain might either collude or clash one with another, or 'two' with one. It is suggested that the implementation of new information systems which might be seen as against the interests of both the Management Domain and the Service Domain might cause them to collude (at times) either overtly, or covertly, against the Policy Domain.

Labour Process Theory is used to inform on the context in which the National Health Service Trust Hospitals are operating. Dent (1996a: 18) makes the important observation:

“Despite its weakness its focus on the organisation and the control of work both within production and the *wider economic and social relations* are too important to ignore.” (Italics added.)

Labour process theory introduces ideas that control of labour (Taylorist control strategy) is of paramount importance to the owners of production. There has been a 'taken for granted' truth that managers and professionals were aligned with the owners of production, but more recently writers (Harrison & Pollitt, 1994; LaNuez & Jermier, 1994; Dent, 1996a; Metcalf, 1996) have begun to point out that this is no longer always the case. Decisions have been made in organisations, often at top strategy level (Metcalf, 1996) which adversely affect either managers or professionals on lower hierarchical levels in the organisation. Decisions to install computerised information systems for example which “attempt to assert discipline in terms of specified tasks and time schedules.” (Metcalf, 1996:4)

If the acquisition of new computerised information systems is not examined from the initial ideas for the new system and the driving forces behind the ideas, then resistance to the systems may be seen as related to individual attitudes or irrationality or technical

imperfections of the system. Labour process theory aids understanding. Additionally, the absence of any identifiable 'resistance' but a nevertheless strangely slow implementation (8 years or more in the study) may make more sense if actors are examined for their unarticulated resistance, which may only take the form of inertia, and this again may only make sense if a labour process approach is taken (considering control, costing, and comparing of the work of managers and professionals who to date have not had such interference with their work process.)

Labour Process Theory is, therefore, considered to be an invaluable theory to open up our eyes to the more hidden aspects of organisational reality. Conversely, using a more traditional Weberian 'rationalist' and 'harmonious' approach to organisation theory would restrict opportunities to take account of the differing aims and objectives of the many different stakeholder groups in organisations. Many other approaches fail to mention the political or power aspects related to organisations and leave undisclosed the areas of conflict which may be a covert reality of organisational life.

CHAPTER 4

TECHNOLOGY, METHODOLOGIES AND PROJECT MANAGEMENT

4. TECHNOLOGY, METHODOLOGIES AND PROJECT MANAGEMENT

4.1 INTRODUCTION

This study does not cover technical issues in detail, however, if looking for barriers to implementation; in spite of the tendency for much literature to gloss over the idea that technical issues could cause barriers; there must be an awareness of systems design, technical, and project management issues. This chapter, therefore, deals with technical issues, 'methodologies' which are the recommended (Department of Trade and Industry (DTI) and Information Management Group (IMG)) way of designing new computerised information systems and with PRINCE methodology which is the project management tool recommended by the NHS.

4.2 TECHNOLOGY

This section discusses the fact that there can be both minor and major flaws in the technical area of implementation. There can be a variety of problems, from flaws in software design, to insufficient processing power or an inadequate number of computer terminals.

Taylor (1985:212) argued that office technology seems to add further problems to implementation of change and observed that:

"The experience of our field trials has brought strongly home to us the amount of time and effort that goes into making an office automation system function in practice. Equipment is less reliable than one would expect; installment takes longer and maintenance costs are more than had originally been predicted. Response times are slower than had been expected; minicomputers and networks load up faster than had been anticipated; computer memories are less elastic than anyone had imagined, in office situations. Software is much less flexible than we had thought; furthermore the compatibility problems are much greater than we had been prepared to admit to

ourselves. Finally, learning is a much longer and more complicated process than anyone could ever have foreseen."

Long (1987:78) contends that:

"While technological issues are frequently thought to be the most straightforward part of the implementation process, the reality is that they almost inevitably turn out to be much more difficult than imagined..... There is a tendency of sales personnel to 'oversell' the potential of their products."

Long also believes that the selection of the most appropriate vendor is extremely important, however, he says users frequently are not experienced enough to make the most informed choices. Long (1987:227) says:

"Users frequently find it difficult to assess trade-offs of features versus costs, as well as such intangibles as longer-term support and the opportunity for system expansion. The choice of vendor can have long-term implications since firms tend to be 'locked in' to whatever vendor they select. If this decision is based only on current or local needs, it can haunt an organisation for a long time. Finally, it is extremely difficult to conduct training, support users and co-ordinate the equipment needs when many vendors are used."

One of the emerging problems facing those designing an IT/IS system is the fact that there are rapidly changing information requirements. This has meant that with the length of time it takes to design and get a system 'up and running' by the time this has been completed the 'goalposts' have moved.

One aspect of poor system design relates to the user accessibility to the system. Culnan (1985) points out that while a system which does not meet the users' needs for information is unlikely to be used, perceived inaccessibility can also be a major reason for user rejection. Based on several studies, Culnan argues that perceived accessibility is a multidimensional concept encompassing the reliability of the system, the accessibility of the command language, and the ability successfully to retrieve the desired information. Physical

accessibility (having enough machines located conveniently to the user) is also a major factor. During system design efforts must be made to maximise accessibility, and the characteristics of the user (including previous computer experience) need to be taken into account in this process.

4.3 METHODOLOGIES

First, clarification of the term methodology. This term is used in relation to a number of concepts. In social science it is used in relation to the general philosophy behind the research methods and design used to undertake research. It is also used in relation to project management and planning tools such as 'PRINCE methodology' and is additionally used by informaticians in relation to design and planning tools related to computer information systems. Sheaff (1995:10) says:

"by methodology an informatician means 'methods for devising an information system for a particular application' - a special case of project management."

This section first deals with information system methodologies before describing PRINCE methodology which is the project planning tool favoured by the NHS Information Management Group for implementation of new computer information systems.

4.4 DEFINITION OF AN INFORMATION SYSTEM METHODOLOGY

When asking the question 'What is a methodology?' there is no widely agreed single definition. (Hardcastle, 1994) However, one much quoted in the literature is:

"A collection of procedures, techniques, tools and documentation aids which will help the systems developers in their efforts to implement a new information system. It will consist of phases, themselves consisting of sub-phases, which will guide the systems developers in their choice of the techniques that might be appropriate at each stage of

the project and also help them plan, manage, control and evaluate information systems projects. A methodology represents a way to develop information systems systematically. A methodology should have a sound theoretical basis, though it will be based on the 'philosophy', 'interests', 'viewpoint' - 'bias' if you like - of the people who developed them, for no-one is completely objective. Techniques and Tools feature in each methodology." (Avison & Fitzgerald, 1988:4)

Checkland (1981) says that a methodology is applicable to a number of situations whereas a method is more specific. Hardcastle (1994:21) says that a methodology is often regarded as:

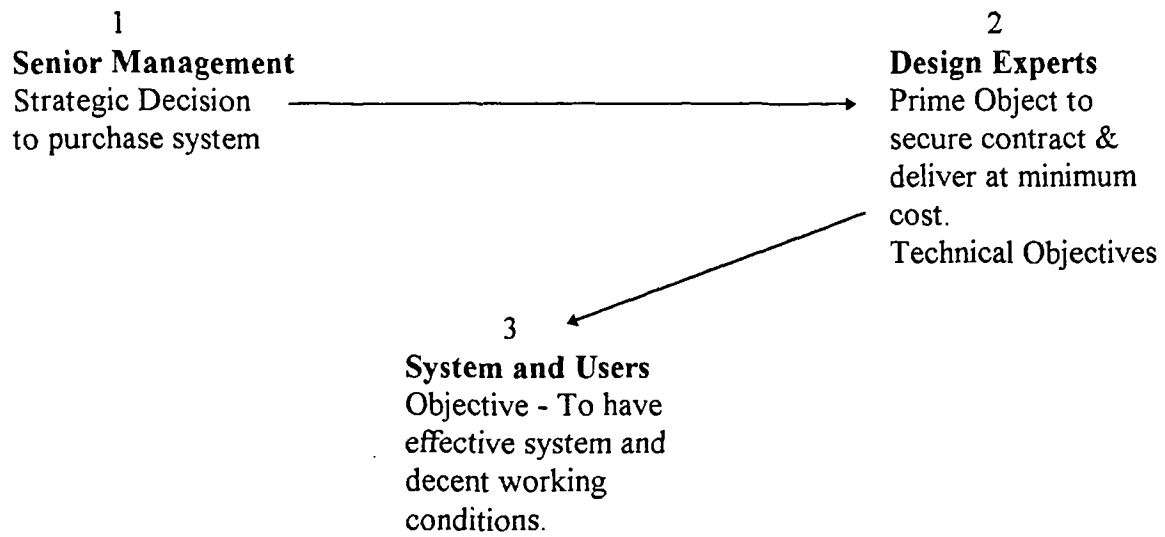
"more than the sum of its parts and some attention has to be paid to the underlying philosophy of a methodology."

4.5 OVERVIEW OF METHODOLOGIES

Checkland (1981) in his book 'Systems Thinking: Systems Practice' explains how initially IT systems were designed and implemented with concentration on the technical excellence of the system but with a disregard for the users of the system. This resulted in implementation failures which were unexpected and expensive. There was a history of mistakes and according to more recent surveys some are still occurring in 1995. A survey by the management consultants A.T. Kearney, found that of the leading industrial nations, Britain was at the bottom of the league table in achieving successful change. They concluded that out of the £1.9 billion spent on technology related change by manufacturing companies in Britain each year, approximately one-third is wasted (Kearney, 1989). Other studies suggest that the failure rate for new technology change projects is anywhere between 40 per cent and 70 per cent (Bessant and Haywood, 1985; Voss, 1985; Smith and Tranfield, 1990).

Checkland (1981) relates that as a result of earlier perceived implementation failures new 'methodologies' were designed to guide IT system designers. The standard procurement process was as follows.

Figure 4.1 The Standard Procurement Process



Traditional systems analysis had the following steps.

1. Feasibility study.
2. Systems investigation.
3. Systems analysis.
4. Systems design.
5. Implementation.
6. Review and maintenance.

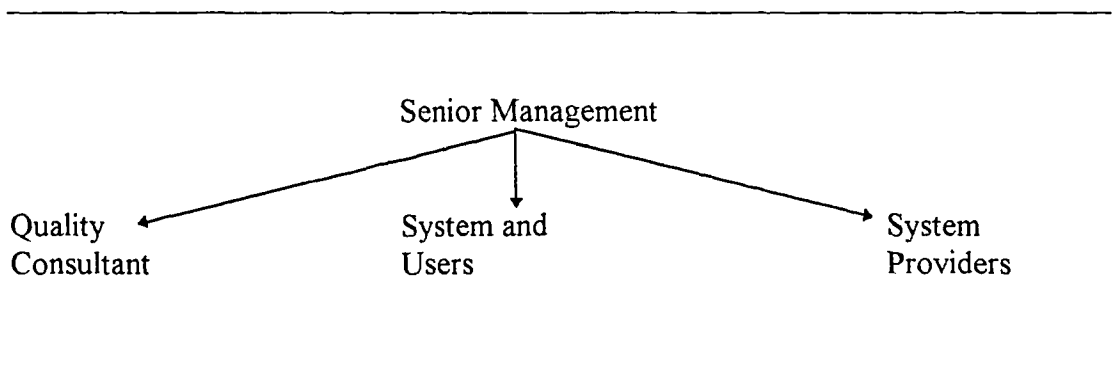
The problem was that the different groups had different objectives and those most concerned, that is the users of the system, had least participation in the design. There was a consistent reporting of the difficulty technical designers had in interfacing with users. (These methodologies are sometimes referred to as reductionist or scientific methodologies.)

This led to new methodologies being designed called user centred system designs. The Department of Trade and Industry (DTI), the Ministry of Defence (MOD) and HUSAT (Human Sciences and Advanced Technology) (University of Loughborough) pioneered the new designs. HUSAT 1990 formulated the following principles.

User Purposes	All computers exist for human purposes.
User Goals	Computers should be judged by the criteria of those who use them.
User Involvement	Design teams must have appropriate user involvement at all stages.

The idea of user participation and involvement were then brought into prominence.

Figure 4.2 User participation and involvement



These methodologies are thought of as taking a more holistic approach and are after the fashion of Mumford and Weir (1979) and Checkland (1981). Work is currently (1995) being undertaken at Warwick University to assess the effectiveness of the different methodologies. In addition to the ideas of participation and involvement of the users, it was considered a worthwhile precaution to bring in a 'quality consultant'. Jagodzinski (1994) giving a paper at Derriford Hospital, Plymouth, pointed out that the idea of quality consultant is important to check on the technical and human interface of the system because otherwise management is in a weak position in that they do not have the expertise to judge the system they are buying. However, Jagodzinski (1994) warned that there are problems in choosing this outside expert advice because they need great expertise, in some ways more than the software provider. In addition, such advice can add ten percent to the total cost of the system.

4.6 THE DESIGN AND USE OF METHODOLOGIES

In essence, early computer applications were implemented without the aid of an explicit information systems methodology and the emphasis was towards programming which meant that the design was frequently inappropriate for the application. This was at least partly due to poor communications between the users and programmers. With the advent of methodologies and the recognition of their usefulness there was an increase in the design of 'methodologies' many of which are extremely similar but have different 'brand' names and are sold on a consultancy basis. Some claim to be more 'scientific' than others. Some have been pioneered by academics such as Enid Mumford (Mumford & Weir, 1979) whose methodology is named 'ETHICS' Effective Technical and Human Implementation of Computer-based Systems and Peter Checkland (1981) who used system theory as a basis to

design his Soft Systems Methodology (SSM). These academically designed methodologies have been widely published and are available for all to use without payment.

Avison and Fitzgerald (1988) when discussing the problems of choosing a methodology for the design and implementation of an 'information system' point out that the world of information systems covers many disciplines and in order to work in the field they have to attempt to be systems analysts, engineer, computer scientist, mathematician, management scientist, sociologist, political scientist and psychologist in the course of the work.

Enid Mumford and Peter Checkland are both well known for designing methodologies for IT implementation. A description of the background and method used by Checkland (1981) follows. Checkland's methodology has been included because (during the duration of this study) it has been recommended for use in the NHS by the IMG.

4.7 PETER CHECKLAND'S SOFT SYSTEMS METHODOLOGY

Checkland's work began with the ideas of General Systems Theory which attempts to understand the nature of systems which are large and complex. (Stemming in modern times from the work of Bertalanffy (1968) who published 'General Systems Theory'.) One of the ideas behind systems theory is that the whole is greater than the sum of the parts. This means that it is wise to develop information systems for the widest possible context, the organisation as a whole, rather than for functions in isolation. If this principle is not followed then a small part of an organisation might operate to the detriment of the organisation as a whole. Additionally, if a complex problem is broken into smaller manageable units, a step in many methodologies, an assumption is being made that the division will not distort the

overall system being studied. This is a reductionist view and may be applicable in a pure science problem, but information systems concern people as well as technology and are therefore **more complex**. Organisational systems are not predictable as they concern human beings who may not follow instructions in the way a piece of software does, nor interpret instructions in the same way as other people do or in the way that they themselves have done on previous occasions.

Another idea behind systems theory, according to Checkland (1981), is that organisations are **open systems**. They will exchange information with the environment, both influencing the environment and being influenced by it. The system called the organisation will be affected by many outside factors such as policies of the government, competitors, suppliers and customers, and unless these are taken into account, predictions regarding the organisation may be incorrect. Checkland (1981:11) says that:

"As organisations are complex systems this would suggest that we require a wide range of expertise and experience to understand their nature and how they react with the outside world. Multi-disciplinary teams might be needed to attempt to understand organisations and analyse and develop information systems."

Checkland argues that systems analysts apply their expertise to problems which are not well defined. These 'fuzzy' problems are common in organisations. He considers that it is relatively easy to model data and processes, but to understand organisations, it is essential to include people in the model. This is, however, difficult because of the unpredictable nature of human activity systems. Rather than look at individual applications and sub-systems in detail, planning approaches involve the top (strategic) management (the managing director, financial services manager, and so on) of the organisation in the analysis of the objectives of the organisation. Management should assess the possible ways in which these objective might be achieved utilising the information resource. (This work by Checkland, precedes

the MIT90s Research, but it may be seen that the MIT90s research repeats many of the important points made by Mumford and Weir in 1979 and Checkland in 1981.)

Checkland (1981) says that in conventional systems analysis methodology although the importance of user involvement was sometimes stressed, the computer professional was the person who was making the real decisions and driving the development process. The end user frequently felt resentment and top management did little more than pay lip service to computing. The systems analysts were then often happy with the system they implemented, which was possibly technically sound, but this was of little comfort to the users if they were not satisfied with the system. This raises the question of who are the customers for an information system. Checkland (1981) argues that the end users are the customers and so they should be satisfied with the system, but traditionally it would appear to have been top management who were considered the customers.

If information systems 'work' in that they are technically viable, but fail because of 'people problems' then information systems are unlikely to be successful, or at least they will fail to achieve their full potential. Users may feel that the new system will make their job more demanding, less secure, will change their relationships with others, or will lead to a loss of the independence that they previously enjoyed. Such feelings may result in users ensuring that the computer system does not succeed. Some people might just want nothing to do with the computer system (some district nurses have taken this line in other earlier systems implementations) others blame the system for causing difficulties that may well have nothing to do with the system, documents may be 'lost', old manual systems are run alongside the computer system.

It is claimed that Soft Systems Methodology (SSM) breaks down barriers by involving all those affected by computer systems in the process of developing the system. This includes the top management of the organisation as well as operational level staff. Checkland (1981) points out that until recently, top management have avoided much direct contact with computer systems. Managers have sanctioned the purchase of computer hardware and software but have not involved themselves in their use. Checkland (1981:33) says "They have preferred to keep themselves at a 'safe' distance from computers."

Methodologies assert that user involvement should mean much more than agreeing to be interviewed by the analyst and working extra hours to aid implementation of the new system. Without a high level of participation, job satisfaction might decrease and the result may be low efficiency, absenteeism, a high staff turnover and failure of the information system.

Avison & Fitzgerald (1988:250) suggest that a way forward would be to use SSM as a 'front end' before proceeding to the 'hard' aspects of systems development. At the time of writing the NHS IMG were working on just such an idea. (Telephone interview with IMG, November, 1996)

4.8 PRINCE METHODOLOGY - A PLANNING TOOL (NOT AN INFORMATION DESIGN METHODOLOGY) WHICH IS USED TO IMPLEMENT NEW COMPUTER INFORMATION SYSTEMS.

At present in the NHS the Capital Investment Handbook states that PRINCE methodology should be used for IS/IT systems implementations.

Confusion can arise because PRINCE is labeled as a 'methodology'. Computer professionals would point out that PRINCE is concerned with **timely** project management rather than technical concerns of a system implementation. PRINCE is an acronym for PROjects IN CONTROLLED ENVIRONMENTS. It is a framework rather than a set of prescriptive rules.

In theory then, it would be possible to use both PRINCE methodology and one of the Soft System IS design tools on an acquisition and implementation process.

One of the criticisms of PRINCE methodology is its 'bureaucracy'. Although the use of a project planning tool makes an up-to-date and informative plan more likely, it also takes resources to maintain and update the project control mechanisms. However, the planning tool does enforce a structured and orderly plan, and PRINCE does include a steering group which includes users and involves them in decisions on choice etc. at least to some extent.

PRINCE insists that the project must be defined and planned before it can be formally started. This means that the business objectives, the major deliverable products and the benefits that they are intended to provide should be known. It also means that budgets, timescales and costs, roles and responsibilities such as those of the Project Board should be defined. The strength of this method is, that if used properly, it allows the project to be looked at from all angles and it should ensure involvement of all stakeholders in the proposed system. PRINCE has an initiation document which has to be agreed by all parties which ensures that all of those involved know what the project is about. It facilitates the documentation and communication within a project as well as addressing the control, finance, timing, and benefits aspects of the project.

However, Avison et al (1988:163) says of planning tools that

“their main effect seems to have been in measuring our lack of success at meeting deadlines”.

4.9 ARE THERE DRAWBACKS TO THE 'USER INVOLVEMENT' ASPECTS OF NEW METHODOLOGIES?

Phelps (1994) has commented that in spite of the apparent progress in the software development process area it has still not progressed from an art to a science. In view of this it is perhaps ironic that consultancies, software vendors and academics continue to sell or put forward methodologies, tools and theories that are claimed to assist software development. Phelps (1994) reports on a case study examining the practical difficulties and benefits involved when attempting to apply one of these approaches, user involvement within a spiral development life cycle, in a real life project with all the technical, social and organisational complexity this involves.

He found that involving users in design and then having users involved in selling the system to other users was a great advantage as it engendered trust and enthusiasm to try to use the system to best advantage. His case study project was internally judged a success, it was completed on time, to budget and to the satisfaction of the users. This would appear to show some evidence that ‘participative’ methodologies can be helpful in ensuring the perceived success of IT/IS systems.

Vowler (1995) argues that end users need to be involved in IT development from the word go. One all too common problem is that user involvement in an IT project is taken to mean management-level user involvement. Although managers are ultimately responsible for the IT’s smooth implementation, they will not usually be the major users of the systems, so a

project team that uses a manager as a representative of the user community is fooling itself. This can result in the delivered system showing user unfriendly traits which could have been avoided.

Aldridge & Walker (1991) found that if clinicians were involved in the implementation of resource management systems then they had a more positive attitude to the new systems. However, there are critics of participative design and implementation of systems. Blackler & Brown (1986) argue that the ETHICS methodology is naive about organisational politics. They felt that powerful individuals or groups dominate the choice of those with less power. Margulies and Black's (1987) work on participation and the implementation of quality strategies found that most resistance to the method and the change it developed came from middle managers who thought their power threatened by other work groups. Aldridge (1995:116) says:

“This may be especially liable to occur in healthcare organisations with powerful professional groups.”

4.10 ARE METHODOLOGIES A PANACEA?

In some cases a system may be doomed from the start, whatever methodology or planning process was used. Support from within the organisation may be one of the most crucial factors. Those supporting a system may change, because of many contextual factors, and this may result in the withholding of support and thus the termination or under utilisation of a system (Sauer 1993).

There is little evidence from the literature showing any acknowledgment from those promoting methodologies that the complexity of the implementation process for information

systems may be beyond the complete 'control' of any planning tool, Sauer (1993) briefly mentions this point. Methodologies, may be the best tool available, but expecting the unexpected can only be taken so far.

Sauer (1993:87) after reviewing the literature on methodologies says:

“Ultimately, neither methodologies nor toolkits transcend the limits of their component problem-solving. This is to say that in the wrong circumstances any problem-solving mechanism can result in flaws.”

CHAPTER 5

MANAGING THE INTRODUCTION OF COMPUTERISED INFORMATION SYSTEMS (CIS) AND THE CHANGES ENGENDERED

5. MANAGING THE INTRODUCTION OF COMPUTERISED INFORMATION SYSTEMS AND THE CHANGES ENGENDERED

5.1 INTRODUCTION

This chapter examines change and its management because managing the acquisition and implementation of a new computerised information system is the management of change. Although it is acknowledged that the implementation of computer based information systems is a major force for introducing and supporting organisational change (Keen, 1991; Harrington, 1995; Davenport, 1993; White & Swann, 1995) there appears to be a tendency for this aspect to be initially ignored so that reactive rather than proactive management action is taken (White & Swann, 1995).

Strategy, the role of top management and management style are all considered important. Within this area arises the question of management expertise and whether managers do use theory other than their own mental models, and if they do not use latest theories, why not? The final section covers organisational learning and forgetting because this naturally follows ideas of managerial learning.

5.2 MANAGING THE INTRODUCTION OF IT

Managing the introduction of IT in the NHS and forming the necessary strategy has been taken seriously by the Government as is proved by the inception of the Information Management Group (IMG) which is part of the Executive Management Group (EMG). That this has been a difficult and controversial task can be seen by the way the group has been criticised publicly by the government and is presently facing possible closure. (See Page 20.)

Jones and McDonnell's (1993) book illustrating management issues in professional practice in the light of contemporary thinking in the NHS points out that there is now so much change which many perceive as being imposed, that change for most in the NHS has become a way of life. They say that the organisation must be responsive to change and the most important factor is how change is managed.

Carnall (1990) reflects that it is not possible to manage change 'perfectly' but it is possible to provide the best possible background for the change. He says that what is needed is empathy, information, ideas, milestones and feedback, but that what people often get is authoritarian management, avoidance of key issues, 'Rah Rah' and no clear milestones and no feedback.

Sheaff & Peal's (1995) book 'Managing Health Service Information Systems' should be compulsory reading for those involved in IT/IS implementation in the NHS as it covers many of the most important issues. In it Aldridge (1995: 118) says:

"The above sections argue the need to understand the process of developing information systems within the local context of the organisation where the systems are to be implemented. Various methodologies for implementing information systems have been described, but what is needed in the NHS is a combination of all the methods; a locally based strategy which takes the views of relevant people into account and which recognises the need for 'bottom up' information flows (Abbott 1986) rather than imposed 'top down' strategies."

Pettigrew et al (1992) discussed whether knowledge and experience acquired from research and consultancy in business organisations could be applied to the change management problems in the NHS. It was contended that at the level of concept and principle the answer was probably yes, but that attempts to generalise about the process of managing change are subject to conditional statements about the content and the context of change. They said:

"This is one of the difficult conundrums in trying to generalise about the practice of change management - contexts are so variable whether within the NHS, or between the NHS and business firms." (Pettigrew et al, 1992:23)

The consensus is that managing the introduction of IT is now beginning to be seen as a change management problem but this has not always been the case. There was a tendency for its introduction to be seen as a purely technical support task which was left to the technical experts. This failed to give the desired results and increasingly there have been questions about "whose responsibility is IT management?" (Boynton et al, 1992) Boynton et al (1992) argue that it is increasingly becoming a task which should be led by line management, however, they argue that both IT managers and line managers should be working closely together.

Effective management of IT implementation and of computer resources requires attention to more than the formal devices and tasks and keeping ongoing operations in a steady state. The MIS (Management Information Systems) manager and senior management must conceive of this job as managing a resource that is a change agent.

"As such, attention must be paid to an analysis of informal and behavioural forces that emerge as sources of resistance or support when change is contemplated, and to the opportunities for modification of organisational structure..."(Gibson and Nolan, 1973: 2)

Although this point was made by Gibson and Nolan in 1973 there continues to be neglect of any formal analysis stage in implementation models or of advice to managers in relation to informal and behavioural forces that emerge when systems are being implemented.

Burnes (1991) in a comprehensive article called 'Managerial competence and new technology: don't shoot the piano player - he's doing his best' describes the emerging consensus of opinion that British managers are worse educated and receive poorer, and less

training than their foreign counterparts (Anthony, 1986; Constable & McCormick 1987; Handy et al 1987) and therefore their competence is questionable. However, Burnes (1991:98) then develops the argument that managerial competence cannot be judged without recourse to the particular organisational context within which managers operate.

“The most able manager can find him/herself so constrained by inappropriate structures and practices, what Simon (1957) refers to as ‘givens’, that any action they take - even attempting to break out of the constraints - will be sub-optimal.”

His article describes a case where a system was proposed to be purchased for £450,000, but as systems had to show a saving over 2-3 years and this would not, the top management would allow only £350,000. The project manager therefore had to try to produce the system for this price, failed and was sacked. Burnes (1991:98) rightly contends that this does not show poor management in the case of the project manager, but a failure in the organisations system. (I would contend that this would show a failure of judgment of strategy level management.) He says that the suitability or otherwise of prescriptions for management education are irrelevant if the context in which managers operate does not allow them to act competently. He blames the rigid and bureaucratic practices of large companies. Besides context and structure he argues that organisations are unlikely to benefit from technology if their cultures and/or socio-structures are inappropriate. Although Burnes (1991) used private organisations as examples his work seems to have relevance to the NHS setting.

The organisational approach to change will obviously affect the way people experience the change and their perceptions of the change. According to writers on change, pressures for organisational change are invariably resisted if they are perceived to have been imposed from the 'top' thus the conclusion reached is that long-lasting change can only be effectively brought about when the changes are accepted and 'owned' by all those in the organisation who are affected by new work programmes and systems of operation. (Brooks, 1980;

Mumford, 1981) However, there are also arguments that change can be brought about even without the acceptance and ownership of change suggested. (Ferlie et al 1996:227) Ferlie et al say:

“There is in general a normatively driven reluctance to discuss whether sustained autocracy may deliver change more effectively than participation.” (Ferlie et al, 1996:227)

Ferlie et al (1996) found that there was strong evidence of change in the NHS on five of six indicators used and that only in the sphere of cultural change was there more mixed evidence. Their finding that a top down and power led change strategy had succeeded in delivering change was seen as surprising but they pointed out that the central Department of Health has powerful levers of appointment at local level:

“and can clearly influence the composition of the tiny public sector elites studied here who have, if anything, gained in power as a result of the reform process. They are the agents as well as the objects of reform.” (Ferlie et al 1996:228)

Ferlie et al (1996:228) also point out that professional groupings were often split into winners (e.g. GP fundholders) and losers (e.g. consultants) so that opposition was fragmented.

In spite of Ferlie et al's (1996) findings the more conventional approach to change, at least in the literature is closer to the views of Burnes (1996). If the Burnes (1996) dual approach (the planned approach and the emergent approach) to change is taken, it is important to understand and predict the forces which facilitate and restrain the management of organisational change. With this knowledge it may be possible to devise appropriate intervention strategies which will assist management to influence successfully the direction and outcomes of organisational change initiatives.

In addition, theorists contend that, change efforts are more successful if certain conditions are present, or precede the change. The idea of the organisation having experienced 'pain' that is, 'some real dissatisfaction with the status quo - a high enough level of dissatisfaction to mobilise energy toward some change' is generally the first pre-condition (Lewin, 1958). Argyris (1962), Beckhard (1969) and others also agree that top management must be in active support of the change effort in order for it to succeed. Schein (1994) as part of the MIT90s Research in the USA found that CEOs, for a variety of different reasons, were not supporting IT induced change in their organisations.

One important fact which must be noted is that there are those who contend that the change related to information technology is often of the 'unintended' kind. (Orlikowski & Gash, 1992). If this is so, there are questions of why this continues to be the case. The element of strategy and its relevant strands is, therefore, important.

5.3 STRATEGY

In the NHS strategy would ostensibly be viewed as "a formal process, consisting of a rational series of steps to which managers adhere in order to try to shape their organisation's future." (Thomas, 1990:12) There are written documents outlining strategy. Curtis (1993:339) succinctly defines strategy as:

"A strategy is a set of plans and actions through which we will be able to achieve our objectives, and satisfy our aims and fulfill our mission."

He says that of course large organisations can have more than one mission and set of objectives. There may be a broad mission, but a specific unit will need to take its objective from the parent company and formulate this into a local mission statement which will then

need further amplification into the detailed objectives for the single business. This begins to illustrate the complexity within large organisations.

This complexity is present in the new NHS Trusts, which now operate as one organisation but many of which are formed from, say for example, 40 geographically separate sites (such as separate hospitals and clinics etc.).

Stacey (1993b:xx) in his book on strategic management argues for the need for a critical treatment of today's dominant conventional wisdom, as defined above. He argues that there is a need for "a treatment that juxtaposes the conventional perspective of success as a state of stability, with its direct opposite, success flowing from instability." Stacey's book highlights the 'real life instability' of organisations. He talks about the need for the study of the dynamics of organisations: "that is, the patterns of change that organisations display as they move through time and the properties of the systems driving those patterns." (Stacey, 1993b: 5)

Studies of strategic management are normally undertaken with a view to looking for recipes for success. However, after reviewing the IT literature it is tempting to agree with Stacey (1993b:xxi)

"...it is impossible to develop general sets of prescriptions at the cutting edge of strategic management. If it were possible to develop such general prescriptions we would be back to the no-surprise situation discussed" (that represented by equilibrium models).

In this study initial assumptions were made about the strategy followed in NHS organisations. Planning, using the 'excellent approach' was expected. The MIT90s Framework (Scott Morton, 1991, figure 2.3) was used as a preliminary aid to organisational

analysis. This equilibrium model shows strategy, structure, technology, management processes, individuals and roles, as five elements of the organisation. The theory is that if one element of the organisation is changed in any way, then all other elements will also change but will subsequently revert to a state of equilibrium. The element of strategy, is seen to consist of :

- Vision - mission statement
- Active leadership - motivation of staff
- Commitment at top level CEO of resources to change process

The MIT90s approach fits well with the 'Excellent' approach reported by Stacey. Thus the author's approach followed a belief in 'rational' planning and decision making. The initial research questions concerned who had been involved in formulating strategy related to IS/IT.

However, even if this view of rational strategy making is true, difficulties may arise when at policy or strategy level a decision may be made which is 'pushed through', in spite of its unpopularity with certain stakeholder groups. In such a case, in spite of the subsequent attempts at control and autocratic management the process may eventually fail. Dawson (1992:225) says "As the old saying suggests 'There are more than one ways of killing a cat.' If groups fail at the policy stage they often have another go at the implementation stage." Dawson comments that given the hierarchical nature of most organisation structures, with policy making at the top and implementation largely at the bottom, it is not surprising that policymakers often complain about subversion of their decisions.

Much conventional writing on IS/IT and strategy furthers the belief that IS/IT should be incorporated in long term strategic plans, so that the best use may be made of IT and so that planning of the whole organisation takes account of the impact of IT on all aspects of the system (organisation). The MIT90s research conducted in the 1980s resulted in the findings that organisations should deal with acquisition of IT at strategic level and this would result in a period of disequilibrium, but then when all areas of the organisation adjusted there would be a return to a state of equilibrium. These ideas are challenged by Stacey (1990).

If we examine recent developments in business planning and strategy, ideas seem to be changing. Stacey, (1990) argued that the orderly grand design for the future put forward by traditional writers was unrealistic and even a hindrance. He believes that strategic management is about handling the unknowable and managing uncertainty. He recommends that planning should be restricted to the short term. His 1990-93 work argues that the amount of change affecting organisations means that there is no longer a state of equilibrium and organisational members have to learn to live with instability.

Other current management writers re-enforce this type of thinking. Peters (1992) in his latest management book talks of "zany, bold - and yes ephemeral - future" and uses carnival as a metaphor for organisations. Morgan (1993) has similar ideas and talks about a new management theory that can perhaps change at the speed of light. Mintzberg (1994) considers that the most successful strategies are visions not plans. If this is the case then planning could become more flexible but still geared to achieving the overall vision.

In relation to IT and strategy then, a strategic vision is required, but one which may leave the 'long term plan' in a fluid state. This can then more easily allow for the rapidly changing

environment, information requirements, user wants and needs etc. This idea also fits in more easily with the newer ideas of learning organisations which react and change as learning evolves within the organisation.

Organisations, therefore, need to think strategically about IT and create a vision and **commitment** from the top without confining the organisation to specifics which might impede the learning process which seems necessary within each IT acquisition and implementation. This modern thinking is, however, difficult to conceptualise in the NHS which is constrained by bureaucracy.

The MIT literature is concerned with the use of IT to aid competitive advantage for individual organisations. For healthcare organisations which are funded by central government the competitive advantage element (at the moment) is secondary to the aim of maximising efficiency. Though, competition between units is being promoted.

5.3.1 Human resource strategy.

In relation to one specific strand of strategy, that is human resource strategy, Thomas (1990) commented that unfortunately the precise meaning of the term has often been conveniently avoided despite the increased interest. He suggests that, like human resource management, human resource strategy does not really exist and the danger is that it will be talked into existence. (Guest, 1987; Thomas, 1990)

One of the claims made for the development of human resource strategy is that it will move human resource issues towards the centre stage of corporate strategy. Thomas (1990:14) says:

“The development of a human resources strategy does offer the opportunity to break out of the traditional ‘knee-jerk’ mould which has characterised some areas of human resource activity.”

Johnson (1985:23) at a European conference entitled ‘Corporate Human Resource Policies for Technological Change’ puts the personnel director at centre stage of technological change and said:

“Apart from their own contribution to corporate planning, personnel directors have a part to play in enabling their colleagues on the board to understand the human implications of the new technology and the policies, procedures and timescales which will be needed to prepare their managers and the workforce for technological innovation.In some instances the personnel department will need specific authority to insist that managers are released from current duties for training and development.”

Thomas (1990:12) defines human resource strategy as:

“A coordinated set of actions aimed at integrating an organisation’s culture, organisation, people and systems.”

It is beyond the scope of this thesis to cover human resources strategy and planning in depth, the main point to be made is that this strand of a total corporate strategy is considered necessary for the successful IS/IT strategy development.

However, in spite of the conventional wisdom expounded in the literature, has a human resource strategy developed in NHS organisations? Are IS/IT strategy and human resource strategy discussed in relation to each other at boardroom level?

5.3.2 IS/IT strategy

IS/IT strategy, is top level planning, which sets out a vision of the way forward using IT as an integral part of business planning. (King, 1987) It infers that information will be used as a resource. Peel (1995:27) says that an information strategy is a strategy for both information systems and information technology.

“It is a formal plan for introducing, maintaining and supporting information systems and information technology in an organisation.”

For an individual private organisation the IM/IT strategy is formulated within the organisation. For a large organisation this may be complex because of geographical considerations such as a head office with numerous sub units, (and all the internal politics that this can involve) but for healthcare organisations, many which face the same complexity, there is the added difficulty of having to conform with Government strategy, which is beyond their control, and Government funding, which is also beyond their control and which can and does fluctuate.

It is still fashionable to advocate business based IS/IT strategies (Earl, 1989; Galliers, 1993) and this strategy according to Robson (1994) is to identify the most appropriate targets for automation and schedule that automation. There is an inference that there will be an output of a strategic IS/IT plan. This plan will have been formulated by involving a number of high level managers/directors, and will contain information on the objectives and organisation of IS development. Sound planning will also include consideration of human resource strategy. (Willcocks, 1989)

One of the problems for strategy formulation is the expertise necessary. Earl (1987:302) said:

“In business it is not unusual to find general managers with inadequate experience and qualifications addressing the technology strategy and IS executives, who cannot know all about business needs, trying to drive the applications strategy. It is common to find steering committees quite confused about which of these levels of strategy is their concern.”

Acquiring, retaining and updating the level of knowledge necessary for IT strategy within a NHS organisation involves a high level of commitment and time. The members of a lean organisation may have difficulty finding this time.

5.3.3 How national information strategy affects local NHS Trusts

It is beyond the scope of this thesis to detail national strategy and its implications, however, in a discussion of NHS Trust organisation strategy related to IT/IS it is necessary to be aware of the confines in which their individual strategy is formulated.

Most NHS investment decisions relating to IT were dealt with by the Department of Health and the Regional Health Authorities until 1984. Changes leading to more localised decisions resulted from the implications of the Korner Reports (DHSS, 1982) and the information implications of the Griffiths Report (Department of Health, 1983).

By 1988 the Department of Health in England encouraged, then required, formal strategies for each regional district and other health authorities. With the emergence of the Trusts the national ‘Information Management and Technology Strategy’ (NHSME-IMG, 1992) was published. This strategy is the responsibility of the Information Management Group (IMG)

who are responsible to the National Health Service Executive. One of their responsibilities is:

“Keeping the strategy impetus going and ensuring that NHS organisations have high quality IM&T Strategies which are compatible with the national strategy.” (IMG, October, 1994)

The idea behind the changes is to develop healthcare information and systems more quickly by following a nationwide but decentralised strategy (Peel, 1995). Peel (1995) states that it remains UK government policy that guiding principles for the wider and greater good must be complied with by each constituent NHS organisation. All information and IT projects costing over £1 million should be subject to Treasury approval and should be procured using the POISE methodology and implemented using PRINCE methodology. As the future strategy may be to have national networks, new minimum standards for hardware have been introduced and National read codes are being agreed.

The latest NHS IMG handbook for information management and technology specialists says:

“EL(94)7 Report of Joint Survey of IM & T in the NHS revealed some areas where fully considered IM&T strategies were lacking. To enable the NHS reap the benefits of a corporate strategic approach, the NHS Executive expects all organisations to develop effective IM & T Strategies. These should be linked to their business objectives and focus on realising the benefits a good quality IM & T Strategy will bring. Ideally, the IM & T strategy should be firmly embedded in, and an integral part of, the organisation’s overall business strategy and should not exist as a separate entity.

To achieve this objective, all NHS organisations are expected to have a business plan and a corporate mission statement backed by a number of supporting strategies, one of these being for IM&T. Progress towards this will be monitored by the NHS Executive.”

To add to the already complex picture, strategy is further complicated by the fact that purchasers must agree providers IM & T strategies.

5.3.4 Strategic issues

Strategic issues fall into two main areas. First, what are the objectives to be accomplished in implementing the new technology? Cost and staff reduction? More effective and timely decision-making? Better communication? Increased control of operations and employees? New or improved customer services? Also, what should be the scope of the new system? Who will be the users, and how will they use the new technology? Will use be voluntary or mandatory? How can time savings be translated into improved organisational effectiveness? (Long, 1987)

The second set of strategic issues deals with process by which the technical and human issues are identified and resolved. Who will design and take the lead in implementing the new system? What implementation approach will be used? How much influence should users have? What will be the roles of the various key actors in this process: How will conflict between these actors be resolved? (Willcocks & Mason, 1987)

The importance of this second set of issues must not be underestimated. Curley and Gremillion (1983:204) point out that:

“the literature is full of cases in which users have rejected apparently "good systems" we now recognise implementation as a political and social process.”

Land and Hirshheim (1983) note that information systems are not technical systems which have behavioural and social consequences, but are social systems which rely to an increasing extent on information technology for their function.

In developing the organisation's technology strategy one issue is deciding where and by whom the technology decisions are to be made. This decision is complicated in large organisations by the different management levels present, the different groups who will use the system and the IT/IS department who might wish to influence decisions made in view of their expertise or indeed in view of their own position. Obviously the point of decision making can range all the way from the individual user to the top executive level of the organisation, and can be an individual or a board level decision or a specialist project group decision. Thus the first stage in developing a technology policy is to determine which aspects should be left to user discretion and which should be centrally co-ordinated. The extremes that exist in practice range all the way from no co-ordination at all to complete centralisation of all computing technology decisions.

Individual and local choice can promote ownership of systems and give local choice, local control and less delay. However, one of the advantages of new systems is their ability to link sub units with their head office and to standardise information so that it can be used centrally. (Long, 1987:225)

5.4 THE ROLE OF TOP MANAGEMENT IN MANAGING THE INTRODUCTION OF COMPUTERISED INFORMATION SYSTEMS.

The Audit Commission's Report (1995:41) on Information Management & Systems in the Acute Hospital said:

“Many trusts are held back by a vicious circle of poor understanding of information issues, negative attitudes and inadequate representation at the top of the organisation.”

They went on to say that boards and senior managers must:

“ensure that information management has proper executive representation on the board, and that the board in turn owns responsibility for it.”

There is a necessity for top level management to be committed to change. So in the case of IT implementation which can be highly costly and can be viewed differently by the different domains the chief executive officer and the board need to show (actively) their commitment. McKersie & Walton (1991:262) in a piece of research carried out within the MIT90s programme studied the role of top management and recommend the following specific guidelines for the role of top management.

- “Set policy regarding where to introduce information technology and how to establish priorities for competing projects.
- Develop understanding of the capabilities and limitations of IT.
- Establish reasonable goals for IT systems.
- Exhibit a strong commitment to the successful introduction of IT.
- Communicate the corporate IT strategy to all employees.”

There are reasons why this may be proving difficult. White (1995:11) reports that a survey showed that:

“more than half the managers are concerned with job security, as only 6% of Chief Executives remain in post three years after appointment.”

If IT/IS implementation is viewed as difficult, there might be a tendency to avoid conflict.

Another potential problem area lies in the fact that, according to some writers, top management levels do not routinely use IT themselves. Even in those organisations where an EIS (executive information system) has been purchased, this seems to be the case according to research carried out by Allison (1996). Allison writes:

“The purpose of an EIS is to improve the managerial functions at an executive level within the organisationin less than one-third of the organisations were board level executives using the system at all (Allinson, 1996:32).

This reported lack of use of ‘own’ systems may be telling evidence of why there seems to be lack of support at board level for information systems implementation lower down the

organisation hierarchy. A 'do as I say, not as I do' culture, does not give out the necessary leadership signals.

White (1995:11) attended the Institute of Health Service Managers conference and said that he left with the feeling that there was:

“much confusion and uncertainty over the future, and an increasing feeling of inability to control events. That doctors are difficult to manage and there is little government support.”

White (1995) considered that the title of the conference 'Beyond Management' was not without realism. White also mentioned a reference to the problem highlighted by John Yates (1995), of consultants working up to four private sessions a week and managers attempting to grasp the nettle of this without government support. He thought that politicians clearly had great difficulty with this dilemma and therefore avoided the question. Additionally he argued that managers feared that if they took an active line they might face a vote of no confidence from the consultant body. He also said that he heard much talk of power never returning to hospital consultants and also of a belief that doctors need to be involved in management but as a partnership.

White (1995:12) said that the incoming President spoke about the four tribes of the NHS:

the MANPOLS (managers/politicians) found in grey or pink suits, who were aligning themselves more to politicians than the local organisation or community, the 3Ps (doctors, nurses, and other professions allied to medicine and known by the others as Whitecoats), the ROTS or rest of the staff who have borne the brunt of downsizing, redundancy and cost savings, and YOU/MEs, we all become when not at work.

White (1995) says that there is no merging of tribes here.

Managers were found to be concerned about their image problem and lack of public confidence and White (1995:12) said that this together with the gap between managers and the managed was contributing to a loss of self confidence for managers.

White (1995:14) then reported on the BAMM (British Association of Medical Managers) conference and saw this as a much more 'positive' event. It was entitled 'Taking the Helm' and the workshop on medical directors placed the medical director very much at the top of the organisation and noted that there was no issue, at least in part, that was not the responsibility of the Medical Director. This seemed to imply that medical doctors who were entering the management domain were not suffering from the same loss of confidence claimed to be common amongst non medical managers and he said "the future looks very bright indeed for clinicians who want to become involved in management."

This picture of the management domain losing impetus and suffering from lack of support by the government, whilst the medical domain increases impetus and encroaches on the territory of the management domain is an interesting one. If, as is commonly inferred, the management domain was created to control the medical domain (Harrison & Pollitt, 1994) then the increasing power and influence of the medical domain will impinge on the vision of the organisation.

Such ideas are not reflected in the Audit Commission's (1995) Report which blamed NHS management for poor IT/IS implementation saying:

"Many of the problems are perpetuated by poor management. Managers need to grasp the key issues. Improved planning is also required." (Audit Commission, 1995:39)

5.5 MANAGEMENT STYLE

The style of managing and the management process may be an important factor in IT implementation according to some writers (Wright & Rhodes, 1985). Likert, (1961, quoted in Wright and Rhodes, 1985) identified four systems of management style. System 1, exploitive-authoritative, is characterised by decision making at the top of management hierarchy, downward communication flows and the use of orders and threats to obtain motivation towards organisational goals. System 2, Benevolent-authoritative, characterised by decision-making at the top, but allows for some delegation. Upward communication flows are limited to what the bosses want to hear. Rewards are used by management to encourage performance. System 3, the consultative system. Here communication is more of a two-way process, up and down the hierarchy, and while some involvement of subordinates in decisionmaking is encouraged, most decisions are still made at the top. System 4, the participative system, where there is full group participation, and the flow of communications are down, up and across the organisation. Widespread decision making occurs with greater involvement by members of the organisation and a greater identification by them with the organisation's goals. In addition, the relationships between manager and subordinate are seen as supportive, that is they build and maintain the sense of personal worth and importance of the individual. It is in System 4, Likert argues, that better performance is likely, because of greater involvement and hence greater fulfillment by subordinates.

Managerial styles are also highlighted in McGregor's Theory X and Theory Y. Theory X typifies the traditional management view. Humans dislike work and will avoid it if possible, they need coercion, control, direction and punishment if they are to achieve organisational

goals. Theory Y represents a more participative or democratic type of management. Work is seen as natural as play or rest. If individuals are committed to an objective they will exercise self-direction and self-control and work unsupervised towards organisational goals.

Although these ideas were presented some years ago, more modern ideas of 'The Learning Organisation' actually incorporate the ideology of Likert and McGregor. There is an assumption that employees who gain satisfaction from their work will be better, more efficient employees and both they and the company will benefit. Moves towards group working, and empowerment are fashionable. However, there are those who challenge the idea that participation and job satisfaction necessarily improve organisational efficiency.

Walton and Vittori (1983) also write at length about management style and identify three main positions that management can take in dealing with human resource issues. The first is the **'head in the sand'** position, which ignores human considerations in both the design and implementation of systems. A more progressive position is the **'problem-solving orientation'** which attempts to anticipate and minimise social disruption. The third approach is the **'opportunity orientation'**, which explores the possibility that system design and implementation activities may be used to move toward preconceived organisational ideals and preferences. (1983:263) They discuss the fact that there is a link between these three stances and the three main approaches to management. The first stance is consistent with the classical approach to management, the second with the human relations approach, and the third is consistent with the industrial humanism approach.

Walton and Vittori (1983) argue that firms can move toward an 'opportunity orientation' by developing an 'organisational impact statement' as part of the implementation process (see Table 5.1).

Table 5.1 Elements of an organisational impact statement (Walton & Vitorri (1983))

First order organisational consequences of technical system	May lead to	Forecasted second-order human consequences of technical system and organisational changes
<i>Employment effects</i>		
Staffing level requirements		Job security or insecurity
Job level impacts		Job enrichment or job improvement
Skill requirements - level and type		
Job specialisation - type and degree		Remuneration - increased or decreased
Operator functions - augmented or eliminated		Status gains or losses Career optimism or pessimism
Individual discretion increased vs. routinisation of work		Sense of mastery or lack thereof
Clarity of job purpose enhanced or decreased		Involvement gains or losses
Nature of work - abstract or concrete		Understanding of relationship of own work to whole task
Human engineering features of electronic equipment		Safety - health hazards
<i>Structural and procedural changes</i>		
Decentralisation vs. centralisation		Sense of autonomy vs. external control
Definition of accountable unit size		Self-supervision increased or decreased
Dependencies between positions and units		Problem solving orientation vs. 'Game playing'
Amount and type of performance measurement, feedback and overt control		Ownership of goals and sense of accountability - higher or lower
Spans of supervisory control		Reinforcement - more or less
Number of hierarchical levels		Job pressure - optimum or too little
Size and dispersal of organisational unit		Perceived equity - greater or lesser
Face-to-face communication requirements		
<i>Impact on flexibility</i>		
Constraints on work schedule		Compatibility or tension
Constraints on physical movement, and social communication		between work and non-work requirements Sense of community or fragmentation Social satisfaction or social isolation Personal versus impersonal climate
<i>Information impacts</i>		
Availability of business data/personal data		Privacy protected or invaded

The first step in the preparation of this document is to examine the proposed information system. The objective is to identify changes that would occur in such areas as degree of job specialisation, locus of control, skill requirements, amount of individual discretion, and performance measures. The first column of Table 5.1 illustrates some of these 'first order consequences'.

The next step is to predict the human dynamics that will flow from the first-order consequences. Examples of these 'second-order' consequences' are illustrated in the second column of Table 5.1. After this, management must assess whether these consequences are consistent with their organisational ideals, or whether these consequences would move them in the wrong direction. As a formal requirement of the go-ahead decision, the organisational impact statement becomes part of the broader calculation of the costs and benefits of the new system. On this basis the decision could be made to proceed, or to send the plan back to the developers for modification. In extreme cases, a decision to abandon the new system altogether might be made.

Whether an 'opportunity orientation' is taken, or not, there are numerous human resource issues that must be anticipated and dealt with effectively. These can be roughly divided into two categories; a) Those associated with the implementation itself and b) Those associated with the consequences of the implementation.

The first category centres on making sure that those who will be operating the new system will be willing and able to do so. Part of this may involve selecting people with the right skills and abilities but providing them with the necessary training is a major and complicated task. As well as pre-implementation training, arrangements will also have to be made for on-

the-job training and support. Changes to recruitment and selection procedures, and to the compensation and performance appraisal systems might be necessary. Efforts need to be made to ensure that the jobs that result from the new system are as motivating as possible. Possibly health and ergonomic issues need to be addressed.

The second category also require attention and planning. For example, if the new system requires fewer people to operate, or people who are different from those now employed, what is to be done with the 'surplus' people? (Willcocks & Mason, 1987) Every possible option for retraining and transfer needs to be explored, and this requires considerable long-range planning. Another example concerns the roles of supervisors and managers, will their responsibilities increase, or decrease? Will the new system enable them to delegate more or will it involve them in more keyboard tasks, taking more of their time?

According to Long (1987) some organisations have a joint union-management technology committee, which meets on a regular basis and this approach is very successful. Long says that in a unionised environment, many of the issues are subject to negotiation, and it is wise to confront any issues early so that they may be resolved in good time. (Long, 1987:231)

Management role and management style may be influenced by their mental models, theories and levels of expertise which leads to the following section which addresses the question of whether managers use theory to guide implementation.

5.6 DO MANAGERS USE THEORY, SUCH AS 'CHANGE MODELS' OR METHODOLOGIES TO GUIDE IMPLEMENTATION?

Academic writers discuss and eulogise (Huczinski, 1987) on the merits of change models and methodologies to guide change and implementation but do managers actually use such models?

“The authors have been chosen for their practical experience of dealing with these issues themselves, or of helping others to do so. The books in this series are therefore not academic treatises but working handbooks full of advice and practical aids.” Upton & Brooks (1995:1) ‘Managing Change in the NHS’.

This quote, from the foreword of a current healthcare management book, encapsulates the conscious and sometimes unconscious scepticism which seems to be prevalent within British management. A background ‘sneaking’ belief that academia is ‘apart’ and sheltered and shielded from ‘the real world’ and that those in protected ‘ivory towers’ can know nothing of practical use. It also infers that practical experience of just two people is a more preferable basis for future good practice than academic theory.

It is true that much theory is ‘supposition explaining something’ but many theories within the management discipline are based on empirical research and analysis, and academic texts within the management discipline often use examples from business and industry to illustrate the theory and its use. (Mumford, 1983; Pettigrew, 1985; Willcocks & Mason, 1987; Zuboff, 1988; Earl (ed), 1988,1996) Earl’s books (1988,1996) are excellent examples in this tradition. The empirical research is often based on observation of the practice of many managers, using analysis to deduce from the data what practice has gained best results. Thus the academic treatise is (often) based on the work of many rather than just two practitioners. So why would the foreword of a book on best practice aimed at NHS

managers then boast that it is based on the experience of just two practitioners, when academic books may be based on the work of a large number of practitioners?

In fact, if the Upton & Brooks (1995) book is inspected, theory is used. To give just two examples, Lewin is quoted in relation to change and Kubler-Ross in relation to the effects of change on individuals. Therefore, it is the 'idea' of theory that is unpopular rather than theory itself.

McPhee et al (1994) surveyed 20 hospitals (100 different departments in total) over a wide geographical area to find out to what extent NHS Management Initiatives had filtered down to hospital department level. Of the 100 questionnaires sent out 51 were returned. They found that although nearly half had knowledge of PRINCE methodology, only 12% had heard of 'Common Basic Specification' and 32% of 'Minimum Data Set Modelling.' They pointed out that where departments were not developing their own systems they might not be expected to have knowledge of the initiatives but it was disappointing to see that 71% of those departments who said they were doing their own development had no knowledge of the initiatives.

Table 5.2 Hospital department knowledge of NHS information management initiatives (From McPhee et al 1994)

The NHS initiatives	Percentage
Minimum Data Set Model	32
Common Basic Specification	12
PRINCE	48
None of the above	42

5.7 WHY ARE MANAGERS NOT USING LATEST THEORY?

One reason, may be that the managers involved have little time for reflection, they are part of the 'leaner organisation' syndrome. There is literature which reports that British managers are already working far more hours than their contracts specify, and are suffering information overload. The NHS has an Information Management Group (IMG) which was set up to implement Government policy and to assist managers if they need help with IT knowledge or information. In theory this should provide managers with access to the most appropriate IT/IS implementation literature.

Moss Jones (1990) found that specific training or preparation of managers for IT was rare. The managers most involved with IT were in the middle levels of the hierarchy, with higher level executives although often receiving computer printouts, relatively insulated from the direct affects of IT. Personal computers were rarely used by senior managers and Moss Jones' (1990) fieldwork showed that top managers were not well informed on or especially enthusiastic about the application of new technology. He says that this may partially account for their apparent lack of leadership in IT acquisition and development.

In addition, Moss Jones (1990) found, as did Handy (1987) and Constable and McCormick (1987) that management development in the UK was extremely weak. Few managers interviewed by Moss Jones had substantial education either for management or for information technology.

Harrow (1995) comments on the almost yearning quality of the 'OL' literature. Definitions are made with few statements of how to secure the actual learning organisation.

The National Health Service has in the past shared learning relating to medical discoveries but as pressures for emphasising organisational success grow in public services limitations on managerial learning will occur. Talbot and Harrow's case study research (1993) showed the extent to which information flows between managers in public services were being inhibited, as managerialist practice models encouraged the selling or keeping secret of organisational knowledge previously given freely, within and across services. This research suggested that some managers in public services are having to 're-invent the wheel', by acting "more slowly but more safely on their own". Talbot & Harrow (1993) suggest that this leads researchers to speculate that in some organisations managers were:

"gathering in and replicating ideas and practices from others which, simply, do not work, or have major flaws in them." (Talbot and Harrow, 1993:11)

Harrow's (1995:26,27) own case study of a new system in a hospital seemed to illustrate this point. She says:

"The non-success of the scheme in its entirety appears to be known within the organisation but not, apparently, acknowledged in full to outsiders. A 'writing up' of the process and the outcomes, in, for example an academic/professional journal could provide valuable learning; but such overt openness would not necessarily be welcomed by the hospital."

Bryson (1988:203), in his exploration of the applicability of strategic planning to public and non profit organisations stated:

"The public sector is a particularly hard place for people to take risks - and therefore to learn - without punishment."

The NHS has recently written a new guide to openness, accountability and probity in the NHS. Coia (1995) of the NHS Executive, Leeds in a talk on 'Corporate Governance within the NHS' drew attention to the fact that openness and accountability are more important in the public sector which is driven by different imperatives and is not accountable to shareholders. She mentioned that managers should be careful of taking risks and that where administrative discretion was possible ethical values should be brought on board.

Thus the current attitude to 'making mistakes' appears to remain the traditional one, which means that mistakes will be avoided, or if made will be concealed where possible. This does not aid organisational learning and additionally leads to organisational 'forgetting'.

Brooks and Bate (1994) associate formal requirements for accountability with a risk averse and thus change averse culture. They identify a "desire to reduce anxiety" in the culture of the UK civil service as "perhaps borne from the long standing and ever present exposure to public scrutiny". (Brooks & Bate, 1994:184) They examined 'under-achievement in organisation change programmes' by studying one newly formed agency, they project an apparently risk-averse means of coping with change:

"...as opposing change also created personal risk and anxiety, employees ended up neither supporting nor resisting change, but turning their backs on it." (Brooks & Bate, 1994:184)

Making choices to purchase new IT systems does appear to have a high element of risk. The much quoted Wessex information system failure serves as an illustration, as does the Taurus case. In these cases there were probably points at which colleagues could see the looming disaster and wished to question the course of action and bring it to a halt. The term 'whistleblowing' has been coined for the action of bringing such disasters into the open so

that they may be dealt with. But an exploratory study of 30 whistleblowing health care professionals in the NHS in England reported that:

"typically, the whistleblower would be told by colleagues that they were 'right' but that it was too futile or too risky to complain." (Hunt & Shailer, 1994:20)

Harrow (1995:27) says:

"The concomitant of organisational learning would appear to be that if organisations can learn, they can also forget their learning; just as individuals fail to retain the memory of particular lessons, whether through deliberate acts of erasure or through the impact of time and a disinclination to recall."

The notion of 'organisational forgetting' (as contrasted to 'unlearning') is explored by Carmona and Perez-Casanova (1993). (quoted in Harrow, 1995)

5.9 CONCLUSION ON MANAGING THE INTRODUCTION OF CIS

If information systems are inexorably linked with change, then change management is a vital area of expertise which needs to be recognised and integrated into IT/IS implementation practice. The literature seems to indicate that strategy is an extremely important part of the acquisition and implementation process and there are additional difficulties (related to national strategy) in this area for NHS trust organisations which are not faced by the business sector. The role of top management and their style and their support for information systems is important, as is their attitude to, and use of, the most up to date theory and expertise available. Finally the idea of organisational learning is relevant, in that if mistakes are made, which will inevitably be the case with innovative new systems (Sauer, 1993; Walsham, 1993) the capacity for individuals and the organisation to learn from them should be present.

CHAPTER 6

HUMAN RESOURCE ISSUES

6. HUMAN RESOURCE ISSUES

6.1 INTRODUCTION

In this chapter there is a concentration on human resource issues related to IS/IT implementation, whether human resource departments should be involved and if so, how they should be involved and the questions of training are considered. Resistance to change, its causes and possible counter measures are discussed. Finally, how computer information systems affect managers and professionals and their possible reactions are covered.

6.2 BACKGROUND TO HUMAN RESOURCE ISSUES

One of the common criticisms of IT/IS implementation is that the human resource departments are not involved in any way in the acquisition or implementation process.

Westerman and Donoghue (1989:2) ask:

“Why are there so many human resource problems associated with the development of information systems? Why are we caught out by technological developments?”

This is despite the work carried out by, for example, the MIT90s Project in the United States (Scott Morton, 1991), the National Health Service Information Technology (IT) Strategy Group, and others. The idea of IT as an integral part of business strategy, and the realisation that with the change in one element of the organisation there are consequently changes throughout the organisation (which require awareness and planning) may not be fully understood by higher management echelons. (McLoughlin & Clark, 1994; Scott Morton, 1991)

Research findings by Westerman and Donoghue (1989:33) suggested that most companies do not attempt comprehensive human resource management to support their investments in information technology. They said:

“Often in our consulting activities, we have discovered that clients are spending a great deal of their time attempting to develop and implement complex IT strategies without giving due attention to the effects of major changes on their key investments - the human resources.”

They continue by saying that the existing organisation structures in most companies are designed to achieve current objectives and are not geared to facilitating the development and implementation of radical changes.

There are many questions and issues raised by an IT/IS implementation. How will users be trained and supported? What are the implications for job design and structuring of work? What policies need to be set governing the use of the new technology? Are there health and safety concerns? If so, what is to be done with them? How will the new technology affect recruiting and selection needs? Will changes be necessary in compensation policies? What will be the impact on industrial relations and collective bargaining? (Willcocks & Mason, 1987; Bailey, 1993) Levinson (1985:288) says:

“While the 1960s were the era of hardware failures, and the 1970s of software deficiencies, the issues for system failure in the 1980s have become organisational and managerial.”

This observation seems to continue to be true, but with the additional drawback that software deficiencies also continue.

Evidence from the literature reveals that HRM specialists have little influence in relation to technical change either at a strategy level as recommended by Willcocks & Mason, (1987); (and by Willcocks & Mark, 1989; Eason, 1988; Gatticker, 1990) or over actual

implementation or training. Legge (1989) wrote a review of personnel involvement in the introduction of new technology during the 1980s and entitled it 'Information technology: personnel management's lost opportunity?' Similar findings were made by Daniel (1987) in relation to manual workers.

McLoughlin and Clark (1994) suggest that the major reason for the continuing absence of HRM is that within the management function there is still a lack of recognition of any need of input from personnel. Therefore, if changes are to be made the responsibility for promoting change rests with the personnel function (Buchanan, 1989).

Where there is some involvement in technical change this has tended to be reactive and in relation to the end stages of implementation, where they may be required to deal with resulting people problems. (McLoughlin & Clark, 1994.)

Wright & Rhodes (1985) discuss the acquisition of computer systems and say that often the starting point in organisations for the acquisition of computer systems is the finance department. They say that financial systems are mostly standardised and that the culture in companies in the US and UK is such that financial managers tend to have control over initiatives. This has led to the trend for 'high tech' innovation to start in finance. Other departments then tend to react to the presence of these computers and do not wish to be left out, they may also of course have genuine applications they wish to support.

Although not mentioned by Wright and Rhodes (1985), if this is so, and many departments are following on and learning from the financial departments, then it may be that financial departments, who were probably already tightly controlled before the installation of new IT

systems, may not have needed the level of involvement and ownership and management of change that appears to be needed in other parts of the organisation. Therefore, to learn from the financial departments has not been adequate, because circumstances are different. Wright and Rhodes (1985) do not, however, mention any role for the human resource management specialist.

Willcocks and Mason (1987:43) in arguing that sound human resource planning is necessary for the introduction of computer systems say that although personnel managers:

“are supposedly *the* people specialists, they have all too often operated in low-status, advisory roles, removed from positions of power such as boards of directors, and absent from strategic decision-making, even where the implications of such decisions for the workforce may be immense.”

They contend that lack of human resource planning will show up when systems become imperfectly operational. They utilise the colourful alliteration of the law of the six p's: proper planning prevents pathetically poor performance.

As microtechnological change so deeply affects the 'people' of the organisation and as personnel managers specialise in dealing with the problems emerging from the fact that organisations employ human beings, Willcocks & Mason (1987) contend that one might expect to find personnel practitioners in key roles during computerisation projects. They say that much evidence points to a different picture. They cite a number of surveys which have shown the small part played by personnel managers in implementation processes. (Rothwell, 1984,1985; Daniel, 1987)

Where personnel specialists were involved, this was frequently only at the later stages of implementation. It was suggested that this was because there was a perception by other

managers of personnel specialists as mainly trouble-shooters, to be brought in only where resistance and negotiations are likely. In fact, Daniel (1987) found that advanced technical change was rarely resisted by manual workers and rarely the subject of collective bargaining. Therefore, if technical change is seen initially as 'problem free' in relation to workers, because of lack of obvious resistance, then the fact that computerisation is still often seen as a technical matter, with no established role for personnel management, may not be so surprising.

The Institute of Personnel Management in a review of new technology implementation (Evans & Wilkinson, 1983:32) found that:

“A senior member of the personnel function should be involved from the start in the planning and decision-making process ... human aspects should be considered alongside technical, financial and other considerations as an integral part of the planning process.”

In a survey document published by the National Health Service Executive on HISS Management of Change (Hospital Information Support Systems) it was said that the majority of sites had developed HISS training programmes which did not form part of an organisation-wide human resource management (HRM) strategy. However, several did mention that they had involved HRM staff to provide an input to the training programme.

Unless human resource issues are addressed at an early stage, any problems will be dealt with reactively and this is inferior to anticipating and preventing problems arising.

There are, however, those who question whether HRM departments should be involved. Mccloughlin & Clark (1994:247) raise the idea that HRM suggests a more strategic approach to human resource issues and:

“ a strong notion that responsibility for these issues extend beyond the personnel specialist to other managers and functions, especially general and line-managers.”

They say that it appears that there has been a narrowing, rather than broadening of the personnel specialist's role. They argue that in some organisations a new emphasis has been placed on the role of the line-manager in managing human resources. (Storey, 1992; Millward et al 1992)

The idea that possibly IT implementation should be the responsibility of line managers is not inherently bad, but in fact from the poor implementation record being found, they are finding difficulty in managing the changes engendered. They often have no expertise in technical implementation and seem to enter the process with little knowledge of the changes which IT implementations trigger and of the political implications. Clark (1993) says that it is important that *whoever* manages change should become owners of change. This may be true, but even more important is to have some initial knowledge of the different aspects of the change process. Thus the importance of management training is highlighted, together with the importance of updating management training to take account of the changing nature of work.

Walsham (1993) in his book 'Interpreting Information Systems in Organisations' argues for a greater emphasis on the human and social aspects of computer implementation but does not mention explicitly any place for HRM. His idea is that 'human centred practice' should be the aim for new systems because any approach to the development of systems which concentrates solely on technical issues, or treats human and social issues of secondary importance is likely to lead to failure in most measures of organisational implementation. His approach also brings in the 'ethical' considerations of the introduction of new systems.

One of his points is that there needs to be greater awareness of the human implications of information systems (IS) in Management Courses and in education for computer scientists. He says that if the human aspects are not adequately dealt with at the more formative educational stage in scientists/managers careers, then they are more likely to be 'overlooked' or seen as unimportant in their later development.

As part of the MIT90s research programme McKersie & Walton (1991:255) report that it became clear to them in examining case studies of successful implementations of IT:

“that human resource policies, played an important - in some instances, critically important - supportive role.”

They said that if stakeholders felt threatened by cost-reduction emphasis leading to fewer people, acceptance can be helped along by some type of employment security programme that assures displaced employees positions of commensurate responsibility. Mckersie & Walton (1991) advocate human resource policies as supporting and facilitating integration between organisational change and the introduction of a new technology. Thus HRM would be developing necessary competencies, eliciting motivation and ensuring adequate co-ordination.

Yates and Benjamin (1991) also emphasise the importance of human resources in realising the potential of new IT and say this has become the subject of considerable attention. They add the fact that although once the focus was solely on IT's impact on people in the organisation, now attention has also been focused on the effect of organisational culture and human resources on IT. That is the culture in the organisation will affect the acceptance and use of IT. IT cannot be separated from its organisational context.

6.3 HOW COULD HRM BE INVOLVED?

There are few practical suggestions present in the literature about how HRM could be involved in IT acquisition or implementation. Even many of those writers who strongly advocate the place for HRM in IT implementation do not actually spell out methods for their involvement. However, two texts do offer more specific advice, and a number of the ideas follow.

Westerman and Donoghue (1989:13) argue that a disciplined approach is needed to establish:

- The numbers of people required to develop, implement and run computer based systems.
- The utilisation of people, both technical specialists and end-users.
- The development and education of the key resources - people.

“The resulting strategies and policies are required not only to respond to the immediate needs, but are the building blocks for medium and longer term corporate success with information systems.”

Thus strategy and planning for future manpower and training needs are highlighted as important areas for HRM involvement.

Westerman & Donoghue (1989:16) in a study on manpower development plans report that of the 250 companies in their sample:

- One third have co-ordinated manpower development plans.
- One half admit to individual managers operating plans from the 'seat of their pants.
- One-sixth operate no form of manpower development plans.

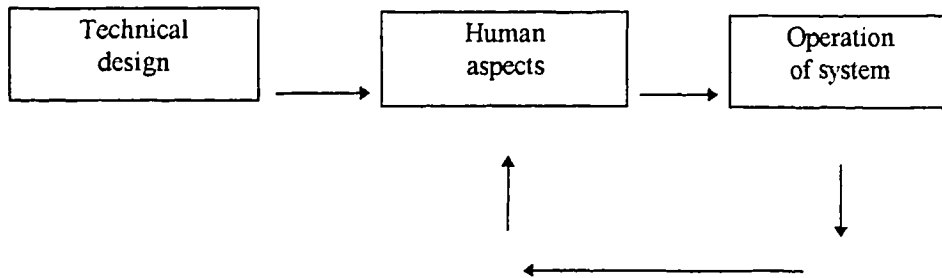
From that study, manpower planning did not appear to be given the importance it deserves.

In a 1985 Manpower Services Commission survey, *Adult Training in Britain*, it was shown that high performing companies have 8.9 days training per employee per year, while low performers show only 2.8 days.

A proactive role for personnel specialist in introducing IT is suggested by Clegg and Kemp (1986:10). They suggest that the current method is a sequential one illustrated in Figure 6.1.

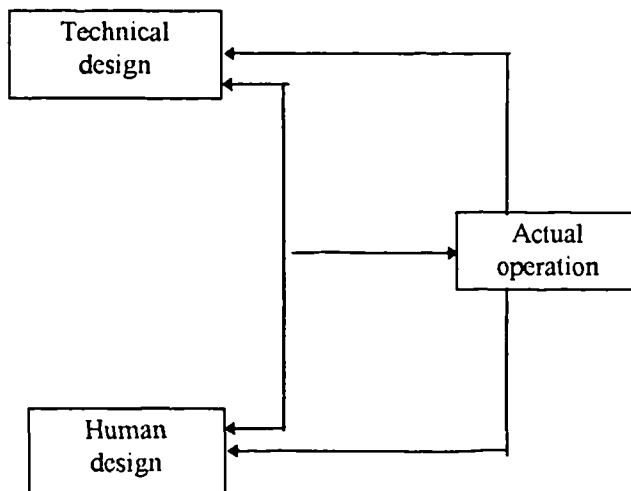
In fact many organisations do not involve the personnel department even to the level suggested by Clegg and Kemp (1986). This newer model suggests that the HRM department should be involved in the strategic decisions regarding change and so enable human resource issues and organisational issues to be dealt with parallel to technical design. This follows the ideas suggested by Scott Morton (1991) and the MIT90s project which suggest that all elements of the organisation must be in tune with and ready for technological change.

Figure 6.1 Sequential method of introducing information technology



but that a better method would be as follows.

Figure 6.2 Parallel method of introducing information technology



In this Clegg and Kemp model (1986) a human design group works parallel with a technical design group. This ensures that the ‘ people’ issues are thought about and planned in conjunction with the technical issues. Following from this model the idea arises that the role of personnel specialist could be that of ‘adviser’ and McLoughlin and Clark (1994:247) say that this could involve the:

“overall philosophy and objectives for both technical and human aspects of change being established by a senior management team which includes personnel specialists.”

Clark (1993:212) makes a pertinent comment which is worth repeating in full.

“The challenge facing organisations considering or actually undergoing technical change is how to develop mechanisms and the people to ensure that personnel issues are taken seriously, treated coherently, and adapted and improved continually to meet changing requirements. The question for specialist personnel managers is whether they have the ambition and expertise to play a major role in this endeavour as the wider voice of organisation, work and human resource issues, or whether they wish to follow the recent UK trend of retreating into ever narrower technical specialisms (employment law, recruitment techniques). In this sense the relation between personnel management, human resource management and technical change raises fundamental questions about the whole future of the personnel profession.”

However, Clark also says that there is a need to devise the job specifications for, and to recruit and manage, the ‘new breed’ of line-manager implied by such a requirement. This is not an easy option within the NHS where line managers are likely to be professionals, expert in the medical field and peripheral specialisms. The better option here is to give them additional training on change management issues.

Willcocks and Mason (1987) devote a chapter to human resource planning for IT. They argue that there is a need to develop integrated long-term personnel policies in the light of proposed computer usage. They believe that an organisational development (OD) approach would ask the following questions:

“What sort of jobs, teamwork, organisation structure, human relationships and work organisation do we need to facilitate the business we are in? What personnel policies do we wish to pursue? How can computer technology help us to get there?” (Willcocks & Mason, 1987:44)

6.4 TRAINING AND SUPPORT (HOW ADEQUATE?)

Adequate training and support have been mentioned by many writers as important factors in successful implementation of information systems (Avison & Fitzgerald, 1988; Mumford, 1983; Willcocks & Mason, 1987; Clark, 1993). If this aspect is neglected it can cause

negative attitudes to new technology by giving rise to fears that users will be unable to cope, or by causing users to conclude that the technology will not generate sufficient net benefits to be worth the trouble. According to Long (1987) in some cases, ineffective training has even resulted in the scrapping of the new technology.

Tapscott, Henderson and Greenberg (1985:206) concluded:

"From our experience, training requirements are grossly underestimated. The cost of training, the time required, and the skills needed to provide effective training are often overlooked until after systems have been in place for some time, and the amount of trouble shooting and support have skyrocketed."

Vowler (1995:24) said:

"it is depressingly ironic that a company can be willing to spend millions of pounds developing a new computer system that will underpin crucial aspects of their business, and yet begrudge spending enough - indeed any - money on ensuring that those who will be using the system know how."

Vowler (1995:24) identifies a number of reasons for the lack of training.

- “1. Sometimes training is not the responsibility of any particular department.
2. Sometimes by the time the system is delivered over budget and late, everyone is so relieved to get rid of it that no one bothers about end users.
3. Sometimes the IT department genuinely cannot see any reason why end-users should not intuitively be able to use the system immediately. Often end users are presented with two-volume manuals and expected to get on with it.”

Inadequate training is a shortsighted policy because without adequately trained staff who feel able to use the system, the money spent on developing the system may be either completely or partially wasted.

6.5 RESISTANCE TO CHANGE

“Many British managers are neither forthcoming about information to employees nor particularly concerned to set up consultative procedures to operate at an early stage, for example to examine the feasibility of alternative computer systems. This may result from a desire to push through a scheme that has significant adverse impact on employees and trade unions”. (Willcocks & Mason, 1987:29)

If this is the case then resistance to change might be a rational reaction.

Changes can meet resistance of a kind that stops them completely or, more frequently, diverts them in a direction other than anticipated. In the present occupational climate of uncertainty about job security the latter is the more common occurrence. (Jermer et al, 1994)

There seem to have been a common assumption that resistance to proposed change is irrational, that it arises from personality types who are for example rigid, biased, insecure. This may be true in some cases but in many cases it is not. (Sauer, 1993) There is the possibility that some changes are poor ideas and not in the best interests of the organisation. In these cases, rationality is on the side of the resisters.

Long (1987:221) says that people will welcome change “if they believe a) it will benefit them and b) that they are in control of it.” There is also a tendency to infer that when there is resistance to change, management is always rational and employees are irrational or emotional in responding in an adverse fashion. This view may be questioned (Turrill, 1989). If people feel they are going to be worse off as a result of a change, any resistance is entirely rational in terms of their own best interests. **In times of change the interests of the organisation and the individual do not always coincide.** If it is not properly managed

change can decrease moral, motivation and commitment and create conflict within the organisation.

Brooks (1980) points out that on routine jobs, or on jobs where employees are used to being independent of others, direct orders from management occur infrequently. When change occurs, they may become subject to pressures from supervisors, and the idea that people are checking up on them and trying to increase control over their work may be resisted and resented because it will reduce their feeling of autonomy and independence. Such feelings could occur in a laboratory which introduced an up to date laboratory information management system, which included time sheets for staff or where district nurses once autonomous are requested to fill in extremely detailed time sheets (on computer) accounting for every moment of their day.

Computer monitoring of work is a subject little mentioned in implementation literature. Labour groups have shown some anxiety towards the way NT permits constant, close and covert monitoring of employee performance. In 1984, Bills were before seven US state legislatures that would ban the use of computer monitoring. Most trade unions also call for a ban on computerised work monitoring. Expanded use of IS raises major challenges to the traditional forms of administration and authority, the right to privacy, the nature and form of work.

However, findings by Rothwell (1984:23) showed that workers were:

“less resentful of errors which were unambiguously attributable to them than in being blamed for omissions which were largely the responsibility of others”.

She states that routine computer co-ordination and monitoring 'seems to have meant the reduction of interpersonal friction and of grievances worker/worker and supervisor/worker.

Another example of positive attitudes was cited in Blackler & Osborne (1987) where a large British data preparation department had groups competing to win a monthly prize for the highest productivity combined with the lowest error rate. The operators seemed to enjoy the competition, which added enough interest to turn a monotonous job into a bearable one. Blackler & Osborne (1987:193) argue that in general people have positive attitudes to IT.

Keen (1981:27) discusses 'counter implementation' strategies. These include the following:

1. 'Lay low'
2. 'Rely on inertia'
3. Keep the project complex, hard to co-ordinate and vaguely defined.
4. Minimise the implementers' legitimacy and influence
5. Exploit their lack of inside knowledge.

6.6 CAUSES OF RESISTANCE TO CHANGE

Understanding the cause of resistance allows creation of a management strategy to deal with it. There are many causes of resistance. Any number of the reasons can be present. The following causes have been gathered from an overview of the relevant literature. (Willcocks & Mason, 1987; Burnes, 1996 and others) It is important to realise that many personal individual reasons for resisting change are not necessarily overt intentions to 'interface with goal attainment'. Steer (1991:62) said:

"Instead in many cases, such resistance often results from a fear of the consequences of change and a preference for the known over the unknown."

Figure 6.3 Schedule of reasons for resistance to change.

Schedule of reasons for resistance to change	
Personal Sources	Organisational Sources
1.Lack of belief/recognition that there is a serious need for change.	1.Reward system may reinforce status quo.
2.Different descriptions of the need for change.	2.Interdepartmental rivalry or conflict leading to unwillingness to co-operate.
3.No agreement about goals for change.	3.Sunk costs in past decisions and actions.
4.Lack of belief that the goal is attainable.	4.Fear that change will upset current balance of power between groups and departments.
5.No confidence in the manager of change.	5.Poor choice of method of introducing change.
6.Fear of unknown.	6.Past history of unsuccessful change attempts and their consequences.
7.Fear of loss of status, decrease in pay etc.	7.Structural rigidity.
8.Habit or lethargy.	8.Prevaling organisational climate.
9.Threat to existing social relationships.	
10.Conflicting personal and organisational objectives	
11.Group norms and role prescriptions	
12.Vested interest in status quo	
13.Lack of identification or involvement with change	
14.Misunderstanding of purpose, mechanics, or consequences of change	
15. Technological change resulting in increased surveillance (ie the possibility of timing work, counting mistakes etc.)	

Resistance to change is mentioned by many writers on IT implementation, but often in terms of individual irrationality, or technophobia. In fact the description of the design process as a political process with implementation and counter implementation forces at work may be a typical experience of many people engaged in the process, if not with the textbooks on system design, which rarely mention these realities of organisational life. One exception found was Fallon (1995) in a well titled book '*How to Implement Information Systems and*

Live to Tell About It. This book introduces the idea of an implementation coordinator whose full time job would be to coordinate and to negotiate politically. Eason (1988) says it is clearly dysfunctional for the organisation to proceed in a way which ignores problems and he has often been asked to assist organisations with implementation procedures when a system is ready for installation. He points out that at that stage it may already be too late to resolve implementation problems. If the traditional process of design has been followed then the technical design will already be fixed. His contention is that to deal adequately with organisational change issues they must be addressed much earlier in the design process so that the technical and organisational work can proceed in parallel rather than in sequence.

6.7 IS CHANGE ALWAYS RESISTED?

Researchers such as Long (1987:221) say that the common observation that 'people naturally resist change' should be questioned. He says that although people might fear negative consequences of change the most common reasons he found were:

- “1. Job security
2. Will I be able to master the new technology?
3. Will the technology deskill my job?
4. Will it remove or lessen autonomy and discretion? Place me under tight control?
5. Will there be potential health hazards?
6. Will social and status systems change - to my disadvantage? (Loss of power or prestige.)”

These concerns can vary with the type and level of job held. Clerical personnel may worry about being made redundant if their work is speeded up because of a more efficient system, or of there is a change in the system which no longer needs a paper filing system as back up. Managers may worry about the potential embarrassment if they are seen to be unable to

master the technology as well as their subordinates, they may not wish to take on keyboard work seeing it as 'lower level' clerical work. Personnel who will be infrequent users of the system may be reluctant (with already busy schedules) to invest the 'personal overheads' needed to both learn the system and to maintain their knowledge and skill in its use.

A number of studies have been conducted on resistance to technological change in the office and they generally do not indicate any aversion to the technology itself. In fact, the technology itself is frequently highly regarded; it is usually the accompanying changes or perceived flaws in the system that are the sources of discontent. For example Taylor (1985:213) reports that:

"On the one hand, we encountered few of the negative attitudes we were prepared for: people, by and large, love the new systems, find them clearly superior to what they had before and are reluctant to return to the old regime. On the other hand, the systems neither perform as well as the advertising would have led us to believe nor is the impact on office practice nearly as deep as we had thought.

The British pilot studies (DTI, 1985:22 cited in Long, 1987) also found generally positive attitudes, although many shortcomings in the technology were also perceived:

"On balance the majority of the attitudes to the trials were positive. There were, however, some areas where negative attitudes prevailed. Unrealistic user expectations created by excessive marketing by suppliers could be seen at several sites."

Long (1987) concludes that there is some difference between user groups in the extent to which they are positive. In general, attitudes of lower level staff (who are likely to have the systems imposed on them) are less positive than higher level managers and professionals (who are more likely to have been involved in choice of the system and later in choice of whether to use it).

Jagodzinski's (1986) research into new systems in a library setting found the opposite, that the lower level staff had a more positive attitude and the higher level staff a more negative attitude.

Generalisations on user group attitudes may be misleading. In some instances higher level staff who have a negative attitude might be more able, and more motivated to hide their negative attitudes for political and career reasons. Their more covert negative attitudes might therefore prove more difficult to discern.

6.8 HOW TO LESSEN POTENTIAL RESISTANCE TO CHANGE

Various writers suggest that if certain conditions are met then resistance will be less. The ideas of two often quoted writers follow, Pym (1966) and Beckhart (1973).

First, according to Pym (1966:44) in any planned change process resistance will be less if:

- Those affected by the change feel that the project is their own, not one imposed by outsiders.
- The change has the wholehearted support of top managers.
- The change is seen as reducing rather than increasing present burdens.
- The change accords with established values.
- The programme for change offers the kind of new experience which interests participants.
- Participants feel that their autonomy and security are not threatened.
- Participants have jointly diagnosed the problem.
- The change has been agreed by group decision.

- Those advocating the change understand the feelings and fears of those affected and take steps to relieve them.
- It is recognised that new ideas are likely to be misunderstood and ample provision is made for discussion of proposals to ensure complete understanding of them.

Secondly, Beckhard (1973:3 cited in Demb, 1979:50) lists his assumptions about organisational change:

- It must be 'owned' by the key people in the organisation - usually at several levels.
- It must be *managed* from the top.
- It must be system oriented - relating to the total organisation or significant part, or significant sub-systems.
- It must have an extended time frame.
- It must be related to the organisation's mission and goals.
- Organisation changes, 'for change sake,' or for improving conditions internally are likely not to be maintained.
- Change efforts must be responsive to its organisation environmental interfaces
- It must be implemented through leadership behaviour from the organisation's leaders.
- There must be in the organisation leaders' heads some picture of a desired state which would be worth mobilising energy to change toward.

Demb (1979) writes that unless these conditions are met practitioners generally agree that initiating a change will be difficult and that if started members of an organisation are unlikely to support its integration into daily operation.

6.9 HOW WILL COMPUTERISED INFORMATION SYSTEMS AFFECT MANAGERS?

Moss-Jones (1990) studied a sample of managers in five large companies all involved in manufacturing, to find out how IT was changing the general nature of managerial work; what was the character of IT diffusion and implementation in the companies; and how were specific components of managers' work, namely communication, decision making and interpersonal matters, being affected.

Moss-Jones (1990) found that the managers who took part in his study were all concerned about the management of change. He pointed out that the literature on the management of technical change was characterised not by the impact of technical change on managers or management, but by prescriptions of how managers should plan, organise and control new technologies for the use of others.

"But IT has one characteristic which both separates it quite distinctly from technologies in general and makes it of central importance to managers. It deals with information - the quintessential stuff of organisations and management. Whereas technology until now has mainly been applied to physical processes, thereby mostly affecting shop-floor workers and activities, IT operates on and within the information patterns and processes of organisations and is thus at the heart and brain of management itself." (Moss Jones, 1990:2)

However, how this has affected managers appears to have been little studied. According to Moss Jones (1990) there is an interaction of two complex fields: information technology and managerial work. In order to study this aspect one has to explore a wide range of literature covering: information technology: design, implementation, effects on workers, effects on efficiency, the nature of work, systems theory and practice.

Moss Jones thought that managers were cautious in quoting specifics in the new politically sensitive arena of reducing employment associated with NT. He also gained the impression

that although there was a 'warmth' for IT they (managers) defended the need to hold their levels of labour and he speculated that this was not surprising as the status of managers is in some measure related to the number of subordinates.

However, in all five companies there was a general acceptance that IT displaces staff and that there was a reduced need for intermediate managers and this confirms the findings of Barras and Swan (1983), Rothwell (1984) and Child (1985).

In Moss Jones (1990) study the skills of the workers was not studied but managers introduced the topic. They said that less staff were needed but the work 'left' needs more knowledge. Moss Jones (1990) thought that the effect was reduced differences between managerial and non managerial work. He also found a change towards team work.

Smith (1985:21) warns that it must not be assumed that managers are necessarily, or always, in favour of introducing changes.

“It is often assumed in the literature on new technology and deskilling that managers are unreservedly in favour of change, especially change that enhances their power and control at the expense of skilled labour. From my research at Filton, I found this model of management-led or inspired technical change unrealistic. Design engineers were frequently at odds with management about the necessity for changes. Managers often stood in the way of new methods and techniques in the interests of peace in their department.”

(This was in relation to CAD (computer aided design) but could be applicable to other technology.)

Buchanan and Body (1983:242) also found some reluctance to change on the behalf of managers, as well as differing objectives across different occupational groups:

“Different management levels and functions had different expectations about technological change and the opportunities and threats that it presented.”

Long (1987) argues that in many cases line managers have come to feel that not only have they lost control of their own data, they have become controlled by it, as the computing department demands that input information be provided according to a format and schedule specified by them, while providing information on their own terms. However, the microcomputer has the potential to put the data base at the disposal of the manager, rather than vice versa. 'User friendly' systems should enable users to recall, combine and analyse data in new ways as the notion strikes them or the need arises. Not only might managers receive timely information specifically oriented to their needs, the interactive process could help them to 'explore' the database in previously unimagined ways, by utilising powerful analytic tools.

The literature on how IT affects managers is sparse and there is no consensus on the affect of IT on managers. However, if new technology is found to have the affect of reducing personal control and creating negative experiences for managers then there is the possibility that they may not view its introduction favourably. LaNuez & Jermier (1994:219) theorise that:

“Although it may seem counter-intuitive, we argue that for reasons similar to those of workers, some managers and technocrats resist capitalist domination by selecting sabotage responses.”

6.10 WHERE DO 'PROFESSIONALS' FIT INTO THE PICTURE? ARE CHANGES IN THEIR INTERESTS?

'The professions are a conspiracy against the laity.' George Bernard Shaw.

Harrison & Pollitt (1994) write about the future of the NHS and see one of the key issues as being the means by which professional work will be controlled. Professionals are seen to be bound by a code of ethics, to work autonomously and, traditionally, they are controlled only by their own professional body. This means that professionals present a crucial problem for management because of the close association between professionalism and autonomy.

Harrison and Pollitt (1994:6) say:

"If (to put it rather crudely) professionalism involves acting on autonomous judgment, and management involves getting other people to do what one wants, then there is potential for conflict."

Harrison et al (1994:7) argue that the NHS has been in a state of change since the late 1970s but specially since the late 1980s and that:

"on the whole the public service professions have been perceived by the Government as obstacles to rather than allies in the business of reform."

The desirability of market-like mechanisms has considerable implications for both professionals and managers. Harrison et al (1994) consider that the public service providers of the future will be working within contract or contract-like agreements which will be time-limited and strictly costed, with well-specified work targets and standards and growing performance related element within their remuneration. Also market like competition will impact on what one might term 'professional solidarity' and doctors working for one provider are potentially divided from both the purchaser and from other providers, with whom they are in competition.

The conclusions reached by Harrison et al (1994) are that management authority will expand and professional autonomy diminish. The old picture of, manager as administrator, and of, consensus team decisions and management, has changed. Managers are charged with providing an efficient and costed service and to do this they need more control over the work output of professionals. However, according to Yates (1994:151) “to date managers and surgeons have no agreements at all about surgical workloads.”

One way in which the professionals could be challenged was to confront them with performance information (which could be gained most easily through IT systems). This has been attempted but has not so far been entirely successful. Harrison et al (1994) say that to understand why it has not been successful one has to understand ‘the politics of information.’

Harrison et al (1994:52) argue that management information systems embody a prior judgment, implicit or explicit, about which activities it is most important to control; this determines the information collected by the system. They say that there is a further problem of how to *read* the information provided by the system. What is ‘good’ and what is ‘bad’? One way of answering (or sometimes avoiding) this question is to set targets, standards or norms. Another way is to use comparisons. Such comparisons can examine the differences between organisations at a point in time or, over time within an organisation.

NHS performance indicators were issued in September 1983 but after many criticisms a revised package was issued in July 1985. In spite of revisions a recent survey of the use of indicators by different types of organisations concluded:

“while our studies showed that nearly all organisations were beginning to move towards the prescriptive use of indicators, i.e. setting objectives and targets against

which performance can be measured - the NHS and the police remain behind the pack.”
(Carter 1996:169)

In the health service the professionals:

“have certainly acted as if they feared that their performance would appear poor, by seeking to undermine the legitimacy of the criteria implied by Performance Indicators”
(Harrison & Pollitt, 1994:58)

Harrison et al (1994) say that such systems need to be assimilated into professional culture (i.e. become seen as professionally legitimate) or be backed by stronger incentives and sanctions than were available during the 1980s.

Harrison & Pollitt (1994:65) believe that the position of health professionals in market relations has been substantially weakened in the last decade. They argue that there are two dimensions, division of professionals from other categories of worker and a move towards fragmenting the pay determination even within occupation (geographically). They say that the notion of quality has become an issue and there a much more industrial approach towards staffing levels. They cite the case of the North American GRASP system which employs what is in effect time-study data concerning individual nursing tasks and aggregates it into a staffing requirement

“.....if introduced widely, would offer much greater managerial control over nurses than is presently exercised” (National Audit Office,1985)

There seems to have been very little overt disapproval of such systems within the nursing profession. Harrison et al (1994) consider that this may be because they are seen as mere technicalities by rank and file nurses while, for nurse managers, responsibility for the implementation and oversight of such systems may compensate for status lost in the Griffiths changes. It would appear, however, that for ward sisters, charge nurses, and rank and file

nurses the impact may be one of more control. There has been no parallel attempt to control medical staffing levels. (Starkey, 1992)

Yates (1995) work on the question of why waiting lists are so long for medical operations and why they differ geographically also has relevance as background information to this thesis. Yates reports that any private surgery carried on, outside the NHS 20 years ago was mainly done on Saturday or weekday evenings but today two thirds of all private operation in independent hospitals take place during the working day, Monday to Friday, 9.00 a.m. to 5.00 p.m. (Laing, 1992) This raises the question of how this can be, when the majority of surgeons work on full time contracts for the NHS. Private operations probably now amount to over three-quarters of a million per year, compared with around three million planned operations in the NHS.

The NHS neither collects nor publishes data about the workload of individual surgeons and until 1995 there had been no study of the comparative workload of NHS and private sector work for individual surgeons. Yates (1995:28) says:

“When children in a darkened room argue whether a coin has landed on its head or tail, the simple answer is to turn on the light. If the workload of surgeons in both the public and private sectors was open to public examination, then the facts would be plain for all to see.”

Professionals regard their commitment to duty to be an adequate safeguard to ensure delivery of a reasonable standard and level of work.

“The very use of the work contract is an anathema to the professional who regards his or her commitments to duty to be such that there is no need to specify details about hours worked or conditions of service. (Yates, 1995:29)

Yates (1995) says that the most surprising feature of the consultants' contract is that they are legally entitled to work both for the NHS and the private sector. This is not a normal business practice. He points out that it is not considered acceptable commercial practice to allow a telephone engineer to exercise control over the installation of telephones in such a way that extra income could be earned by installing telephones in the evening or at weekends. He or she would certainly not have a contract that was flexible enough to allow the installation of telephones during the normal working day for additional personal income. Indeed, the writer once asked a telephone engineer to undertake a small piece of work privately after hours and was told that if this was done and found out by management the worker would most certainly be sacked. Yates (1995) said religious teachings express the difficulty with precision and clarity - no servant can serve two masters (Luke 16:13).

Yates (1995) contends that the freedom allowed the medical profession could enable it to rig the market by producing artificial waiting lists or simply by giving the impression that long waiting times are highly likely. He argues that this would have the effect of forcing patients to pay unnecessarily for private care and at the same time cause groups of NHS patients, who do not pay for private treatment, to wait longer than they need.

Yates (1995:33) tried to unravel exactly how much private work consultants were allowed to do and:

“After years of ambiguity and fog there was one particular reply to a parliamentary question about how many half days it would be reasonable for a consultant to take of for private practice. This was given by the Chief Executive of the NHS who was its accounting officer to Parliament and he specified one half day only per week.”

In search of more control over surgeons in 1990 the government introduced the concept of 'job plans' (Department of Health 1990) which it was said would make the monitoring of contract compliance easier for managers. The job plan requires each consultant to specify

for 5, 6 or 7 half-days (of the 10 between Mon and Fri.) what he or she would be doing in the NHS. Yates says that for surgeons these job plan half days are nearly always specified as being spent in the operating theatre or out-patient clinic. The job plans appear to have been less than successful, the Audit Commission and the National Audit office has shown that in many hospitals they are only a paper exercise, resented by surgeons and given scant attention by managers.(Yates, 1994:69) Yates says that the NHS cannot answer the simple question 'how many operations does a surgeon do in a week?' Although the NHS counts how many operations are done, it does not collect routine information about who performs them.

Figure 6.4 Typical timetable plan for an orthopaedic surgeon.(Yates, 1995:97)

	Monday	Tuesday	Wednesday	Thursday	Friday
a.m.	Out patient Clinic (Orthopaedic)		Theatre	Out patient Clinic (Orthopaedic)	Theatre
p.m.		Out-Patient Clinic (Fracture)	Theatre		

In order to collect such information Yates resorted to studying the theatre register but found many difficulties. He said that for decades, theatre registers have consisted of large old-fashioned ledgers, in which theatre sisters, nurses and surgeons enter the name of each patient operated on. The register usually includes details of drugs administered, swab counts and other basic details about the patient and the operation. In most cases the name of the operating surgeon and assistant are recorded, together with the anaesthetist. The trouble with this system of recording is that it does not tell you whether or not the consultant surgeon was present.

He says that because theatre registers are not easily analysed and require hours of careful work before any patterns of activity can be ascertained few managers have the faintest idea of what their surgeons do. However, more recently computerised theatre systems have become available but are not universally installed. Unfortunately, some are not yet trusted by surgeons or managers to produce reliable information.

In order to gain more information on this subject Yates studied a group of 274 British surgeons. He found that they averaged 4.7 operations per week. None exceeded an average of 12 cases per week, and 20% of them did 3 or fewer cases per week. He also says that from evidence available it seems reasonable to conclude that out of any 100 operations performed in Britain at least 50-55 will be undertaken by juniors.

In 1994 the Audit Commission undertook a major study of the medical profession and as part of that study examined the activity of consultant surgeons. (Audit Commission 1995) The selection of hospitals they chose to study was made on the basis of the operating theatre suites which had a computerised information system which recorded the name of the operating surgeon. The results were very similar to the Yates (1995) study.

The Hospital Consultants and Specialists Association and the British Medical Association both maintain that consultants can spend up to 2 whole days per week working in the private sector, despite their holding maximum part-time NHS contracts. They argue that the onerous responsibilities of a consultant surgeon in the NHS with regard to research, teaching, audit, administration, ward rounds and other tasks, can be undertaken in the evenings and at weekends in order to allow those same surgeons to work in the private sector for up to 2 whole days during the working week.

Yates (1995:103) was accused of having left-wing tendencies but he argues that many of those who deeply resent the inequalities in society are Conservative voters. Concern about equality is not a left wing ideology.

“In my case it is part of a Christian ethic, but concern for equality is not restricted to Christianity nor any other form of theology.”

He says that the right wing element of the BMA should be cautious in classifying those who want to see a change for the better as left wing, controversial or unreasonable.

George Bernard Shaw said ‘The reasonable man adapts himself to the world; the unreasonable one persists in trying to adapt the world to himself. Therefore, all progress depends on the unreasonable man.’ Yates (1995) says he has been heartened to see the signs of unreasonable men emerging in the NHS. When the new Chief Executive of the NHS, Mr. Alan Langlands, was asked whether his predecessor’s comments about limiting consultants private sessions were still in force he replied ‘A good question’, and went on to say that the claims that consultants are devoting much more time to private practice than guidance allows ‘cannot be disregarded’ (Langlands, 1995)

Dr Jeremy Lee-Potter, former Chairman of the British Medical Association Council, acknowledged that there was public disquiet about doctors ‘moonlighting’ in the private sector, and called for a new consultant contract (Laurance 1995:2 in Yates, 1995:145)

“We need to re-negotiate a clean straightforward contract which makes it clearer where consultants are expected to be and when”.

There seems to be evidence that the introduction of some new information systems will make it easier for managers to collate and compare data on the level of output of professionals. This has apparently been achieved to a certain extent for the nursing profession but not to

any great extent for surgeons. It could therefore be that professionals in the health service might be less than enthusiastic when new systems are proposed or acquired and implemented. As Coombs & Cooper (1992:9) said:

“Clearly, these systems enable new levels of managerial surveillance and intervention in areas which were previously the private domain of doctors working under their received principles of ‘clinical freedom’.”

Coombs et al (1992:10) argue that the politics of IT implementation should be confronted and says about the confrontation between managers and professionals:

“On the surface the confrontation is about effectiveness versus efficiency; underneath, the conflict is about responsibility, visibility and control.”

Coombs et al (1992:11) conclude, however, that the acquisition and implementation of systems has to some extent begun to change the culture in the NHS and say:

“they could be said to have achieved their aim if they have contributed to this re-casting of the managerial agenda and the tighter integration of doctors into that agenda. This almost makes the IT an instrument of organisational change, rather than a neatly packaged management tool which simply ‘requires’ some minor organisational change to accommodate it.” (Coombs & Cooper, 1992:11)

Dent’s work (1996) covering a number of years research in the NHS developed important arguments which contribute to the background knowledge necessary for informed study of information systems.

He argues that:

“IT systems within hospitals are more accurately to be thought of as outcomes of professional managerial and inter-professional conflicts and not some technological rationality.”(1996a:164)

He also states that:

“IT systems function well only when they provide the help doctors, nurses and managers believe they need to carry out their work effectively.”

Dent (1996a:165) introduces the concept of “emotional labour” and the implications of the technological rationality of healthcare computing systems.” He contends that:

“The general conclusion, which applied to doctors too was that these systems need to accurately reflect the work processes of the potential users as well as the occupational and organisational politics of hospitals if they were to be operationally successful.”

Dent (1996a) also concludes from his work that “Doctors and nurses have become an integral part of the hospital management . ” and that

“These changes are a reflection of changes on a broader social canvas in which the established professions are undergoing changes that make it increasingly difficult for them to sustain their ‘traditional’ independence and pressurising them into ‘organic’ integration within the ‘service class’ (Abercrombie and Urry, 1983:147 in Dent 1996a 166)

Dent (1996a 167) also argues that doctors are taking the view that if there has to be financial accountability at hospital level they had best have a central role.

“Only in this way can they continue to maintain their professional dominance within a more managerialist NHS ”

This view is substantiated by White’s (1995) attendance and reporting of the BAMM (British Association of Medical Managers) conference which certainly seemed to show the continued energy and dominance of the medical profession

One of Dent’s (1996a 168) conclusions is that

“ . hospital managers have continued to work closely with doctors in order to ensure they too share in the ‘cloak of clinical legitimacy.’”

6.11 CONCLUSIONS ON HUMAN RESOURCE ISSUES

The literature contains convincing arguments that human resource departments should be involved in computerised information systems strategy and implementation. The level of training offered to users is criticised and is blamed for some implementation failures.

Resistance to change is not always seen as irrational or negative in the literature but as a rational response if the change is likely to lead to personal or group loss in some way. A number of writers were found who suggested ideas to lessen potential resistance to change.

New computer information systems (CIS) were identified in the literature as having the potential to encroach on the previous autonomy of managers and professionals and also for managers it had the potential to reduce the number of their subordinates which was not always viewed favourably. (Moss Jones, 1990)

CHAPTER 7

**SYNTHESIZING THE RESEARCH QUESTIONS ARISING
FROM THE LITERATURE AND RE-APPRAISING THE
INITIAL AIMS OF THE STUDY.**

7. SYNTHESIZING THE RESEARCH QUESTIONS ARISING FROM THE LITERATURE AND RE-APPRAISING THE INITIAL AIMS OF THE STUDY.

This study was initiated because of the high profile given, in the press and other media, to the failures and problems of information systems implementation. The original research aims were given in chapter 1 and after consulting a wide range of literature across a number of related disciplines the importance of the original questions was confirmed and the basic aim of the research project remained; to shed descriptive and analytical light on the nature of the process of information systems acquisition and implementation. The broad aims are given below.

7.1 RESEARCH AIMS

- To find out what the barriers to information technology and information systems implementation are in the NHS.
- To find out about the process of IT/IS implementation commonly followed in NHS organisations.
- To suggest a model for IT/IS implementation based on information gathered from the empirical research and from the literature review.

7.2 DISCUSSION OF THE QUESTIONS WHICH WERE EXPANDED AFTER CONSULTING THE RELEVANT LITERATURE

After reviewing the literature a number of issues appeared to be particularly important and they provided a background agenda for the duration of the research process.

- What planning and implementation process is used? The Information Management Group recommend the use of PRINCE planning methodology in all implementations and its use is mandatory in systems costing over £1 million. Is it being used and do people find it helpful?
- Where in the process or in the organisation are barriers to implementation occurring?
- Are change models or indeed models of any kind used by those implementing information systems?
- There are those who advocate the use of organisational diagnosis to examine the organisation and test its readiness for change before an information system is implemented. Does this happen in NHS organisations?
- The use of human resource management specialists both in forming the IT/IS strategy and in implementing new systems is said to be good practice. Is this occurring in NHS organisations?
- The presence of an IT/IS representative with the necessary expertise at board level is recommended, does this occur?
- Who is actually in charge of information system implementations? Do they have the necessary knowledge? Do they have the necessary authority?

- Is the management of the implementation of information systems seen as management of change?
- Is organisational learning taking place?
- What is failure in relation to information systems? Sauer (1993) and Walsham (1993) are amongst those who try to answer this question. They suggest that a failure is only a system which never ever becomes operational or one which is abandoned once working.
- Who is the judge of the success of an information system? The users, the technical suppliers/installers, management of the department in which it is being used, top management (board level). They might all have different views on the success of the system (Willcocks & Mason, 1988).

Additional issues were found based on survey and case study evidence from previous research (Willcocks & Mason, 1987; Eason, 1988; Clegg et al, 1986; Hornby et al, 1992; Walsham, 1993; Sauer, 1993; Audit Commission, 1995). These writers were amongst those identifying the following deficiencies as contributing to the problems of implementation and under use of information systems.

- Lack of guiding strategy
- Lack of recognition of IS implementation as an opportunity for BPR (Business Process Re-engineering (White & Swann, 1995)
- Lack of end user participation and 'ownership' of systems
- Lack of organisational resources and support
- Lack of attention to organisational issues such as organisational design, organisational culture, managerial style

- Lack of attention to psychological issues such as design of jobs, allocation of tasks, usability of systems
- Lack of planning

One area which appeared to be little mentioned in the literature was the idea of risk analysis. In view of the risks which were obviously present in relation to implementation this was an additional area to be explored in the case studies.

7.3 USE OF THE MODEL IN STRUCTURING THE RESEARCH AND THE QUESTIONS ASKED

The above questions were to be asked within the framework suggested by the MIT90s research programme. (Massachusetts Institute of Technology, USA.) One of the strengths of this model is that it can be used for acquisition purposes as a change model or to aid analysis as a research framework. Reflections on the work of Pettigrew (1973, 1985, 1987) and of Walsham (1993) and on the initial observations of the actual IT/IS implementation case study have resulted in an addition to the MIT90s model of 'politics' as a key aspect in the change process.

An additional issue which informed the research process was that discussed by Benjamin and Levinson (1993) who believed that a key part of the planning process is determining if the energy for change can be mobilised. They contend that testing for organisational readiness is as important as analysing technical feasibility. That means that the people in the organisation must be ready to support the change, the stakeholders should not be ignored. Benjamin and Levinson (1993) believe that energy comes from the fact that the change satisfies

organisational requirements. Where stakeholders do not believe in the need for change, then energy for change is not present. Energy can be introduced by communication, training, finding new role models and so on, but such actions require commitment of resources. These ideas fit into the ideas about taking an organisational diagnosis approach to change and so led to questions about whether this type of approach was taken in the case studies.

The literature revealed that resistance to change is one of the expected outcomes of change, but if it is to be overcome it must be understood, so that appropriate action can be taken in good time. By using the MIT90s Framework for analysis purposes each aspect of the complex process may be examined and analysed to show where and when resistance has occurred. Thus barriers to change may be identified so that in the future they may be avoided altogether, or at least dealt with quickly and efficiently, rather than being left to fester, causing inefficiency and unrest within the organisation.

The framework separates the elements of the organisation which need to be examined and also brings in the external factors which affect organisations but which some models/frameworks completely ignore. In order to put the framework to best use the literature has been used to expand each of the 'sets of forces' and this expanded list became the basis of the questions to be asked either of individuals at different levels of the organisation, or to be answered by inspection of documents, or by knowledge gained from other sources. The expanded 'sets of forces' are listed below.

Strategy

- Vision - mission statement

- Active leadership - motivation of staff
- Commitment at top level CEO of resources to change process

Structure

- Organic/flexible
- Formal hierarchy/power
- Informal power
- Centralisation/de-centralisation

Management - Role and style

- Management assumptions about people - Are employees trusted members of the organisation, allowed to think for themselves? Or cogs in a machine?
- Are management moving towards a learning organisation?
- Culture

Individuals and roles

- *Maximum feasible participation by users/ stakeholders*
- Motivation
- Change in jobs
- Change in number of people employed (job losses?)
- Change in level of knowledge needed

- Change in Skills
- Attitudes to technology
- Attitudes to change
- Training

Task

- Change in tasks/job content
- Will the new system help them to do their work?
- Will the new system make the task easier?
- Will the new system make the task faster?
- Will the new system make the task more enjoyable?
- Will the new system make the task more interesting?

Technology

- Will the new system fulfill the objectives set?
- What are the benefits envisaged from the company's point of view?
- Will the new system allow the department to function better?
- How was the system developed ? a) Off the shelf package.
b) Purpose built - in-house or external.

Culture

- Is the present culture one which will allow innovations to occur?

External Technological Environment

- How is this affecting choice and use of the technology?

External Socioeconomic environment

- How is this affecting choice and use of the technology?
- Important historical facts affecting the choice and use of IT.

7.4 LIMITATIONS OF THE FRAMEWORK

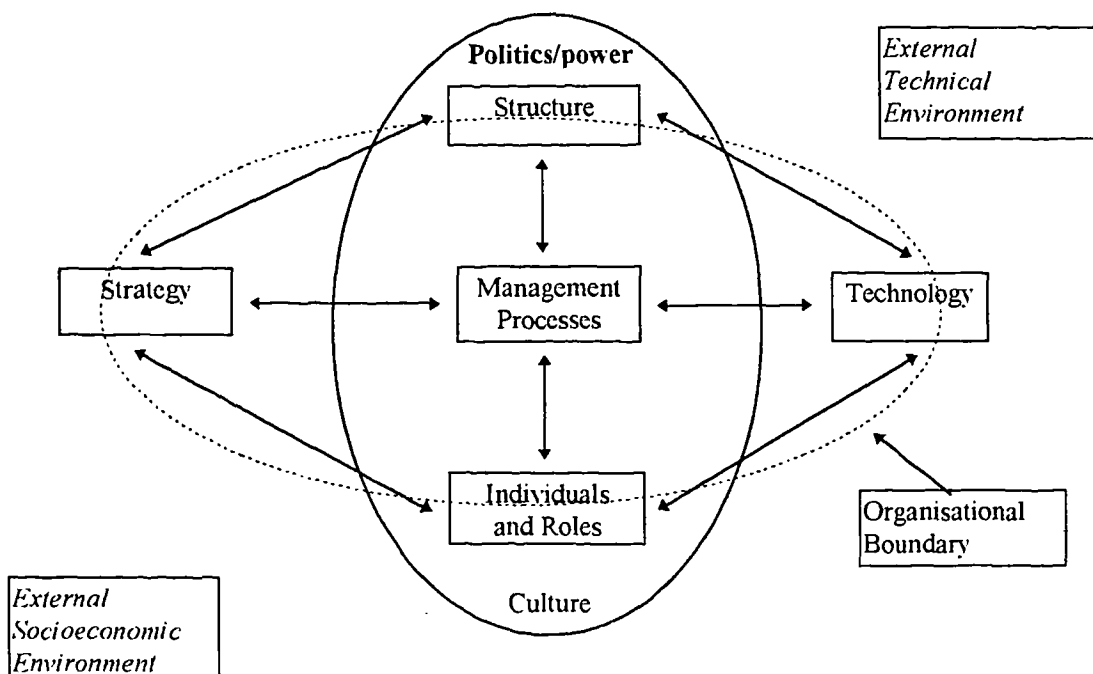
In relation to use of the research model it is argued that the very value of a model or framework is its simplicity, but this can also be a drawback in the fact that reality is more complex and no model will show the diversity and complexity of the total process. The Framework is, therefore, a tool which can provide a starting point for either IT acquisition or analysis. Even where a model or framework is used additional knowledge is needed either from experience or from additional theories or use of the relevant expert literature.

Walsham (1993:70) argues that:

“The framework is of no value in aiding the social process of the research itself. This process requires social skills and social awareness which are practical in nature. The point is perhaps obvious, but too rigid an adherence to a theoretical framework can be an inhibitor to the social process taking place between the researcher and interviewee.”

Care must be taken that obtaining responses which relate directly to the framework, do not result in other valuable information being ignored. Empirical research should be guided by a framework but not constrained by its boundaries. The framework may be thought of as a learning aid which allows exploration of events using theory, whilst reflection on the results of the exploration may lead to revision of the theory.

Figure 7.1 Revised MIT90s Model with the addition of politics/power



7.5 LABOUR PROCESS THEORY AND ITS RELATIONSHIP TO THE MIT90S FRAMEWORK

It is considered that labour process theory enables a macro perspective to be taken when approaching the research questions. It aids understanding of what is happening within organisations and how the organisations might be affected by wider societal relations.

Knowledge of labour process theory and its use by researchers such as Dent (1996a), and Metcalf (1996) allowed a more confident approach to the addition of ‘politics/power’ to the

research framework to be used, opening up the framework to allow the collection and analysis of data which might otherwise be ignored or missed. Labour process analysis gives important insight into the relationship between both professionals and managers and the state. Without this additional insight the assumption that managers and professionals act only in the interests of the 'organisation' might be made. (Though, the use of Domain Theory also gives some insight into the allegiances and affiliations which might occur within the organisation.)

CHAPTER 8

RESEARCH METHODS CHAPTER

to such a complex study as that of information systems implementation. The last section gives final reflections on the process.

8.2 INTRODUCTION

The aim of this study, and of the research project on which it is based is to throw descriptive and analytical light on the nature of the IT/IS acquisition and implementation process being followed in the NHS; to find out why the process is not resulting in successful outcomes (according to the literature), and to identify any particular areas where barriers to implementation of information systems are present. The research was designed to corroborate and extend the findings of previous research by repeating some questions already asked but also as far as possible in the case studies by taking a macro view of the process. This macro view of the process appeared to be an approach which was rarely taken (Kwon & Zmud, 1987:228). A change model recommended in the literature was to be examined for utility in the NHS setting.

The initial approach to the research was to use broadly interpretive methods, aimed at understanding the process of implementation of information systems over time. The method chosen was a longitudinal case study approach. (Pettigrew 1973,1985; Walsham 1993:14) Although access to the main case study had been assured, the researcher was not confident of continued access and therefore three other smaller case studies were undertaken. These have also aided triangulation.

The literature showed that there was continued criticism of the efficacy of implementation methods in the NHS, but recent developments in the NHS had resulted in the NHS

8.0 RESEARCH METHODS

8.1 A GUIDE TO THE CHAPTER

This research methods chapter begins with the reasons for the research, and then an overview of the design which gives reflections on the research methods. A justification for the research methods is given and the words justification for, are used purposely, because within the implementation literature there are those who advocate qualitative research as the only legitimate approach to an understanding of the contextual and processual nature of implementation and who argue that there is no one 'truth' to be discovered. Conversely there are those who argue that such research is not 'respectable' or 'scientific' and a positivist approach with quantitative data collection is the only valid and reliable way forward in systems research. This section argues that in fact both approaches can be used in researching a complex phenomena (Gummesson, 1991; Robson, 1993).

Details of the tools used are then described. These are perhaps more than might be expected within such a study, but the complexity of the process to be studied necessitated this diversity. Two sections follow which deal with limitations and problems encountered in the study. The first acknowledges the limitations of the study and the second gives a short account of problems encountered in the study. The case studies were problematic in regard to access and these problems need to be acknowledged and discussed and indeed form part of the data in relation to the 'fear' and 'mistrust' which is present where there is any suspicion of 'failure' in organisations (Sauer, 1993). The penultimate section deals with background issues which should be acknowledged and discussed, at least briefly, in relation

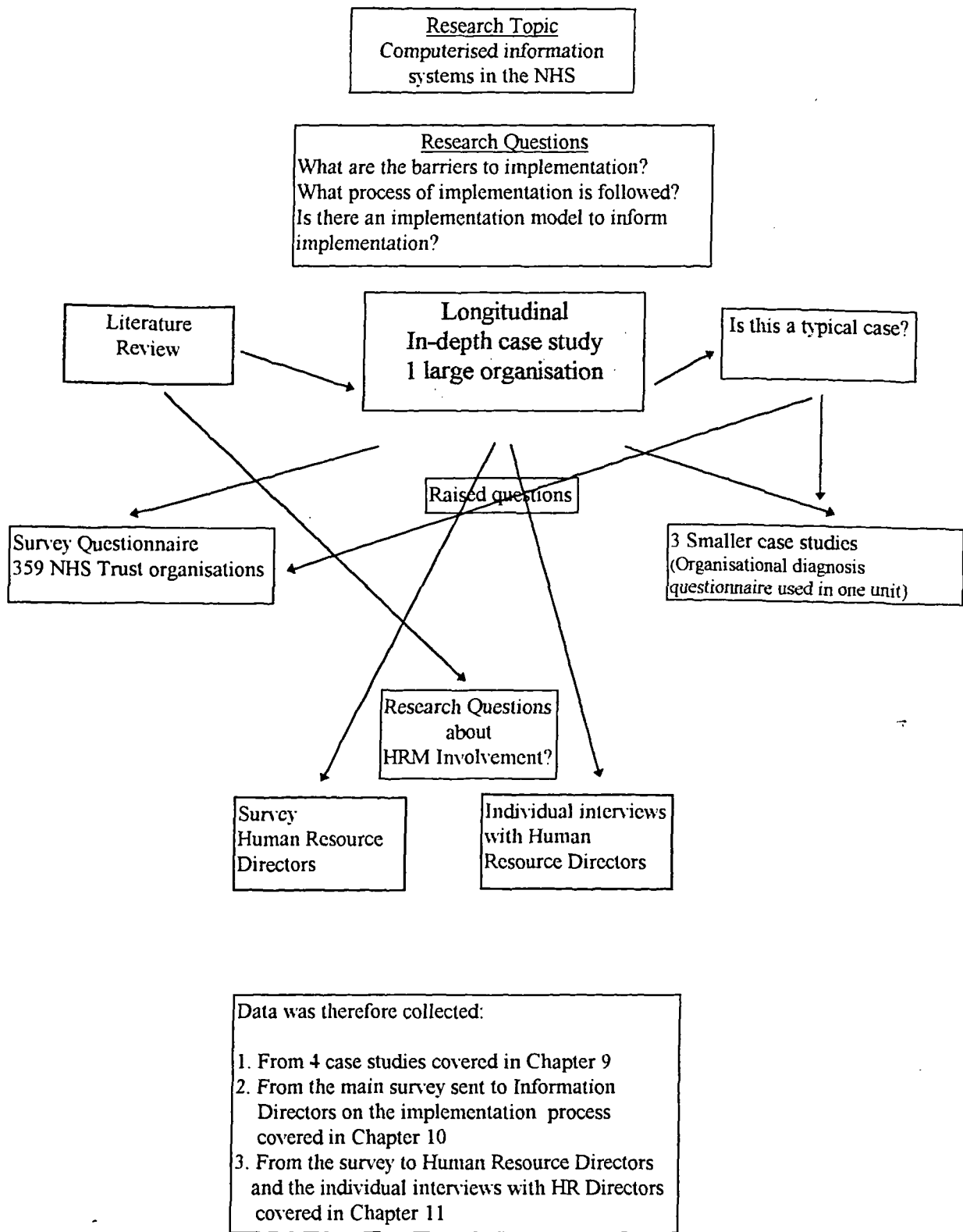
Executive Management Group setting up the Information Management Group whose aim was to liaise with Trust organisations and to help them with regard to their IT/IS strategy and implementation. The fairly recent emergence of the NHS IMG and availability of help from them might have impacted on the implementation processes taking place in the health service. For this reason it was considered that a survey questionnaire which would throw some light on the implementation processes currently being followed in a large number of NHS organisations and the success rate of these processes would be illuminative. The questionnaire would also act as a form of triangulation (Denzin, 1970). A survey questionnaire was, therefore, designed to investigate the current implementation process followed, the success rate and what barriers to implementation were present in a wider sample of NHS Trust organisations.

When the study began and after reading more of the relevant literature two additional questionnaires were designed and used to add to the background knowledge necessary to understand the phenomena of IT/IS implementation in the NHS. One was an organisational diagnosis questionnaire to be used in one of the case studies and the other was a survey questionnaire for personnel/human resource directors in Trust hospitals. Information from the first case study and from the literature were used to inform the process of questionnaire design.

8.3 THE RESEARCH DESIGN - OVERVIEW (See Figure 8.1)

The research design was to use a number of research methods and to remain flexible and open to additional methods and opportunities should they arise. A case study, a survey, and face to face interviews were the initial choices.

Figure 8.1 Research Design



First chosen, was a longitudinal, in depth case study of an organisation during the process of implementation of an information system; utilising different research tools as necessary. All opportunities presented, were taken, to gather both qualitative and quantitative data within the organisation under examination. The data would include structured, semi structured, and informal interviews, observation, informal conversations, access to internal documentation and participant observation in the internal training for the new information system. This research is after the fashion of researchers such as Pettigrew, 1985; Gummesson, 1991; Dent, 1996. The approach allows triangulation (Denzin, 1970; Walsham, 1993:20) After initial access to the case study site, it was decided to include three other case studies. There were a number of reasons for additional case studies. The first reason was because the internal politics in the first case study organisation meant that continued access was feared to be in jeopardy, a second reason was that the first case study appeared to have followed a process which has now been updated in the NHS, and, therefore, may not be a 'typical' case. A third reason was that a comparison of two or more cases would aid analysis, especially if the cases resulted in different outcomes.

The case study approach was not based on a grounded theory approach, though interviews were held with key respondents initially to ensure that the MIT90s Framework was suitable to use as a change model and as a research tool to order (categorise and present) the research findings. The case studies were used as a way of gathering information about the whole computerised information systems implementation process as it progressed (and retrospectively where necessary) and as a way of informing discussion of the models used. The case studies are, therefore, presented in outline form in Part A of Chapter 9 (with more details in Appendix 1). The analysis follows in Part B of Chapter 9. The analysis follows

the MIT90s Framework taking the separate 'elements' listed in Chapter 7 and extracting data from the cases to illustrate any barriers to implementation found.

A postal survey questionnaire was designed and sent to the IT/IS directors/managers of trust hospitals in eight regions, to find out information on a larger number of NHS organisations and as a further check on the information gained from the cases

The mainly quantitative questionnaire sent to the information director/manager of NHS Trust hospitals, asked questions about the process followed in relation to one specific implementation in which they had recently been involved and asked whether the process had resulted in a successful implementation. The aim of this questionnaire was to find out exactly what process was being followed at the present time in the NHS, and whether the processes were resulting in perceived success or failure. Thus the extent of the problem (implementation failure) (identified in the literature) could be examined, together with data which would give a limited basis for analysis related to some of the more important barriers already identified in the literature review and the first case study.

Without the knowledge gained from the issues in the case study, it would have been difficult to design a questionnaire with any confidence of it having covered the most important issues. In fact the case study identified one issue which was not mentioned in the majority of the literature first accessed or the majority of organisational or implementation models. This was the issue of politics.

The initial design described above was supplemented as the research progressed by two other questionnaires. The first was an organisational diagnosis questionnaire which was used in

the second case study as a 'before' diagnosis of the state of the organisation which was to have a system implemented. This tool was used in one of a proposed 5 units in the organisation, but its use was subsequently blocked in the other 4 units. The organisational diagnosis questionnaire was subsequently mentioned to the third case study organisation, approached, (Community) whose information department (director) asked that this be used in their organisation, however, once again, when the questionnaire reached 'top' management its use was refused.

The second questionnaire was sent out to the personnel/HRM managers and directors in the eight regions in Trust hospitals to ask about their involvement in IT/IS strategy and implementation. The information was backed up by information from face to face interviews with 8 human resource directors in NHS trust hospitals.

8.4 INITIAL REFLECTIONS ON THE RESEARCH METHODS

The purpose of this study was to illuminate the current information systems implementation processes commonly carried out within NHS organisations, to identify areas where barriers to implementation most commonly occur and if possible to examine the applicability of the implementation models identified in the literature. The study did not begin with a definite hypothesis (other than the idea from the literature that the implementation process is problematic) to be proved. The aim was to throw light on the process, taking a macro view rather than focusing initially on one small part of the process.

There was a worry that if some implementation model or organisational model was chosen prior to entering the case study organisation, lack of knowledge of the actual situation might

lead to a wrong choice of model. After much reflection on the problems, the phenomena to be studied and the macro approach that was envisaged led to the reasoning that some order needed to be imposed upon the data collected.

Consequently, before the initial process began the researcher consulted a wide range of literature in order to choose a framework or model which would facilitate a more ordered and understandable collection and analysis of data. It was acknowledged, however, that present models might not be adequate for the task and a flexible approach to initial interviews would be **necessary so that factors not present in the models might be discovered.**

There were initial difficulties with choosing one model because a number were thought to contribute to understanding. The eventual compromise was to choose two models to inform the process. The first which would be used to structure the data collection and presentation was the MIT90s organisational model or framework (Scott Morton, 1991) and the second was the Kolb & Frohman Model process model (Bullock & Batten, 1985) which was used more as an aid to analysing the process.

Although traditionally there has been a tendency for research writers to see qualitative and quantitative methods as being in opposition, this research study sought to utilise methods which seemed useful for particular parts of the study. There has been, in the last few years, a trend towards the recognition that both qualitative and quantitative methods can be employed to gain the widest and richest picture of the phenomena being studied (King, Keohane & Verba, 1994; Easterby Smith, Thorpe & Lowe, 1991). However it is

acknowledged that there is an extensive literature on qualitative/quantitative distinctions (Hammersley, 1989; Bryman, 1988).

Nevertheless, even forty years ago, Homans (1949:12) is much quoted as saying:

“There are neither good nor bad methods, but only methods that are more or less effective under particular circumstances in reaching objectives on the way to a distant goal.”

King, Keohane and Verba (1994:5) argue:

“Most research does not fit clearly into one category or the other. The best often combines features of each. In the same research project, some data may be collected that is amenable to statistical analysis, while other equally significant information is not.”

Initial reading, and initial entry into the first case study site, led to suspicions that access to the case studies might prove problematic. The initial ideas of ‘in depth’ case studies might not prove to be possible. However, in spite of such suspicions, the study was continued because the very nature of the subject, which is one where organisations might be facing failure, is one worthy of further study. Therefore, even ‘partial’ information was considered to be worthy of collection and analysis. King et al (1994:6) emphasise the need to follow rules of scientific inference but say that nothing in the set of rules implies that all relevant data must be collected before valid social scientific inferences can be made.

“An important topic is worth studying even if very little information is available. The result of applying any research design in this situation will be relatively uncertain conclusions, but so long as we honestly report our uncertainty, this kind of study can be very useful. Limited information is often a necessary feature of social inquiry.”

In approaching the complex task of researching change in organisations an awareness is needed that whilst traditional methods can be used to analyse ‘fragments’ of a problem,

strategic changes or re-organisations or IT/IS implementations do not fall into this category.

Gummesson (1991:30) in his book on Qualitative Methods in Management Research contends that:

“It is my belief that these methods (traditional survey techniques of questionnaires and interviews) can only be used to complement the analysis of processes within a company. If each method is used on its own, processes of decision making, implementation, and change will tend to be examined in a far too fragmented and mechanistic manner, which will scarcely inform the reader and indeed may only lead to misunderstandings.”

8.5 THE CASE STUDY APPROACH

The breadth and depth of information needed about the implementation process and those involved in the process could not be gained from a survey questionnaire alone. It was felt that access to one or more organisations over a long period of time would be needed to build up knowledge about all aspects of the organisation and the process to be studied and to build relationships which would allow respondents to feel that they could trust the researcher so that sensitive topics could be discussed and so that sense could be made of what was going on.

Case studies are gradually becoming more acceptable as research tools in the management field. (Gummesson 1991, Gill & Johnson, 1991) They are however questioned in relation to validity and the possibility of generalising the results. Gummesson (1991) who is an experienced consultant and researcher concludes that both are possible. Dunkerley (1988) says that

“many of the significant advances in organisation analysis over the past forty years have arisen through the employment of the case study technique.”(Quoted in Bryman, 1988:91)

Pettigrew (1992:301 Appendix) when explaining his reasons for choosing this method says

“The methodological approach adopted here has allowed for the analysis of retrospective change, real time analysis and prospective or anticipated change. Historical antecedents and the chronology of change are considered vital.”

Thus by using primary and secondary data all aspects can be examined.

Smith (1990) justifies the use of the case study for information management and argues that for many research topics within management this method is the most appropriate. The scale of information and the nature of the information needed is complex and ranges across each organisation and needs to be ‘searched out’ and accessed, which is not always a straight forward task. Process can be studied as it unfolds, which increases the likelihood of reliability of data because people can be questioned about events very shortly after they have occurred thus giving more likelihood that responses have not been affected by memory loss. Orlowski & Baroudi (1991) argue that more research of an interpretive nature is needed.

8.5.1 Case study sampling

The case studies were not chosen by any random sample method. Gaining access to sites can be difficult and the sample could be partly described as a convenience sample (Robson 1993:141), chosen because of both geographical considerations and because some level of access could be negotiated. They could also be described as purposive sampling (Robson 1993:141) in that they were seen as probably being typical cases and would be of interest (at least this was the view from the initial information available).

8.5.2 Research tools within the case studies.

a) Semi structured interviews - one-to-one interviews

Interviews were carried out with key respondents and later with those involved in the IT implementation and those using the system. The initial interviews were not tape recorded, as confidence was being won but the main body of interviews were tape recorded and transcribed as soon as possible.

An interview schedule was followed and some managers and professionals could be described as giving a monologue, but if this was on the subject being researched then this was not interrupted. In this fashion, questions are often answered before they are asked!

Interviews do not always follow text book 'questions and answer' formulae but have to be negotiated. The powerful often set their own agenda even in interview situations and those who require their time and input sometimes have to be patient and careful in their interview techniques to gain and retain their co-operation.

b) Observer as participant - attendance at meetings and training sessions

A number of meetings and training sessions were attended in an observational role. This role was 'observer as participant' (Gold, 1958). Those at the meeting knew the identity of the researcher and purpose of their presence.

The need to be reflexive on the situation and how the researcher is actually affecting the situation is necessary in this role (Gill & Johnson 1991:109). Are members of the group possibly acting differently because they are being observed? Because the researcher became a regular visitor to the site those observed became used to an 'outside' presence and in fact in the main site the researcher became more of an 'insider' than an 'outsider'. This was not the case in all sites. However, a reflective approach was always maintained.

Attendance at these meetings gave a valuable insight into the strategy and planning process related to the acquisition of new systems. A richer picture was obtained than by interview after the event. This improved the validity of the of the research.

c) Informal observation

Informal observation could be said to have taken place on all visits to the research sites. Efforts were made to engage staff in conversation, so that good relations were maintained, but this also contributed to the data. Organisational culture can then be observed first hand in many ways. (Layout of offices, personalisation of offices, dialogue between staff etc.)

d) Analysis of archival material, minutes and letters.

A number of informants allowed access to archival material, minutes, letters, reports. In one case study the data examined on the users of the system was that collected and analysed by the organisation as part of their own evaluation process.

e) Amount of access gained in the four case studies and longitudinal time in contact with the organisations.

The amount and depth of access to the case studies was disappointing and did not meet the expectations of the researcher or those involved in the initial setting up of the main case study site.

Information on all four cases is however included in the study because in spite of the difficulties of access to the cases, they yield much valuable insight into the organisational complexities involved when information systems are implemented and when researchers are negotiating entry to study processes which are viewed as problematic.

f) The organisational diagnosis questionnaire used within case study 2

As this case study was originally aimed to be rather more in-depth and longitudinal than was eventually found possible, an organisational diagnosis questionnaire was designed. This was based on the work of Carnall (1990) and Badger & Chaston (1992) who developed questionnaires for use in organisations undergoing change.

8.6 THE 2 POSTAL SURVEYS

The academic literature and the press both catalogue a number of computer failures and infer that the implementation process followed in the NHS (and other organisations) is not resulting in success. The academic literature recommends certain processes to follow which they infer will then result in successful implementation.

The NHS set up the Information Management Group in 1992 to set the strategy for NHS computing and to advise organisations on the best methods of implementation. These methods which include the use of such project management tools as PRINCE may have resulted in a much higher number of current successful implementations than is currently known or documented. Therefore, although the case studies, informed on their processes of implementation, it was felt that more knowledge was needed of the 'typical' methods followed and whether they were seen to result in success.

The postal questionnaire, on the implementation process, would give some idea of the success rate of implementation across a larger number of trusts and of the barriers to implementation experienced by a larger number of organisations. This would act as a form of triangulation (Denzin, 1970). The questionnaire on involvement of human resource directors would give some first hand information which has not been gathered before. That is on human resource department's involvement in IT/IS strategy, implementation and training.

A questionnaire survey was the quickest and least costly way to gather new data rigorously, it was suitable for a large sample, it would be useful for repeating the inquiry over time, it would allow comparison of the process used, it was easy to quantify and summarise results (Harrison 1987:19). Its disadvantages; hard to obtain data on structure, behaviour, etc., little information on contexts or situations shaping behaviour; not suited for subtle or sensitive issues; impersonal; risks of non response, biased answers, invalid questions (Harrison, 1987:19) were overcome in this study by using supplementary interviews and case studies.

8.6.1 The Questionnaire sent to IS/IT directors or managers

A questionnaire was designed to follow the process of information systems acquisition and implementation. This process is so long and detailed that all aspects could not be covered (there are limits to the time respondents will invest in filling in a questionnaire), however, using the MIT90s literature and other implementation literature (Willcocks & Mason, 1987; Audit Commission, 1995) questions on a number of the key areas were included. The majority of questions were quantitative with one open question and a small number of attitude questions (see Appendix 3).

The questionnaire was designed to ask about the process the respondent had followed in relation to an actual implementation in which they were recently involved rather than asking what they 'would do' which might give the picture of an 'ideal' situation and not reality.

In making the decision on who would know the most information about an implementation process, it was decided to aim the questionnaire at the IT/IS manager or IT/IS director of the organisation. In this way the questionnaire could go to a large number of organisations but there would be a greater likelihood that the person receiving the questionnaire would both know about the process and have a deep enough interest in the subject to return the (rather long) questionnaire.

Although there are limitations and disadvantages in asking just one stakeholder group in an organisation about their perceptions of the implementation process, the IT/IS group were also chosen because it was known that they would be the most likely to have been involved in a recent implementation. If another group such as consultants or nurses were chosen,

then they might not have been involved in an implementation for some time, they might have known little about the process other than their own involvement and the greater likelihood of a low response rate would have risen.

Full lists of Trust organisations were obtained from the individual Health Authorities.

8.6.2 The Pilot (for the IT/IS director/manager questionnaire)

The postal questionnaire was first piloted by use as a face to face questionnaire with two IT managers. It was then refined and sent to 39 actual NHS Trust hospitals. The response rate to this pilot was 45%. At this point a number of attitude questions were added to the questionnaire. These questions were designed to check up on some of the process questions and also to test attitudes and ask general questions which could not be included in the main body of the questionnaire (which related to one specific implementation process).

Initially the attitude questions were not included because of suspicions that the questionnaire was already too long to gain a high response rate, however, when the first pilot was judged to be successful, it was decided to try the longer questionnaire. A further pilot was sent to 20 Trust hospitals with a return rate of 50%. At this stage two extra questions were added before it was finally sent out. The decisions about what to put in the questionnaire and what to leave out were not easy and it is not suggested that the issues covered are the **only** important ones.

director or manager was rarely heard and it was important to learn from those actually carrying out the work about the situation and about ways forward in IT implementation.

There had been initial reservations about sending out the questionnaire relating to one specific implementation process in case only respondents who had a particularly 'bad' experience might answer, or conversely, only respondents who wished to give a rosy picture of implementation processes might answer. Subsequent telephone interviews with a number of the respondents indicated that this had not been the case and they had filled in the questionnaire as asked.

Speculation on the characteristics of the non-respondents remains. However, pressure of work, dislike of questionnaires and the general feeling that 'academic' work will not help them personally may be amongst the reasons.

8.6.4 The questionnaire sent to human resource directors

The questions used resulted from questions found in the literature and from questions arising in the main case study.

8.6.5 The Pilot

The questionnaire was piloted by using it in a face to face interview with one human resource director and by sending it to a sample of 20 postal addresses from the main list.

8.6.6 The sample

The NHS Information Management Group were contacted and they sent a set of labels addressed to their human resource directors in England and Wales. The questionnaire was therefore sent to the total possible population.

8.7 THE INTERVIEWS WITH HUMAN RESOURCE DIRECTORS

After a few months, literature was found which suggested that the human resource department (or personnel department) should be involved in both IT/IS strategy and in actual implementation and that this would improve the implementation process. The human resource/personnel departments were not involved in any way in implementation in the case studies and, therefore, this was considered to be an area worthy of separate investigation. Thus personnel managers were interviewed in 8 organisations (and a short questionnaire was sent to the total population of human resource directors in the 8 NHS regions.)

8.8 LIMITATIONS IN THIS STUDY

- a) The characteristics of 'non-respondents' to the postal questionnaire are not known. However, the response rate of over 50% is high for a 'business' type of questionnaire.

- b) Finite resources meant that the postal questionnaire was sent to one stakeholder group. It is acknowledged that the attitude and the responses about the implementation might have been different from another stakeholder group (Willcocks & Mason, 1988). Much thought was spent on deciding to which group the questionnaire should be sent.

The questionnaire was being sent out to very large organisations. It was not known whether there would be IT/IS implementations taking place or having taken place or who had been involved in their management. Hospitals are often split into clinical directorates and if one wished to send a questionnaire to all possible directorates within each hospital this would present difficulties and be costly.

With this and other difficulties in mind, it was thought that the IT/IS managers or directors were easiest to 'target' when sending out a questionnaire to unfamiliar organisations. They were the most likely to be interested, to have knowledge of what systems had been implemented, to have knowledge of the methods used in implementation and have an overview of any evaluations that had been made and any difficulties encountered.

c) Although the study aims at taking a macro view of the implementation process and at risk of 'stating the obvious' the size of the problem and the finite nature of the resources and time available precludes inclusion of all possible variables.

d) The aim of the initial design of the study was to examine one case 'in depth'. It was envisaged that all stakeholder groups would be interviewed. The difficulties of access in the main case study meant that the implementation process was not examined from the perception of all stakeholder groups.

e) The additional case studies were also more 'superficial' than the 'ideal' model research. However, they have been included because they still contain much valuable information on the implementation process.

8.9 PROBLEMS ENCOUNTERED IN THIS STUDY

When writing about access to organisations Bryman (1988:32) said

“Such negotiations take a great deal of time and an even greater degree of patience, a quality which is rarely mentioned in textbooks.”

Both time and patience were certainly needed in this study.

Although Bryman's (1988) book could give accounts of how others had problems, such problems are difficult to avoid and the quote given by them is worth repeating:

“Gaining access to most organisational settings is not a matter to be taken lightly but one that involves some combination of strategic planning, hard work, and dumb luck.”
Van Maanen & Kolb (1985, cited in Bryman, 1988)

This research had the first two of these, strategic planning and hard work, but the ‘dumb luck’ element was more elusive!

8.9.1 Access to organisations actually involved in IT implementation

The study aimed to examine the IT/IS implementation process in healthcare organisations. A decision was made that a longitudinal and in depth approach should be taken. This meant that it was preferable for practical and resource reasons to choose a site within a limited geographical distance of the University base. The choice of the initial and at the time the only organisation to be studied was made and information was received about the expected implementation time span. Unfortunately, there was some considerable time slippage and the implementation took more time than envisaged. As a precaution against the chosen site being unable to complete their implementation within the time limits imposed on the research project the researcher also considered gaining access to other sites.

Access to other sites proved to be difficult to gain. Those involved in IT implementation cited the fact that they did not have time to be involved, as a reason for non access. Health service organisations in general felt that they were involved in change at many levels and could not spare time for either interviews or questionnaires and in addition one site said that they were afraid that because of the upheaval caused by change their personnel might provide 'biased' answers to research questions. The sensitive reactions of the organisations approached is indicative of the feelings which might be present within organisations undergoing change. Attitudes of the managers who were the 'gatekeepers' to the organisation differed, and in some instances permission was given by one level of management, only to be withdrawn by higher levels and vice versa.

The original research design involved only one case study of one management information system implementation process. The case study would involve more than 40 sites and so was considered to be a full time qualitative research project for one person for two and a half years. The study was begun but access to the different parts of the organisation proved more difficult than envisaged for reasons explained below.

The original person who had provided access - when he realised that the first was slipping behind schedule - suggested that a second case study could be of interest and could be included in the research design. It involved an IT system which he would personally be involved in implementing, in between one and five different sites within the NHS. (It was within the first case study organisation involving a number of their sub units.) The professional, who took an interest in research, felt that he would have more control in relation to this system and could, therefore, guarantee access to the process. The second case study was therefore begun. However, although the professional said that the system

was to be acquired and implemented immediately, as it was ‘urgently’ needed, the pre acquisition phase continued for the whole of the research time available and to date has still not been implemented (August, 1997).

Access was therefore, an issue of importance in this research. If implementation is seen as an area where difficulties might be encountered, or are already being encountered then the fear of failure (by the implementers in the organisation) means that collection of data could be viewed as dangerous to those implementing the system. (Sauer, 1993) More details of the access difficulties are given in Appendix 6.

8.10 BACKGROUND ISSUES TO BE ACKNOWLEDGED AND DISCUSSED BRIEFLY

8.10.1 Personal and scientific values

“It is claimed that there exists an ‘absolute absolute’ constituting the foundation of the universe, expressed in such terms as *God and pure consciousness*. I will not dispute the existence of this but unfortunately very few researchers have yet reached such a state of enlightenment.” (Gummesson 1991:14)

Gummesson claims that the “absolute platform” is subjectively chosen by researchers and it is upon that platform research is carried out with varying degrees of objectivity. He says that lacking an (Gummesson 1991:14) “absolute truth” from which to approach the world, we create via social consensus an absolute reference point, our paradigm. The concept of paradigm was brought to the fore by Thomas Kuhn in the early 1960s. Gummesson (1991) uses it to represent people’s value judgments, norms, standards, frames of reference, perspectives, theologies, myths, theories and so forth that govern their thinking and action.

In the field of science, a paradigm consists of the researcher's perception of what one should be doing and how one should be doing it. In other words what are the interesting research problems and which methodological approach can be used to tackle them. The important point is that the researcher should be aware and reflect on their paradigm and those receiving the research should also be made aware of this background so that they can assess any possible bias in the research. Caution must be used with relation to the pitfall of subjectivity.

Methodological protocols require outlining (Collinson 1994). Clegg (1994:152) says:

“An adequate analysis cannot proceed on the basis of a recovery of what the subjects of an organisation really think. To assume that the intuited contents of subjectivity might be of primary analytical importance is to suffer from an understructuralised account of organisation action. It is to assume that the relations of meaning in organisations are reducible to the intuited or articulated ‘vision’ of particular subjectivities, usually those of the chief executive(s) as in Peters and Waterman. (1982)”

Hammersley (1989) in a paper on partisanship argues that just by being asked or allowed to do research in an organisation infers partisanship. People want research done for some reason - possibly to influence work methods etc. The nature of partisanship is a crucial matter. Research should not be seen just as a technical matter, it is not just a technique.

Access to the original case study was given by a professional in the organisation who clearly stated that he did not like the proposed new system and did not want the new system to be implemented there and he wanted a researcher to study the system and evaluate it. His opinion of the system was formulated before the system arrived in the unit. His assumption was that the researcher would also surely be critical of this ‘flawed’ system. Hammersley's (1989) argument was well illustrated in this case.

The initial bias and assumption by the gatekeeper to the organisation was noted and kept in mind. There were initial worries by the researcher as to the kind of report this professional was expecting in return for access to the organisation. In the event, any difficulty and embarrassment were spared the researcher, because the system was abandoned before the study was completed. The professional, thus felt vindicated in his initial assessment of the system.

8.10.2 Confidentiality and Anonymity

Respondents were assured of confidentiality and anonymity with regard to the information they gave. All research notes and interviews have been numerically coded and kept in a locked cabinet.

The questionnaires were sent out without identifying names although many people did fill in their name and address so that they could have a copy of results or so that they could be interviewed by telephone. No-one would be identified in any way.

The anonymity of the case studies is more difficult because if one is too explicit about large organisations, naming for example the exact number of sites involved, then they may become identifiable. For this reason the number of sites has been changed. Even the fact that the organisations are within a reasonable distance from the centre of research could identify them, so although this is a convenience sample, it is here recorded that there are a number of organisations within researchable distance!

In the case study write-ups the gender of respondents has been randomly transposed to aid anonymity.

8.10.3 Depth of the Study - superficial meaning or 'truth'

Access to the 'whole' organisation is a problem. Many researchers use the iceberg metaphor as an illustration (French & Bell, 1973). This metaphor reflects the levels of analysis but there is also the difficulty of access to all levels of staff. If one speaks to ten people in an organisation which is made up of two and a half thousand people, can one really assess the whole organisation? (Peters & Waterman (1982) based their book on such research.)

An iceberg shows only 10-15 per cent of its mass above the water's surface and this illustrates the magnitude of organisational aspects and highlights the 'hidden domain' of organisational life. Questionnaires, interviews and access to documentary details may be yielding only this superficial or part view. Two of the important aspects are discussed below.

a) In interviewing managers and other personnel, all the relevant background to decisionmaking may not be obtained. This may be because of confidentiality and the delicate nature of the information, it may be because they do not realise the importance of part of the information. The researcher may attend meetings and come in contact with one or several groups of people and will way get to know many of the organisation's employees

but mainly in fairly formal settings and it may be difficult to get beneath the surface. Many people will tell what they think will make sense to the researcher in the light of their perceived role. There is also a difficulty of deciding when to ask sensitive questions and indeed whether to ask them at all, if this may jeopardize future access in the organisation being studied.

b) Information may be given in confidence which is sensitive in nature and although strictly scientific ethics might point to 'publish or be damned' real life research is not this simple. The idea behind much research is that it should be of a constructive rather than critical nature, searching for better ways of moving forward rather than opening the old ways to criticism. However, it might be perceived by those being studied as inviting possibilities of criticism which in spite of the current ideas about 'learning organisations' can be dangerous for healthcare personnel (Harrow, 1995).

8.10.4 Politics in field research.

Writing about the reality of the politics of research is a delicate matter. Actually dealing with the reality can be like walking on eggshells. Deciding who actually has the power over access to the organisation is one of the problems little discussed in research literature. Finding those who have power, and gaining their confidence is vital. The researcher should always be aware of the political situation and of how he/she may be influenced during the research. Reflection on the process is imperative especially with organisational studies.

By the very nature of macro organisational studies access is needed to all levels of the internal hierarchy. Why should this be given? Are those at the top of the hierarchy who normally have power over access expecting to gain in some way from the research? If the research does not provide a 'rosy' picture, what will their reaction be? Is this thought influencing the questions asked? Is this thought influencing the access that can be gained? Will this influence the final report or theses?

It is often assumed that researchers decide on a 'best method' for their research and this guides the research. The reality is often that the situation in the organisation is assessed and the research method chosen is one which will be acceptable to the particular organisation. Researchers often have to compromise. The adage 'If a job's worth doing its worth doing well.' which implies that one should do a job perfectly, or not at all, may have to be tempered in the reality of gaining access. The fact that a new situation which is innovative and possibly slightly unnerving to those involved is felt to be very worth investigating may mean that some compromise may have to be made over methods used in order to gain access. However, objectivity and reflexivity can be retained.

There may also be broader political assumptions to be recognised and confronted and worthy of reflection. For example the fact that most of the research into IT/IS assumes that additional information technology or information systems are a 'good thing' but is this necessarily the case? Ferguson (1994) calls for more theory, more voices and more politics in the study of organisation. Ferguson (1994) believes that the type of theory used is extremely important, because the questions we ask about organisations are enabled or disabled by the metatheoretical frame that orders our questioning. Ferguson (1994) says that

entry into a field such as organisational studies usually consists of entry into the disciplines reigning frame where we are invited to take up residency within a fairly predictable set of academic sub fields, methodological menus and substantive debates. These arrangements discipline our inquiries, they define the horizon of investigation and call our sensibilities to order around the prevailing orthodoxies. Heidegger (1977:308-9) says “where this ordering holds sway it drives out every other possibility of revealing”.

8.10.5 Ethics

It is not always easy to resolve ethical issues. The overt/covert position of the researcher is not always easily decided. The research aims may not always be known by all of those being studied and being too clear about the aims may block access, or at least hope of ‘frank’ dialogue. For example in this research to send out questionnaires which appeared to emphasise the search for barriers to implementation might have jeopardised the response rate. Thus the questionnaire rather emphasised the need to question practitioners on their experience and to learn from it.

The approach to the case study organisations was to request information on the implementation process, also as a learning exercise, but without any emphasis on wanting to learn from ‘mistakes’.

8.10.6 Validity and Reliability of the data

a) Validity

Validity concerns how far a measure really measures the concept that it is designed to measure. When respondents are asked whether their implementation process was a success, will their answer show whether the system was a success or not? When it has been considered necessary to ask such questions, their validity has been further checked by asking other related questions such as how long the process took, what constraints and difficulties they encountered during the implementation, and whether people had accepted the use of the new system. The need to show validity in relation to research is important and in this study the aim has been to show clearly the type of evidence collected.

b) Reliability

Honesty in response to either questionnaires or interviews is a subject for reflection. Reliability of part of the data depends on this. The questionnaires were sent out to organisations who knew that they need not be identified and so there was no reason for them to present a 'good' image in their answers to questions. In addition, the target population had been identified as extremely busy and therefore the idea of their filling in a questionnaire 'idly' with falsification in mind is unlikely. The data from the questionnaires is therefore assumed to be reliable.

The case study interviews and the face to face interviews are more likely to present problems and this is discussed further within the case studies and the conclusions where relevant. The majority of the respondents were happy to be interviewed and for many there were no apparent reasons for them to answer anything but the truth as they saw it. During some interviews eye contact and expression were used by respondents to show their thoughts on certain matters. All such extra information was recorded and taken into account.

There were, however, some stakeholders who might have reason to prefer not to be too open about their ideas about new information systems. Stakeholders, who might perceive that the information system might not serve their best interests. It is difficult to deal with this aspect of research into 'sensitive' topics. Examination of the literature and of external contexts was used to raise the awareness of such possibilities.

The research has taken account of both the external and internal politics which affect the organisations and macro ideas such as labour process theory have been used to inform the data analysis. In this way there has been conscious effort throughout the study to work towards the collection of reliable data.

8.11 Final reflection on the process

This study was complicated in nature because of the depth of information needed which necessitated the use of multiple methods and approaches. Using such a variety of methods and a mixture of case study, questionnaire survey, and interviews in additional organisations

complicates the task of reporting the findings in a clear and ordered way. A conscious effort was made to show clearly the basis of any assertions, whether they were on the basis of one interview, a number of interviews or from the survey data.

Access to organisations for case studies was limited and on reflection participant observation such as that practiced by Metcalf (1996) would have added valuable information to the study. However, such access then precludes access to other parts of the organisation and is time consuming, therefore, there are 'opportunity costs' to each method used.

It is thought that more of the informal type of access would have been productive but this was not possible. People in the case studies often appeared guarded about their responses.

In spite of the limitations, overall it is felt that the information gathered does make a worthwhile contribution to the study of information technology implementation in the health service, which is continually changing. The questionnaires and case studies should provide a clear basis for further work to be carried out.

CHAPTER 9

PART A - THE CASE STUDIES

PART B - ANALYSIS, CONCLUSIONS AND DISCUSSION OF THE 4 CASE STUDIES

9. INTRODUCTION TO THE CHAPTER

The presentation of this qualitative data has given problems related to the amount of detail which can be included. Part A of this chapter gives the 'story' of the four case studies, but more details of the cases are also given in Appendix 1. Inclusion in the appendix of greater detail from the case studies will allow readers to use such data to inform on other aspects of implementation.

Part B of the chapter contains the analysis and discussion of the 4 case studies. The analysis follows the MIT90s Framework taking the separate 'elements' as listed in Chapter 7 and extracting data from the cases to illustrate any barriers to implementation found.

PART A - THE CASE STUDIES

Case 1 Overview Management Information System (MIS)

Management information system implementation into a 40+ unit organisation. Acquisition and implementation process taking seven years. System software and hardware reaching the units, training completed, system going live but subsequently abandoned in the units except for one module (personnel records), which was officially still in place but not being used.

Case 1 Discussion of Access to the case study identified as MIS

This was to be the main (and initially the only) case study. It was a longitudinal study of a management information system (MIS) implementation in a multi site NHS organisation. (In excess of 40 sites in different Trust organisations.)

Access to the organisation was originally officially agreed by the directors of the research project with a professional (professional A) in one unit. Professional A was asked if permission had been granted from head office for the research access and he assured the researchers that it had. The researcher was given all possible help and access, with hospital parking, a security pass card and open access to the unit with space available in their small 'library' of required. An initial meeting with the director of the unit (professional B), professional A, the researcher and supervisor was very 'amiable' with the director and the professional explaining the hierarchy of the organisation and stressing that they were both on equal professional footing, and although one was designated 'director' this was only a convenience for the organisation with regards to administration.

It was subsequently found that head office had not officially been consulted about access, although the Head of IT who was based in head office was aware of the study and said he had no objections, but permission for access would have to be gained individually from individual sites (by applying to the individual unit directors).

This presented dilemmas in that after considerable time had been spent in the original accessible unit, other units refused access because there was no 'official' directive from head office. The researcher was loath to 'rock the boat'. Was there a possibility of withdrawal of access to all units if head office refused 'official' access? In retrospect, the difficulty and length of time spent waiting for one professional to arrange 'approval' for the study from head office seems to suggest dilatory action from the researcher, however, when there are political 'niceties' to be adhered to within the organisation, the researcher is in no position to push too hard, for fear of no access at all. After 14 months of repeated requests to the

professional A, approval was apparently gained from a 'group' director for access to one group of sites. However, this approval was still by word of mouth only. Again the researcher was faced with problems of protocol.

The study was continued in the main unit with additional access to four other sub units of the larger organisation together with documentation sent from head office and information from the Head of IT of the organisation.

Although access to the main site was given for research, professional A had not explained to any of the personnel that research was being carried out. The researcher first interviewed the office administrator who then cascaded the information to her data input clerks. Explanations had to be given by the researcher to other professionals within the unit. There were various 'tensions' in the site. The professional was not viewed positively by all personnel, there was a feeling that he was more concerned with computers than his own profession or unit. In the field notes in October 1994 was written:

"Interesting points arise already on managing change, (professional A) has not informed any personnel about the possibility of research being carried out in their site. If they hear this from other sources 'through the grape vine' this will not be good for relationships and trust in the unit."

Throughout the case study the researcher felt that access was tenuous. Nevertheless the research had begun in good faith and professional A who gave access appeared to think that he had the administrative authority to do so. That this authority was not seen as legitimate by some other professionals is interesting, and confirms the autonomy of the individual units in the organisation, at least one from another.

Early in the research process the researcher considered that access had been given for the research by the lead professional because he did not like, and did not want the MIS system implementation to go ahead. He openly said this. He was highly critical of the system and felt it was being imposed upon his unit without consultation and that it would be of no help to them. He wanted an evaluation of the system which it is believed was to give him 'objective' outside evidence which he could use to fight against implementation of the system.

The researcher considered that this was a dangerous area to enter (the area of political power struggles between central strategy decisions and local units) and was not qualified to make any 'technical' assessment. However, it was agreed that the study would be of the implementation process of the management information system and the identification of any barriers to that implementation.

Case 1 Description of the system and initial data

This computerised information system had been in the process of acquisition and implementation since **before** 1990 but the first written records available for the research were for 1991 and the Head of IT interviewed had been appointed in 1991. The system consisted of a number of modules and functions. These were listed in an undated document together with the projected dates of implementation. This document was apparently used by a system implementation team who visited sites holding meetings to tell them about the implementation. However, the researcher did not meet anyone who remembered attending such a meeting. The software and dates for implementation given in the presentation follow:

- General Ledger Dec 1991
- Accounts payable Jan 1992

- Accounts receivable Jan 1992
- Sales order processing Jan 1992
- Personnel Feb 1992
- Project costing June 1992
- Contract management June 1992
- Purchase orders Sept 1992
- Stock control Sept 1992

Other applications plus enhancements to all software - Dates within 1992 to follow design study.

Paper copies of what appeared to be overheads used at the presentation were in the files and this presentation showed a 'text book' type methodology for implementation. From notes made on these copies it appeared that outside consultants were brought into the organisation to carry out this stage in implementation. The presentation talked about user involvement and 'user input to design specification', about project management (but did not mention PRINCE), and it said what the system was 'not'. The presentation then went on to say that it was:

“a set of tools to help relieve the burden of administration.”

Also given was a page as follows:

“What's in it for you?

- Powerful tools to help you do your job
- Office systems
- Service wide communications
- More accurate, up-to-date information
- Reduced paperwork, reduced burden of administration
- Support, at a time of profound change
- Modern easy to use systems
- Comprehensive training and support
- Continuity from existing systems
- It's (almost) free!”

This presentation specified the end of the implementation as November, 1992. It also had an overhead saying:

“Computer Projects Always Fail.....So.....”

It then listed what they needed to prevent failure and continued with an overhead saying:

“What we can’t buy.
Your views
Your tolerance, during implementation
Your time
Your commitment.

The system is only as good as we can make it.”

Also given was a diagram of a ‘Design and Delivery Cycle’ which showed a circle with an arrow from ‘Identify need’ to ‘Design’ to ‘Implement’ to ‘Evaluate’.

The presentation looked very professional and covered most relevant issues and had a very ‘group’ ethos which tried to pull the ‘team’ together to achieve implementation of the system.

Strategy and Structure

The system was a management information system and was to be located centrally (geographically) in the head office but have terminals in each of the organisation’s sub units. The system would have information input locally which would then be available directly to head office. This was to replace a system whereby figures were produced locally and sent monthly or annually to head office. The system was proposed to be used by approximately five named people in each unit.

The organisation consisted of in excess of 40 units all running autonomously, many having very different ways of working, although the ‘product’ of all the units was similar. Each unit had its own director, a varying number of medical consultant level staff and of technical staff of different levels. Historically the units had guarded their autonomy and the right to

make their own decisions regarding most aspects of their unit including budget levels, number of staff and ways of working. Professional A made a number of comments about how each unit worked differently and that this was necessary.

It was not possible to find documents relating to the reasons for acquisition of the new management information system (MIS) nor did those working in the units seem to have any clear understanding of why the system had been commissioned. The Head of IT did make a comment that each unit was now expected to run “as a business” and commented that the professional and technical staff could not come to terms with the idea of “running as a business”. He illustrated this by saying that at a meeting he attended he referred to ‘customers’ but some people present (medical consultant level personnel) would not use the word customer and said “they did not deal with customers.” He commented that this appeared to be “beneath them.”

There were many comments by staff about how they were expected to run (their units) efficiently and those in the units were very aware that they were (as a unit) being costed and compared. It was possible to do this without the aid of the MIS but the MIS had the capability of making the process more accurate, faster, less liable to ‘intentional’ errors, and allowed collection and analysis of extra data for comparison purposes. The new system therefore had the capacity to allow more potential control by head office over the units. The writer considers that the system was initiated in response to the Resource Management Initiative (reasons are explained later in this chapter).

During 1996, head office decided to insert another management layer. Instead of all the units operating individually it was decided that there would be a group director layer

inserted. Thus the units would be geographically grouped into 3-5 unit groups. This would mean that instead of theoretically having management meetings or consultation directly from head office to 40+ directors, there would be only 12 group directors who would be so involved, but they could then 'cascade' information to their units. This was viewed by local units as a way of keeping more control over them, and it was thought that it would interfere with the 'power' of the directors of the individual units.

Acquisition of the management information system

Acquisition of the system was problematic. It is not surprising that the writer could find no documents or memories (of those involved) of reasons for acquisition of the system when it is related that the Head of IT said that on his arrival in the organisation:

“I asked for the Supplier plans, but no plans could be produced. I am not sure if there ever were any plans, but I could not get hold of any.”

The Head of IT then demanded that they (the suppliers) stop until he saw the plans and was shown a 'technical design' for the system. He was alarmed when he saw this contained two major flaws. He went to the supplier and they denied the flaws but after another expert was brought in they admitted the flaws and re-designed the technical system.

At this time the major subcontractors for the job went bankrupt and although the supplier was liable this still caused many problems.

The Head of IT said that at this point he felt inclined to scrap the system and start again with a new contractor. This he was told was politically unacceptable. He said :

“So now we live with the consequences.”

He said that it had cost the supplier millions and millions of pounds and had been a continual problem to them but they had carried on as a face saving exercise, they could not afford the bad publicity. He considered that this supplier had made a great financial loss in dealing with his organisation.

Technology and People and the System

The technology aspect obviously had a flawed beginning. However, the Head of IT tried very hard to overcome this setback and for two years of the study it did appear that the system might be eventually implemented.

Despite this, near the end of the study, the system was abandoned in all of the units, except for the personnel system which was officially still in use, but which unofficially no-one was using. Head office was still using the system, but comments were made by staff that this was a 'face saving exercise'. Not only was the system abandoned, but the supplier was sued, and an out of court settlement was made. The researcher could not get details of this.

The technology was criticised by all interviewed. The system was viewed as slow and cumbersome and technically inferior to the Windows based programmes which they were now used to using. This is one of the problems which results when systems take years to implement. Conception of the system was 1989 or thereabouts but technology has 'flown' since then so that the comment by one of the directors of the units is telling:

"If you had shown me this system 15 years ago I would have been impressed, but in 1995 it makes me depressed."

The system was hardly in use before it was abandoned, and one person in the main unit did say after some use that it "Wasn't too bad". One unit out of the five studied contained staff who although they thought the system meant a lot of extra work, and was operationally slow thought that it was user friendly and thought the system might make life easier regarding stock control. They also said, however, that they would continue to need hard copies of everything for the auditors and in case the system crashed.

In one unit an interviewee when asked how the system would affect him individually said:

"A lot of the management functions will be on there. I am not all that computer literate. I have one at home and can do it but my fear is that my time is very precious and in my experience time is needed, not just for (the system) but any computing, it creates work, you need time to get the information in and get up to speed with it. Now the only time you get that benefit is if you are questioning the system very regularly and a lot and I see most of the benefit being at head office."

He also said:

"You know 'nominally' they call us 'managers' but most managers can sit in a little office and decree what will happen and plan out and manage. Here one has to say that we have professional work and you have to do that and deal with crisis management all the time, for want of a better phrase. We seem to take a lot of delegated responsibility from the consultants."

"We don't have any pure management roles whereas in industry there are managers. That's what they do manage. And I am surprised we haven't had someone knocking at the door already, that is one of the reasons its closed because up to now we would have three interruptions. And you can't cope like that, you have to have very dedicated sort of thinking at times to be honest."

"Head office have been made very aware of the need of management of change and time. It is difficult to know how to manage your time to be honest. And I think that is a crucial issue but at some stage in time in the not too distant future someone is going to have to look at the workload of individuals. It may be that individuals are not effective but is that because of ...um... the amount of work at their door, or is their management poor? Sometimes they might need to be treated as an asset and trained more. More and more (work) is being thrown at (his rank in the organisation)."

There were too few computer terminals for the number of people due to use the system.

This caused irritation and dislike of the system even before the system was on trial.

There had been no consultation with the directors of the units about the need for a centralised information system. This seems to have been a head office decision made in isolation even though it affected all units. The Head of IT said:

“User involvement is a problem because often users don’t want to be involved. They do not want to be associated with any faults that might arise (in the system).”

End users had not been consulted about the new system in any way. Even though all the units conducted their work in different ways, (there was apparently a ‘standardisation’ committee which one of the interviewees had been involved with for two and a half years with no progress) there was no consultation to discuss their work processes and how best they could be streamlined. The implementation was very much a ‘top-down’ process with very little information flowing downwards and little flowing upwards because top management did not appear to want to hear.

Director, consultant and technical level staff were suspicious that staff cuts might be an objective of the system. The head technical professionals in all of the units mentioned fears of job losses in the units.

Lower level staff seemed resigned to using the system but higher level staff were more critical. No one was sure exactly who was meant to be using the system. Some units had storekeepers and they would have liked them to use the system but the storekeepers were not allowed to go on the training packages and were not allowed a password. As the system was to be used for stock control (as one of its uses) this would obviously cause a high level of disruption and change of work process. There had been no planning or thought about this.

There was a perception that work levels would increase when all the staff at all levels were already feeling overstretched and unable to cope with any extra work. In relation to 'consultation' and ideas that there should be some degree of 'job satisfaction' for personnel in the unit an entry from the November 1994 field notes is relevant.

"Professional A when showing me around the unit, saw that the computer input clerks were also answering telephone calls giving test results. He was rather put out that they were doing this and pointed to a single office and said that someone should be in there **only** answering calls and the others should **only** be inputting results. When I said they probably find it more interesting to vary their work and also answer the phone, he looked at me in what appeared to be amazement. This could be because:

- a) he was surprised I should venture a comment;
- b) he was surprised at the idea they should be allowed choices;
- c) why do they need to vary their work?"

In February 1996 the research field notes contain the following comments:

"There are continual comments on the stress levels in the office. The Director is said to work 12 hours every day. The other professionals work very hard but one said he had made a new year's resolution to take lunch breaks. The director said that he had acted on my report (I had carried out an organisational diagnosis of his unit and he had asked for a written report on this, which said that people required more information.) and now held monthly meetings for office staff. He said "But are people feeling not informed because there is a problem or because they will never be happy." The office manager has said how overworked the data input clerks are and in individual interviews they confirmed this. They felt that they could not take leave, or afford to be sick because everyone was under pressure all the time and if one person was off for any reason the others suffered.

Managerial level professionals were also feeling overworked but this did not stop them taking what appeared to be fairly frequent sick leave. One left the organisation altogether gaining 'early retirement' in his/her 40s on ill health grounds. Unfortunately no record of sick leave was kept during the research."

This gives some background information on the way this unit was run and the feeling of stress and overwork at all times.

Management of Implementation of the System

There was no clear management responsibility for the implementation of the new MIS in the sub units. In fact 'management' was not featured in the hierarchy titles. When the research started and the researcher was trying to understand how the unit ran, questions were asked about who managed the unit. The director (professional B) and the professional A looked rather amazed. They said that they thought one unit in the north had a business manager, but "it didn't work very well" (having managers) in their organisation.

The management information system (MIS) had been implemented in the head office where the Head of IT was located (and information was **not** gathered from that site) but when implementation was then to be rolled out through the organisation, there seems to have been no recognition that a named person should have been given responsibility in each unit for the implementation. There was, therefore, no 'system champion' in the local units. The system was very much viewed as being 'imposed' from head office with no local 'ownership'.

The organisation showed a tendency to a 'macho' management style and a 'need to know' basis for handing out information. There was no communication of progress of the system to actual users, no cascading of information.

The budget allowed for the implementation was not adequate and skimmed on training and allowed no extra resources for the added work that was generated from the implementation process. Data had to be inputted onto the new system and there was no 'slack' time in any of the units so this entailed 'overtime' work for some staff. There was no recognition of this from head office.

Training

This proved to be a difficult area. Training was first given for the system in 1992 and was for two people at head office. However, the system was then found to need more work and was substantially changed so that this training was obsolete.

Training was then given in 1995 and only two members of staff were allowed to attend because of the cost. The units were told the dates they could attend and there was no negotiation allowed on this. (So if those most involved were unable to attend on those dates for any reason they were excluded from further opportunity to train.) This training was also at head office for one week and so involved the cost of travel and hotel accommodation. Staff were told that they would then have to pass on the information to other staff who were to use the system.

Some units sent their director and consultant level staff, others technical staff, others the office manager, some a mixture. Of those interviewed who had been on this course there was a concern that it was not possible to 'take in' all the information in the week block allowed and a concern for their ability to then 'train' other staff. There was a feeling of 'blind leading the blind'.

Two trainers came from Head Office visited the five units in March 1995 to give on site training for one day. There was also a training day on site in January, 1996 when ultimatums were being given about use of the system. The training days seemed to confirm the fears of some of the users on the unwieldy nature of the system.

Outcome of the Implementation

The system was in place in its final form in 1994, training was completed by July/August 1995, and units were expected to start using the system for ordering stock but most did not do so. In December 1995 the Head of Finance acknowledged teething problems but said:

“Directors are asked to encourage their staff to make full use of the system.”

He also said:

“From the end of January, 1996 paper orders will no longer be accepted by HQ Supplies and all requisitions must be made via the system.”

This resulted in a letter from the case study organisation to the Head of Finance saying that although they would try to comply with this it would involve a considerable amount of overtime and it was something that they, along with other units approached with a considerable degree of trepidation.

By February, 1996 a letter from the Head of IT to the unit Directors said:

“You will be aware that over the last three or four weeks the performance of the system has markedly deteriorated. The HQ have pursued this with the system supplier and obtained some advice on which we have acted. I have further prevailed on the supplier to supply additional processing capacity to bring the performance up to acceptance criterion levels. This was delivered and installed yesterday (7/2/96).

Performance will continue to be monitored closely, and further actions to improve system performance pursued over the next several weeks.

I regret the inconvenience caused over the last few weeks to system users. ITD (Information Technology Department) continue to press the supplier to ensure performance is raised to and maintained at criterion levels.”

However, by March 1996 the decision was taken to withdraw the system from the units but keep it in head office. The Deputy Director of the Service sent a letter to the Group Directors saying:

“The Service-wide frustration of staff involved with the Supplies module, and the underlying causes of that frustration, are well known. The situation has now become

intolerable. Consequently, the decision has been taken to withdraw the module from all units and centres on the 1st April, 1996.

From that date, the system will be operated centrally at Headquarters; and units and centres will revert to local stock systems and send all invoices for payment to Headquarters for processing centrally.

Attached to this letter is a short paper prepared by the Finance Director on procedures to be adopted.

Meanwhile, I should like to convey my sincere thanks to all staff involved in operating the Supplies System, not only for their time but, particularly for their unselfish endurance in trying to make this system work.”

In April 1997 the Head of It was again interviewed about the system and asked in retrospect whether he thought technical problems were the main reason for the ‘failure’ of the system.

He said:

Technical problems are 50% but the killer is the people problems. The technical side can be fixed. But there are political problems.”

He also said during the interview:

“One trouble is that projects are costed with zero contingency plans and so the first time they come up against a problem they are bust.”

“If you study project management no project ever comes in on time and in budget.”

“Some systems are there to support doctors. But for this system (under study) it can produce information that was never gathered or used before. This information can be used to rationalise the service. There are many who don’t want to do that.”

“No two groups have the same agenda and it is virtually impossible to get them to have the same agenda.”

“There is very rarely a hero in IT! If everything is going smoothly then it is not mentioned. If something is delayed or goes wrong the IT person is useless, inefficient etc. But most services suffer the same thing.”

One of the main unit personnel when interviewed about why the system was abandoned and what was happening presently about the system and about the grouping of units to run as separate businesses said that the computer information system (MIS) “just did not work.”

The interviewer said:

“I thought the idea was to split the service into groups and run them as mini organisations?”

Interviewee: “No, that is not going to happen now.”

Interviewer: “Do you know why?”

Interviewee: “No, I don’t know why.” Silence.....then laughter and the interviewee looked at the tape machine. Then said:

“Money.....Politics.....You name it, I don’t know.....” Then silence.

The interviewer pursued the topic of the management restructuring and asked about the additional layer added to the management structure. The respondent said:

“They don’t seem to be able to control the organisation from the top down. I think there is lack of management skills at top level. You wonder what the cost of the new layer is!”

“The group director does road shows three or four times per year. They are a pretty uncomfortable experience because usually they are telling you what you already know and I certainly know that because of the lack of response at one of them there was some pretty negative feedback to the group and as a result of that we actually got...sort of...the cold shoulder on certain things.”

Interviewer: “You don’t think they were jealous because your output results were better than anyone else’s?”

Interviewee: “Well.... actually, they don’t believe that our results were better than anybody else’s. They tried to explain it away.”

Interviewer: “Figures don’t lie.”

The Interviewee then said:

“Figures can be made to say what you want them to say! (Respondent very serious and the interviewer could not decide whether the respondent believed the figures or not.)”

This is interesting because the new management information system (MIS) would not have allowed any massaging of figures.

Another respondent when asked what was happening about the management information system said:

“It’s just left. I use the manual if I do anything on personnel, but I seldom do anything on personnel. I send paper records up to head office and personnel enter the details up there and they have always done that before I get round to it. The two computer terminals are still here. They are used as an extra, but not used much.”

When the researcher first heard about the system being officially abandoned this caused surprise and the field notes were:

“The news that the system has been abandoned is both ‘good’ news and ‘bad’ for me.
1) At least I am seeing first hand a failed system.
2) But I was **sure** the system would be **forced** on the users.
This shows how wrong I was. Power? Who won the day?”

Another professional was asked about the failure and said:

“Well, we were all so sceptical of the system and I am only surprised it took them so long to decide not to use it. In the final weeks the system just crashed. (Name) would be sitting at a terminal for 20 minutes. He would put an order in and go off and do something else and when the screen beeped I would call him to continue. (The terminal was in this professional’s office, away from the main work area.) Sometimes it would take one and a half hours.

We would put in an order and ask for a list of suppliers and wait for all that time. If you ask me it would be a good system for the unemployed, you could sit them at the screen and keep them occupied for hours.”

Researcher: “I thought they would force the system in.”

Professional: “Well, they couldn’t because it just would not work.”

The system was abandoned after very little real use. It is difficult to get to the truth about the technical capacity of the system. The Head of IT originally insisted that the technical side could be remedied. Later, this was said to be impossible and the supplier was taken to court

Case 2 Overview

This study was of a laboratory information system in the strategy/planning stage of implementation into 5 units of a larger organisation. The system was needed immediately (this was the perception of the professional leading the acquisition and the perception of the clerical users of the system) but had not progressed beyond the planning stage after two-and-a-half years. The case study was to have been a 'before, during and after' study of the acquisition and implementation process which was planned by the professional involved to have taken one year from beginning to end. Through no fault of his but continual administrative and budget difficulties the system was not in place by the end of the research time.

Case 2 Description

This information system was originally to be implemented in one unit of a multi-site organisation. During the planning stage, the organisation inserted another management layer. Instead of the individual units each with its own director there was to be a change to groups of units with one director in charge of four or five units. This complicated the planning of the new laboratory information management system as there were then ideas that perhaps the units in each group should all use the same computer system.

The idea of studying the acquisition and implementation of a new computer system for the first unit was discussed and agreed in October, 1994. The system was seen as being urgently needed and purchase of a system was at this time seen as imminent (by professional A in the case study organisation).

Interviews were held with professional A concerned with planning and procurement over the period October, 1994 to May, 1997. Various plans were drawn up, but the system was still not procured at the end of the available study time period.

Because the system implementation was seen as imminent, and the study was to be a before, during and after longitudinal study, 'before' interviews were held with the clerical and administrative staff who would use the system. Interviews were not, at this time, held with the technical staff, who might or might not be involved with using the system. In the event, as the system implementation remained only in the planning stage, the majority of interviews about the system were with professional A, a technical professional and the office 'manager' and concerned with keeping up to date with planning developments. As explained in case one, 'manager' was not a title used in these units, the person referred to as office manager here had an administrative title but did in effect manage the office.

The unit was part of a larger organisation dealt with in Case 1. The vision or mission statement of the organisation had not reached the units. There was no active leadership or motivation of staff from top management level and commitment of resources to the units for a new system was lacking.

Strategy and planning for the new system in the local unit

Professional A who was leading the procurement of the new system did not seem to address the issue of involving users in choice of the system. (There was also some ambiguity over who would be users of the system, though it appeared that the preference was for clerical staff to continue to input the majority of the work.) This was in spite of the fact that he was

not happy with his experience of a 'top down' implementation of the management information system (MIS) in his organisation and thought that it (the MIS) would have been better designed with user input and consultation. This is a difficult area within the literature on implementation. There are many writers (Willcocks and Mason, 1987; Checkland, 1990) who recommend user input into choice and design but in the 'cut and thrust' of organisational life this is often easier 'said than done'. One of the difficulties is choosing exactly when to involve the users because if there is a suspicion that budgets might not materialise one could be wasting a large amount of time with no end result. Also, there is often a perception that the users might not have enough knowledge to be 'usefully' involved in procurement.

In this case the professional did not start by looking at the work process, or at the tasks to be done, or who would do them. This appeared to be an omission on his part because the different laboratories had different work processes and different levels of staff carried out different processes. In his unit the data input was done mainly by clerical staff in a separate office. In some units data input was done by technical staff on the work 'benches'. However, he (professional A) might have felt that he was already in possession of this knowledge. (Comments were not made on 'best practice' by the researcher as this was not action research and there was a concern not to influence the natural order of events.)

The senior **Technical** Professional said that there was no point in looking at new systems until the budget was fully approved, which might happen, or not. He said it was extremely time consuming to go around the country looking at systems, (wasting his own personal time also!) when the budget might not be approved. He said the days were gone when you could get systems designed for you, people (suppliers) did not want to undertake that now without

round a questionnaire later. The next meeting would not, therefore, have this information to inform the discussion!

Technology

The proposed new system did not have objectives set for it. Professional A spent some time not knowing whether he was to purchase a system to join the units in his group or one for the use of his unit only. His main objective seemed to be to avoid having an 'old' system (a 15 year old system used in 20 of the other units) 'forced' upon him. There was no cost benefit analysis during the period of study. Nor was there reference to one being carried out.

At no time was there a discussion of the benefits envisaged for the organisation, other than the fact that the system in use in the main unit studied was perceived to be obsolete and in danger of 'crashing' at any moment. It was thought that a new system would allow the department to function better but as there was never an inspection of any particular system during the study this was an assumption. The study ended with professional A deciding that he would try to arrange for use of the system which was used by other laboratories in the local hospital.

This choice was not made on any rational inspection of what the market offered, with a list of necessary criteria for purchase (although there might have been such a list). It was made because (capital) finance for a system was perceived as too nebulous after a wait of two years and seven months and therefore the professional was trying other options to obtain a new system. The new system proposed would, therefore, be an off the shelf package, and

one which at the beginning of the study professional A had rejected out of hand as not suitable for his unit.

Management - Role and Style

Management role and style are covered in case 1 (and this case study is within that organisation) but a point to be made with regard to this second proposed implementation is that the professional leading the procurement and implementation did not seem to have learnt any lessons from his experience of the failing and then failed Management Information System (MIS). He did not consult with his staff about a new system although he criticised the MIS implementation for failing to do this. In this implementation the professional leading the procurement could be seen as the 'System Champion'.

During the procurement time of the proposed system there was added confusion because professionals were not sure about details of how the management of time would work in the future. There had been talk of transferring staff from one unit to another to cope with fluctuating work levels because they do not know from day to day what work will come into the unit. The interviewer commented that if the workload is only known day to day, then transfer of staff between labs could only be done 'in hindsight', or each morning, and this might prove to be inefficient anyway.

If on the other hand they were to plan work out and send certain work to certain units, and so knew ahead that the transfer would take place, did this need the help of a computer?

The professional said that care needed to be taken not to use the computer just because it was there. Perhaps the computer could be used to cost all jobs accurately. At the present time costs were not charged to individual jobs. The professional questioned the value of doing this. He said that contracts are worked out in a very complicated way at the moment.

Individuals and Roles

There was no participation or consultation of users of the proposed system. When it had been thought that there would be an imposed demand for a group wide system there had been a group meeting of 4 of the 7 groups (2 persons from each group) but even at that meeting there had been a decision to exclude 3 of the other groups. (This study had access to only 5 of the 7 units.)

Motivation in the main unit being studied was low because of perceptions of cut-backs in the organisation and the fear of job losses.

Interviews and questionnaires were used to find out the attitude of the data input personnel to the idea of a new system. They were all very positive as they found their present system so frustratingly slow and prone to 'crash' for days at a time, which meant they had to work extra hours, which they had difficulty in ever claiming because of the high workload in the unit and their sense of loyalty.

The Senior Technical Professional was asked about barriers to implementation of a new system and it was put to him that as the data input staff seemed very pleased and hopeful about a new system at least the 'resistance of staff' barrier was likely to be missing.

He said:

“Well they don’t know what they are in for yet and there is no point in troubling them beforehand.”

It was mentioned that the staff were looking forward to a more streamlined and efficient package and it was mentioned that they hated doing corrections because it took so long to go into the ‘three page section’ and get out again. He said enigmatically:

“Well, I don’t expect the new system will work any differently to that. They don’t know what they are in for.”

This Technical Professional was concerned with the information that would be available in a new system but seemed to have no concern whatsoever with any data input difficulties or user interface problems.

There were ideas but no concrete plans for a new system to allow for the laboratory staff to input a time sheet of their work. The technical professional thought this would cause real trouble but he and professional A did not seem to discuss this fully, or make any plans about it, either whether to plan on doing this, or to avoid it.

When asked about consultation in relation to the new laboratory system the professional said:

“But if you ask the user how they would prefer to do their job, what is the 'best way' you might get different ideas from different people, different levels (i.e. lab technicians, data input clerks, management), different laboratories. If there is a group of laboratories then work will need to be standardised.

In many cases people do not have the breadth and depth of knowledge to contribute adequately to making a choice of systems. They need to know what is possible to make such choices. The whole issue of user consultation is extremely complex.”

It is true that consultation can just be a cosmetic exercise, with only a minute 'tinkering' at the final stage of system design and how this can be overcome needs to be addressed.

Power

There seemed to have been past plans from head office to have all laboratories using a standard Laboratory Information System (LIMS). These were never realised. During this study there were plans by head office at least to standardise the units in each group so that they used the same LIMS but this was not popular and after some time there seemed to be once more an agreement that individual laboratories could 'go their own way'.

Professional A leading the procurement did not want to have a system imposed upon him from head office. He was working extremely hard to avoid this at all costs.

There seem to be issues of power implicated in this rejection of standardised systems across the organisation. The individual units studied seemed to want to remain autonomous.

At a micro level, in a discussion about what would be needed on the new system the issue of time sheets came up. Professional A said this would be a culture shock for personnel. But could be useful for day to day management of staff between units. If time sheets were used then this would exert more obvious control over the technical staff which would not be welcome.

Analysing the professionals motives for his actions is not simple. It must be said that although there seemed to be an issue of not wanting to be controlled, there might also have been a wish to make the organisation run more smoothly, and the 'older' system was not seen as being capable of doing this.

Grouping of units

The issue of grouping of units which was occurring at the time of the study was an unsettling influence. Grouping could have meant re-structuring into independent franchises under the main organisation umbrella but by the end of the study it did not seem to be going this way. Near the end of the study the Head of IT said that they (the Government) had looked into the idea of privatising the service but there had been too many people against this and the idea had been dropped. It was speculated (by various interviewees) that head office thought that putting groups of units together under 'group directors' would mean less people on their Management Board, and it was preferable to them to have less at these top level meetings. It was speculated that head office thought this would make it easier for them to retain control of the units.

There were, however, concerns from the Trusts who felt that they would have less 'say' with distant directors in charge. Trusts might then be more likely to put work out to tender. Professional A suggested that they would be unlikely to get a contract from their Trust in this case as they could be undercut regards price (per unit processed) because they have three consultants in one unit. The consultants are useful to the Trust for queries from Trust Consultants and for queries from GPs but that peripheral 'extra' service is not costed into the equation when working out cost per item processed. Although there is a cost benefit to the

'Local Population' to cost this out to the 'customers' who use it would probably mean that they would cease to use it.

Privately run units doing similar work to theirs do not carry the expense of consultants at all but only do the minimum tests required. This then poses a threat to the 'Organisation' in total. Some units have said they do not want 'distant' directors. Trusts think that the units are already too separate from them and do not want any moves or changes.

Reasons for Grouping of the units

Technical Professional (Sept. 1995):

"The idea is to save money. One hopes that with that will come efficiency. The downside of saving money in my view is that efficiency does not change but a loss of quality occurs. We have to make things more efficient, we have to look at things like units sharing work, and taking the view that a group is one big unit. Whereas before we were very introvert and protective about what we did, we didn't want (Place) to know about this, or others to know about that, but now the borders have opened up, and we have to look and see who will do what most efficiently."

This technical professional was asked whether he thought the grouping might lead to less staff. He said:

"It's got to. There is just no doubt. The only way the saving can be achieved is through loss of staff. I mean staff counts for over 75% of costs and to that end jobs will go. They have to go."

All of the units ('management' level) said that everyone was fairly unhappy at the moment.

One technical professional said :

"Quite frankly, I don't know if I will have my job soon. We just don't know what is going on. With talks of rationalisation it could be any of us. They could decide to have one (his rank) over three units. One cannot guess."

Another senior person said that they had a talk by the new Group Director who gave a nice 'all work together' sort of talk but then off the record at the end said to the manager:

“It would be better if your staff didn't take on any new long term financial commitments.”

The senior person said “So what can you think?”

Grouping of the units took place at the same time as the MIS was near to completion and it appeared to be another attempt at a strategy by head office to gain more control over the autonomous units.

Case 3 Overview

This case examined the implementation of a theatre information system into 12+ hospital operating theatres. It involved a purchased package still in the implementation process after 8 years. At the time of termination of the study the system had reached a stage where information was collected on paper forms by nurses then sent to clerical staff whose only task was to input the information onto the computer.

Case 3 Description

Introduction

The IT manager was employed in 1989 to put in a theatre information system. He was employed on a 6 month contract which was renewed for two years, after which he complained and was put on a permanent contract. He had formerly been a charge nurse in the organisation.

The system had been chosen before he was employed on the project. He was not given an office, and said he had to “go and find a corner somewhere”. He was provided with three PCs but had been promised 16. The software was on three and a half inch discs but he only had a five and a quarter inch disc drive. The volume of data was 35 megabytes and his hard disc was 32 megabytes. He was supposed to employ clerks to input data but said if he did that and they worked during the day on the computers, what was he supposed to do? He said he managed by working in the mornings (before 9.00 am), in the evenings and at night. He felt that throughout the project there had been no support by management at all.

When the interviewee was first contacted in February 1996 he expected to be on 'real time' data input by April, 1996. That is, data to be inputted by nurses and doctors in situ instead of by clerical staff after the event. Contact was kept with him but real time input had not been accomplished by May, 1997 when data collection ceased.

Strategy

This system was being implemented into operating theatres in a large hospital. The strategy for the whole organisation, like many hospitals, appears according to those interviewed to have been, in the past, more a paper exercise than a reality.

The system had been in the process of implementation for 8 years but the strategy of 8 years ago was not known by those interviewed. However, the present system was seen to be part of the overall IT strategy. The aims of the new system were known and according to the IT manager these were:

“To save on time related to paperwork.
Better organisation of work.
Collection of data for Government statistics.
To allow more efficient planning of staff time.”

It was perceived that there was a burden of paperwork and it was not possible to keep up with the demands of the Government and information related to new contracting needs without using a computer information system. The need for the information was originally perceived by the theatre manager who needed the above information.

The IT manager said:

“They are also trying to run alongside that (patient information)the inventory system and bring that on line. Because they want to do costing down to patient level. patient/surgeon level, so they know what each surgeon is spending and so that each surgeon knows what they are spending. The reason for this is illustrated by the fact that we have a professor who uses a certain kind of mesh for hernia repair, he insists that he

uses it, and it can be quite expensive, but we need to know how expensive it is not just in terms of doing the surgery but in terms of do patients go home and not need to come back again and so what is the break down like? So you could say using that mesh is good if patients don't come back."

The consultant who was interviewed thought that one of the problems with IT implementation was the fact that the IT Director was not represented at board level. He said this goes against all published wisdom. He said:

"How can he input into strategy if he is not present at top level meetings?"

A theatre nurse interviewed about the system did not know about the strategy or reasons for the computer system. She said:

"They have never told us why we had to have a computer system."

Structure

The hospital had a formal and hierarchical structure. The system was cutting across clinical boundaries and affecting those specialisms who used the hospital operating theatres. It, therefore, affected many clinical directors who would have to get their information from the IT manager or the director of theatres. The theatre nurse interviewed said that there were discussions about the theatres splitting into their specialities, and instead of a director of theatres each speciality would have its own theatre and, therefore, she assumed, its own computer system. A move to more autonomous units. This appears to be a compromise in that the theatres would then have computer systems but each speciality would retain autonomy and possession of their 'own' data.

The IT manager who was inputting the new computer system into the hospital theatres was originally answerable to the IT department. After two or three years it was decided that this was not the most suitable structure and so he was transferred back to theatre management and made responsible to the director of theatres. However, he said:

“I still have a dotted line to the director of information.”

He then said that there was to be another change and he is going to be responsible to the director of support services.

Technology

The system was called ORSOS and was a package which was tried and tested in the United States of America where it is used to run whole hospital systems.

It was not ‘Windows’ based and therefore was perhaps not as ‘user friendly’ as it might have been. It was initially used as a ‘batch input’ system with clerical staff inputting the data from hand completed forms. However, it was moving towards the aim of being a ‘real time’ system. This would involve the input of data by the clinical and nursing staff in the theatre.

If the clinical staff wanted information from the system they had to ask the IT manager to extract this for them, but he was working towards a “much more user friendly package for them to use” so that they could extract their own information without asking him.

The ORSOS system is an ‘open system’ but the PAS system in use in the hospital was an old system and as was the norm (in the past when it was purchased), was a ‘closed system’. This meant that the system suppliers of the PAS system demand money for other systems to connect to their system. Additionally, the PAS system has approximately 17 different layers, and because of this a patient enquiry could take 12 seconds per enquiry, so the hospital PAS system needed updating for use with the ORSOS system.

The IT manager said that there were still not enough computer terminals in all the places they were needed such as the recovery rooms.

The consultant thought that one difficulty which affected implementation was with suppliers not supplying on time and not keeping up with technology once they had the contract. He said this had happened in the ORSOS case. He based his view on the fact that ORSOS was still DOS based when Windows was so much more user friendly. (The IT manager said they were going to change to Windows as the supplier could change the system.)

The consultant said another relevant point was that the computer maintenance contract was run by a private company and this was put out to tender each year resulting in four different companies in a short time. He said:

“How can they work like this? People are kept on but they are paid by different firms and it is not good for moral.”

The theatre nurses said that there would not be enough computers to use the system properly. Nurses could not leave their patients to go away and use a computer for example if they were looking after a patient in a recovery room. It would be dangerous to do so and they just would not do it. There seemed to be a number of issues related to the difficulty of fitting the ‘work process’ into the ‘computer process’.

Management

The researcher asked: “Who is managing the change? Do you see yourself as a manager of change?”

In answer to this question the IT manager said :

“This is like a different religion. We are trying to introduce a different religion to the theatre staff. That’s why the next 12 months are going to be the most difficult of my career. The most challenging. We have come an awful long way in bringing change to

the theatre department, in terms of its understanding of information and its need for information and we have had to work particularly hard on the medical staff. They have been the most resistant to change.....Anaesthetists seemed to accept the change most readily, but more recently they have changed and seem to be going backwards. They only want us to capture three pieces of information about their practice, 'Is it a local?, Is it a general? Or was there no anaesthetic at all?' That really is very backwards, when we have a much more sophisticated way of moving forward, and you are not making use of it. I am going to add more complexity to it anyway, it will be there, and I will try to come at them from behind and push them into using it. And of course always in doing these things, the art is to provide them with something that they can't do without. Of course you have to get the information in there in the first place. Well, I can do that through the theatre staff, and having trapped it I can try and provide some really useful information, especially to their business manager, who will then go 'wow, I didn't know that.'"

The IT manager was asked if he could see any reason why the anaesthetists are not so interested now and he said:

"Well, I think their priorities lie in a slightly different area. They may also feel threatened. There are certainly medical staff who have felt threatened by the information that we hold. We could if we wanted to, but we don't, and I am very careful not to..... compare one surgeons against another. In terms of the times they take to do the same procedures. The techniques they employ, and so on. I have always encouraged them to take the information for themselves and make their own judgements on it as a profession rather than allowing managers to make some statement about their professional skills. And I think that's quite right that's the way it should be but they have also got to be shown to be doing something about it also, because if they don't, certainly management will take it on board, and say right....."

The IT manager was asked if anyone else was managing the change and he said no, he had virtually sole responsibility (except for his assistant) because he knew how the theatres worked. He also said that his bosses had in the past not been aware of how the system will introduce change.

"I am having to say 'this is how it will change' and I think much of the change is driven by us, in this department."

"But the management of change almost takes place unseen. In as much as I am here, I am putting in the ORSOS system, I have got my project plan for the next 12 months to initiate the change that is going to happen but the word change doesn't appear here, I don't want to use the word change in many ways because the staff will say 'Oh blimey'"

The HISS management of change from the IMG (Information Management Group) was mentioned and the IT manager said:

“Well, yes, people like this will talk about management of change, but when you come into a department like this, if you start using the words change, you get a defensive curtain go up. Basically, what you have to do is to talk to the people within the area you are moving into, yes you are going to bring in change, and things are going to happen, but in some ways you don’t actually con them but you don’t tell them.”

The IT manager was also asked if there had been enough higher management support of change. He replied:

“No, almost certainly. I have been left to my own devices to implement a project, without being given the right resources, despite the fact that they were identified by management, they were listed, recorded, the system was procured on the back of the requirements of the hospital. But when it came to it, the resources were not there. Um, I wasn’t even employed on a proper basis I had a 6 month contract, which repeated for 2 years until I got stroppy. Even, today, as an example, 2 of my clerks are on a 12 month contract and there is a threat that they won’t be re-employed, which has, as is known by management, a catastrophic effect on the project.”

“Hum, so I would tend to say that higher management doesn’t actually understand, or has supported this particular project particularly well. Now having said that I must qualify by saying I have got the money, but I have had to really sell the project, I’ve had to say ‘it is something this organisation can’t do without - and prove it.’”

“So that is where we came from and I think I can quite safely say I was not very well supported by management at all. I didn’t even have an office to work from, I had to go and find a corner somewhere. Then, it wasn’t until I stood up and said, I have had enough of this, we need somewhere ‘proper’ what are you going to do about it? That actually, they did find me a little room. And that was it and even now this is my third office, and each time its two and a half to three thousand pounds to move because of all the wires etc. So there you go a lot of wasted money as well.”

“I suppose I can understand it, because if I were in their position (top management), and someone were asking me for a quarter of a million to put a project in properly, would I want to say, shouldn’t we be sure it actually works, going on past Wessex mistakes. Do I want to throw all this money at it, or should I throw a little and see what happens.”

In a later interview the IT manager was again asked about change and asked if he would say he was the ‘system champion’. He said:

“Well, yes, I had to sell the whole thing and find champions at the various levels where I wasn’t able to represent myself. So there was a huge learning curve, and that was

where my clinical skills, professional skills came in, because being a charge nurse in theatres I knew how the system worked, came in, but what was new to me was working with managers. People, high up managers, they were not Chief Executives but they were general managers and directors and that was a different ball game for me.”

The IT manager was then asked:

“But shouldn’t they, the managers, not have needed to be brought on board, shouldn’t they have been the ones who wanted the system?”

His view on this was interesting, he said:

“Well, if you look at the social life of these people, the social life of consultants, who are people making the system work, and the social life of chief executives and so on, they all mingle together. They may be separate entities in their own right, but they mingle at that level, and I was not at that level. I was a nursing grade and even though I was top grade I wasn’t in that echelon up there. So I was going through business managers, and assistant business managers, nursing officers as they were at that time. It was through that period of change, when things were coming onto more of a business footing, through business managers through directors through finance people, through IT departments, computer departments, that I made most of my relationships. I mean most of my time, half of my day was simply making my way to different departments and talking to different people. Some contact was to deal with complaints that were coming about the system or different parts of the system. I always felt it was very important for me to deal with them, to get to someone high up, to tell them the story, reach as many people as I could, so that when it became a topic of conversation there was somebody there who could say ‘Oh that’s not what (name) said.’ But I had to try to raise the profile of the thing and make people respect me for what I was trying to do. In the end it happened.”

“It happened for a variety of reasons. Medical staff got on board because they realised how important the information was to them. I had made it my business to provide information back out of the system in a way that they found useful and made them come looking for more information.”

“We went from a position where the medical staff were very much against the whole thing, very much against it. I really made some enemies when I took away the registers.”

The only records kept for the procedures in the operating theatres had been large leather bound volumes in which there were hand written notes on who had performed what operation when. However, these notes often only gave the name of the senior consultant, not who actually carried out the operation, and often had pieces of information missing and were often very difficult to read. If any analysis of what happened in the theatres were to be

undertaken from these registers this would be difficult, time consuming and expensive and therefore it was not normally done. However, recently, business managers in hospitals are requiring such analysis to be carried out. The IT manager had taken the decision to remove the leather bound registers from the theatres so that staff would then have to fill in his computer forms. His removal of these registers had caused him great trouble and difficulty and he said he had a few sleepless nights over the decision.

“So I really did it the wrong way round. I really was flying by the seat of my pants on that one but I felt that I had enough respect and authority to do that so I decided to do it and I took the flack afterwards. But I had one ally the IT director and he stuck beside me and we went to various meetings where we were deafened by the amount of flack that came out but I knew how to deal with these people and I knew how to speak to them without being rude but being forthright and direct and um we won through it and it was the best thing we ever did that was a major stepping stone to that project but I must say I looked at the legal loopholes after the event, chased up support, I should have done it before really, but never mind. All the support arrived afterwards so it really was by the seat of my pants..... but I did the right thing and as I say went forward from there in leaps and bounds, but the medical staff gradually came on board from that point, which was possibly one of the lowest points, in terms of their acceptance of the system.”

He also said that although he had used PRINCE methodology for the key questions he had not used it fully. He had used a paperwork plan for project management. He felt that in future he would use PRINCE fully, and Structured Systems and Design Method (SSADM.)

He had no management training and did not know about implementation models or organisational models. He said that the ideas coming out from the IMG were not being used by his Trust.

The consultant interviewed was not involved in the management of the ORSOS system (he was a potential user) but he did discuss management in the hospital and said that he thought that managers and professionals were in different ‘domains’ and had different goals. He

argued that people were in one 'camp' or the other and if they tried to bridge the two camps they became outcasts from both.

Individuals and Roles

When the IT manager was asked "Did users want a computer system?" he said that this was not a useful question because there are so many perspectives. He said that senior staff and managers and sisters were 'brought on board' and were enthusiastic, but "nurses are not computer operators" so there was a fine balance to strike.

The intended 'users' were still not using the system after an 8 year implementation process, the 'users' of the system were at the moment the input clerks.

The users of information out of the system were mainly the managers who needed the information for contracting and planning purposes.

The consultant said he thought ORSOS was a 'reasonable' system but did not give him the data he required. He said it was not specific enough for his purposes. He said that he did not think that people asked consultants their views on new systems.

The theatre nurses did not want a computer system and thought that they managed quite well with the forms they used. They said they did not know why they were having a computer system and no one had told them why. One of the theatre nurses said:

"Nurses don't like computers, if I had wanted to play with computers I would have gone into IT like my sister. She earns a fortune. But I wanted to nurse."

Work Issues

The system would change the users job as they would be using a computer to record information about their work, instead of paper based forms, however, this had not yet happened.

The amount of information being recorded had increased as before the data was kept in a big leather bound theatre register. Although this register did contain information the IT manager said that searching through it one could only easily find information by date. This could be very expensive to do as someone would have to sit there and go through it. This information had been entered mostly by the nursing staff.

The information to be entered on the computer will eventually be done by the theatre staff which would probably be ODA staff (Operating department assistant) and ODP staff (operating department practitioners).

The theatre nurses said that computers had “suddenly appeared in the corner of the operating theatres on trolleys”. They had been surprised to see them there and no-one had been trained yet. No one had said anything about them and they had sat there for three or four months unused. Eventually, one of the theatre sisters had said “There isn’t enough room in my theatre for that computer” and had wheeled it out into the corridor where it remained.

Politics & power

The IT manager was shown the MIT90s diagram and asked if he thought there was anything missing from it. He said that he thought that politics was missing and he said "Politics is probably the biggest single individual influence upon everything. And it probably wants to sit in the middle. It's probably where it all starts. It's the political will, its the need for more information." The IT manager seemed to mean 'party politics' rather than power politics in the hospital.

The IT manager thought that there was a lot of political involvement and said

"It's one of those things that is being politically driven rather than the need of the service. I mean you have to say at the end of the day a piece of paper is OK. I mean if it works why break it, but when you have a theatre it is so complex."

The IT manager was asked about Yates (1995) and his inferences of consultants not wanting systems which can compare them. The researcher said "Well, one could have some sympathy with them on this."

The IT manager, however, said:

"I don't have any sympathy with them at all, the information is there and they choose to turn a blind eye to it, and they do that because as doctors they can keep this to themselves and if a surgeon isn't quite as good as someone else then internally they might be seen by the 'three wise men' and told to pull their socks up but the rest of the world is no wiser and has no idea of what is going on."

"But here you are playing with peoples lives and I think people have a right to know if there is a particular problem. I don't believe in league tables because there has always got to be someone at the top and always at the bottom, but what I do think you have a right to know is where you are in terms of the top people. I don't think the bottom half need to be told where they are, I think you should know you are in the top ten percent or in the bottom ten percent. There's another way of doing it because its so destructive as a school for example if you are a pupil of the bottom school. You have been told this is so. It is so destructive to the pupil. And their health both mentally and otherwise..... that I don't think that's necessarily good. The same with surgeons."

The interviewer said that it might be in the interests of some surgeons to block new systems.

In reply the IT manager said:

“Well, the next phase is.....they are looking at all the inventory and how it is used. How a surgeon is using instrumentation, how surgery is being carried out. Why? Because they are about to carry out comparisons. They are about to say you Mr X do this operation and it costs that amount, but you do the same operation and it costs THAT amount. Now this is what surgeons are not going to like, this is what they have always been against and it is going to be a very difficult time.”

The interviewer said that it seemed strange that the system had taken 7 years (at the time of interview) when it would appear that if the right resources were in place he could have very much speeded up the process.

The IT manager said:

“It is very odd isn't it. I think there was definitely some medico um... somebody had influence and didn't want it. And persuaded.....”

The interviewer also said if certain people do not want the system is 'not putting in funds' resistance?

The IT Manager said:

“Well, it is, because standing still is almost maximum resistance, nothing is moving in any direction.”

He went on to say that:

“You certainly need someone managing a system who has good interpersonal skills. Who can find their way through this.”

The system supplier said that in relation to going into organisations:

“You have to be wise to what is going on, not only politically but be aware of games, and there are sites where a lot of games are played and you have to be aware of it. I have had sites where I have had to really sort certain people out. But I have to be careful. You have to be wise to what they get up to because they are experts and they can alter little codes here or there, personalities come in here.”

The consultant was asked about his views of IT and did he think he was being measured by the government. He said he did not think that professionals were against IT and he did not think that he was personally being measured by government. He thought they were only interested in the 'big' picture, the aggregate numbers. He thought his hospital only wanted

to see the theatre kept full and were not interested in what he did whilst there, were not interested in the number of operations carried out.

The consultant on being asked about politics and power saw this only in relation to the idea that government were driving policy through.

The IT manager was told that the consultant had said he did not think his work output would be measured and to this the IT manager said:

“Yes, well you go and talk to someone called (name), he is the director of the surgical directorate. One of the things we did for him, he asked to look at a breakdown of a session of surgical time which is generally in three and a half hour slots. 9-12.30 and 2-5.30. And in that time produce a pie chart of how the time is broken down in terms of actual surgery, anaesthetics, and time lost because there was no patient there. From that macro level, that’s what they are interested in they want to know the pattern across the specialities. Then they will take that down and down to surgery level. There’s Mr. Brown, Mr. Roger and so on and look at their pie charts, they should all roughly be the same and that shows consistency, but if you have neuro surgery or thoracic surgery they will be different but that’s OK you would compare like with like, and that is going to happen. They are going to compare surgeons. Either they do it themselves which is what they are supposed to do in their morbidity mortality meetings (decide, well this kind of anaesthetic has caused problems for example) or it will be done for them.”

“There is no doubt, absolutely no doubt whatsoever, if you are going to manage a hospital you need to know costs. And after all they do it in their private practices, without any problem at all, they know how much they spend. If they are told by BUPA or whoever, ‘Private Hospital’ hierarchy, that what they are doing is expensive and ‘you don’t do it anymore’ they don’t do it. Its as simple as that, or they tell the patient if you want me to do that it will cost you X amount of money.”

One of the theatre nurses was asked whether she thought it was against the interests of the surgeons to have the computer system installed. This was something she had not thought about. When she was told about the Yates (1995) research into waiting lists and the fact that in general consultants average number of operations is 4.5 per week she said some of their surgeons did less and that she could see that some might not want their practices to be more open to scrutiny. She said that certainly a few surgeons did very few operations in the

hospital but had their registrars carry out the operations while they were over in the 'Golden Nugget' working (her name for the private hospital over the road). She was used to this practice and had never really thought about it. When the researcher said "But they are paid full time by the NHS." She smiled and said "Well, if they can get away with it, why not?"

The theatre nurses certainly did not see the system as one which would affect them by measuring, costing or comparing their work. They considered that the nurses were so overworked, it could only be of benefit if people knew how much work they were doing.

The interviewer asked the IT manager about resistance to new systems:

"But is it that they don't put the money, in or is it to do with people like consultants who just don't want it? Resisting it, and even some managers not wanting it?"

The IT managers view on this was:

"I think the Government has used the argument the biggest spenders are medical staff so get them managing so they understand where the money is going and I do believe that to be a big mistake. The medical staff have got tremendous power because everything you do you have to persuade someone on the medical side that it is the right thing to do. Now I know that the medical staff have self interests. If they are anaesthetists they are interested in that branch and they will manipulate things to their own ends. And you wouldn't expect them really to do anything different and they are not really interested in the overall picture, if the hospital has a one million pound overspend. They are not really worried about it at all. Because they say 'Well what is going to happen next year then? Will the Government shut it down? Of course not. They can't afford to shut it down.' A crazy set of circumstances."

Case 4 Overview

This was the design and implementation of a patient information system into a community trust organisation with 40 sites. The system was still in the implementation process after three and a half years (though some units had begun using the system) but had been planned to be implemented in one year. The organisation employed an 'evaluator' of the system who worked on evaluation methods and consultation of users. However, this person left the post shortly before the chief executive officer was removed with a vote of no confidence by the clinical directors. It should be noted also that the information director and personnel director also left suddenly shortly after the chief executive officer.

Case 4 Description

Case 4 involved the process of developing and implementing a patient based information system for a mental health service, and the rest of a Community Trust. Care for the mentally ill had recently been devolved from centralised institutions into predominantly community based health care with smaller more specialised units for the more acute long term mentally ill.

The need was identified for a patient-based, real time information system and it was thought that this would form an essential element for effective management and for a safe and efficient service. It would centre on clinical activity and be shared by all professionals in the mental health service and enable staff to monitor care in both the hospital and community settings.

The information relating to this case study has been gained from a number of sources: from published papers on the implementation (names withheld for confidentiality reasons), from access to evaluation documents, from interviews with the information director (8 interviews), the evaluator (5 interviews), a systems manager (1 interview, 2 long telephone calls), clinical directors (3 interviews), personnel director (1 interview), nurses (3 interviews) and the chief executive officer (2 interviews).

The case study was to be a longitudinal and in depth study and was to involve some work in evaluation of the system. However, for political reasons the length and depth of study did not fulfil initial plans. The information director had promised access to individuals and to 'focus' groups of users but this did not materialise. There were discussions and promises but no action. The chief executive officer then 'left' the organisation and the information director followed. In addition the personnel director left the organisation and the evaluator of the system successfully applied for a job in another part of the organisation, and was not replaced. In spite of this the case study did yield some rich data and a number of one hour (taped) interviews with key personnel.

The initial idea of including this case study was that from initial 'outside' observation the case was thought to present the opportunity to study a 'successful' implementation to be used as a comparison with the initial case study accessed. The initial interviews with the Information Director gave this impression of success. Published papers reported success.

The information system was to be used by the following different staff groups.

Table A1

Professional staff using the information system

Consultant Psychiatrists	Occupational Therapists	Community Psychiatric Nurses
Medical Secretaries	Physiotherapists	Hospital Social Workers
Ward Staff (especially nurses)	Psychologists	
	Behaviour Therapists	

The information director wrote in a published paper about the fact that some members amongst the above groups “were self-motivated to define their own concepts.” The Director reported that their ideas were modified to be compatible with the whole service but the gathering of their ideas was necessary:

“not only to ensure that the system would meet the requirements of those staff who were to use it but also, of equal importance, that staff felt a sense of ownership and were therefore committed to the introduction of such a system.”

The information director also wrote:

“The Authority felt it important both to ratify the ideas and to enable an uninhibited form of discussion by bringing in an external consultant.”

The external ‘consultant’ (with an academic background) was described as joining the programme to:

“provide an independent, objective view of progress in the development process and to validate key decision.”

This involvement of an external consultant in itself seems an unusual step in design and implementation.

There were many different ‘views’ of this information system and they are given in Appendix one. It is therefore difficult to distil them into any one ‘truth’. Even within one set of interviews such as those with the information director there were discrepancies. Most of the information from the information director was positive and told the story of a ‘successful’ process, however, occasionally there was a different view with such comments as:

“There have been some really bad times.”

The information director also said there was a need for an 'external catalyst' and this seems to have been seen as 'support' from outside the organisation. The implementation was, therefore, planned with the help of an outside 'academic' expert (external catalyst). According to the information director involvement of users was carried out at all stages. A full time evaluator was employed, and this person interviewed a range of users to ascertain their wants and needs.

The conception and planning of the system was according to some actors part of top level strategy (the chief executive officer and the information director), but according to other actors there was no strategy level decision about the system (clinical directors).

The structure of the organisation was of autonomous units and directors used to their own autonomy. Professionals and managers were not clearly separated.

The Technology was criticised by all the users interviewed but not by the technical staff. The system was accused of not meeting the needs of some users and there were accusations that what should take 10 minutes would take one hour. Implementation was taking longer than planned, three and a half years as opposed to the planned one year, but the information director had already published journal papers on how successful the implementation had been.

There had been attempts to involve the users in design (one way was by employing an evaluator who would feed back information to the technical experts) but some users were disinterested and some could not have their requirements met because of the costs. The evaluator gave an example of the difficulty.

“If you take an example of the community drug service. I worked with (name) looking at his needs for a system. Now, his needs for the system were too expensive. So then that comes back down to money. We worked out exactly what he needed and the bill came to £23,000. So he can’t get what he needs so he will not use it.”

More computer terminals were needed in local offices, (there was one computer to ten users except for top managers), this caused delays and frustration, but there was no money budgeted for extra terminals.

The management process did not run smoothly. There was clear management responsibility but there was antagonism present. The exact causes were difficult to ascertain because a number of staff refused to be interviewed. The information technology department seemed to be divided into two camps. The evaluator criticised the management process and said:

“I don’t know what is happening in the middle and I think it is the management process. And cost obviously. They are just not meeting their goal which is to successfully implement the system with everybody happy, and good information. Something is preventing that from happening. The management process or the organisational politics, all those things.”

The clinical directors who managed the units did not feel that the system would help them at all and were very antagonistic. To compound this difficulty there were no extra resources in the units to cover implementation time. There were attempts to consult managers but they still did not feel that they had been consulted and complained about this. The evaluator said:

“What has happened in this case is that people (clinical directors included) have voiced concern and they have still been told they are going to have the system. So their attitude to the whole thing has been ‘we’ve been told that, and we don’t want it.’”

Many users were still using their paper system along side the computer system. They had difficulty getting to terminals and had to organise their work around reaching terminals. Their perception was that the system was increasing their work level when they already felt stretched and was giving them nothing in return. They now had to fill in detailed time sheets

which they did not like. In addition professionals claimed that there were confidentiality issues around patient data and professionals had difficulty in actually fitting their work and objectives into the kind of 'forms' held on the computer. The work process did not easily fit in with such accurate recording and objectives. The officially employed evaluator on the project said that the professionals were not against computers 'in general' just against this particular system which they saw as unhelpful and slow.

Although the system was a means of planning care, recording care and allowing professionals to see care plans and whether patients had received previous treatment the system was also to be used to assess outcomes of treatment. Trying to assess sensible 'outcomes' in relation to mental health patients seemed to be causing great difficulty. Once again in this case study as in case 3 it was difficult to fit the work process onto the required computer 'forms'.

The new system coincided with changes in working practice, changes towards multi-disciplinary teamwork and care planning. The information director wrote:

"In addition to service changes, the introduction of the information system represented change in working practice and was viewed by many as unnerving."

However, the need to support staff through the changes was recognised.

The changes were never specifically identified by the information director as ones where more control would be possible in relation to professionals. However, this did appear to be one of the probable outcomes. The units which had previously run autonomously did not appear keen to be controlled. When the researcher asked the evaluator how the information gathered could be used he/she said:

"Well, certainly it has the capacity to paint a very clear picture of individual activities and as a clinical director I could be worried that.....that information could be used derogatively.

I would be actually..... I mean I would use the information to look at how the directorate is working and would be concerned if I saw there were great gaps.”

The system was seen as a tool for contract management. One of the clinical directors said:

“This system was sold to us as a clinical tool but it is used as a management weapon for contract monitoring. Management can pull out all sorts of figures which actually reflect no reality.”

The system was seen as part of Government policy and not necessarily what the organisation’s professionals would have chosen, though the CEO was very much in favour of the system and trying to push it into place with the help of the information director. As the chief executive officer was eventually given a vote of no confidence by the clinical directors and left, and the information director suddenly disappeared from the organisation there might have been a ‘power’ clash. Earlier in the research contact one of the employees interviewed had said that the information director was in a ‘precarious position’.

The lower level professional users of the system were also not happy with the system. One interviewee said that the system was used to time what professionals were doing, whereas before only the number of visits they made had been measured. She thought that the new system meant she had less control of her job. She could see no use for the information for professionals, only for managers.

Another interviewee mentioned the idea that use of a computer can be detrimental to the professional, patient relationship. If the professional uses the computer for notes when the patient is there, this can be seen as threatening, and also interferes with the rapport between them. If notes are made as normal on paper and then transferred to the system later, this is duplicating the work. This was one of her reasons for disliking the system.

Analysis of the situation shows that the information director and the chief executive officer worked together to push the system into place. In order to do this they ensured that they were aware of 'best practice' by gaining (and following) advice from the Information Management Group and from an outside academic consultant. However, in spite of this, personnel interviewed denied having been consulted about their work process or its transfer to the computer information system. When the evaluator was asked how she thought the information director could have gained success, she said:

"You have to win them over, don't you? The Information Director started from the bottom up approach which I think is a good approach but in my experience you can strive as much as you like but without commitment from the top then you can't get anywhere. I think that's what has happened. (Name) started from the staff perspective, what information do you want, benefits realisation, etc. But what he did not do was focus on the top and get commitment from the clinical directorate. He did not say to them what did they want. He said 'this is what your staff want'. So if one were to start again the most important thing would be to get commitment from the Board first. Which he had with the chief executive but not with any of the clinical directors. It wasn't just (name) fault, it was to do with the way the chief executive officer managed the Board. If the clinical directors weren't convinced the director said 'you are having it', well, I mean, someone has to lose in that kind of argument. Well, at the end of the day (name of the chief executive officer) is the loser and the clinical directors are still here."

"It sound very simplistic, but that's the way I see it. And I would want to go in with a win win negotiation policy with the clinical directors. You know, I want to win, I want the system to work but I want you to win as well, I want it to work for you. So what are we going to do?"

On being asked if he/she thought the implementation was successful the evaluator said:

"I would sayYes, BUT.....I mean it's hard for me to say its been successful, all these things along the havetarnished the success."

At the end of the study the organisation was re-organising their management board and had decided not to have another information director but to include the information department within their finance department. They were writing an information strategy and there appeared to be little 'drive' to complete implementation of the planned system.

PART B - ANALYSIS OF THE FOUR CASE STUDIES

9B.1 INTRODUCTION TO THE PRESENTATION OF THE ANALYSIS

The analysis has been split into sections which follow the MIT90s Research Framework (Scott Morton, 1991) 'elements' but with the addition, at the beginning of a section on 'success' of the systems and at the end a section on 'politics & power' (Coombs, 1992). This ordering of the data into separate and discrete sections has been carried out in order to guide the reader through the data, however, the implementation process is not easily separated into discrete categories and much data could fit into and inform on a number of categories. Simplification of such a complex process as the implementation of an information system is not easy.

The case studies were used to gather qualitative information on implementation and to aid understanding of the complex process. The 'story' of the separate information systems implementations has been briefly told in Part A. Information from the cases has been extracted from the transcribed tapes and the field notes and used under the model 'elements' in order to establish where, in the process, barriers to implementation may be occurring.

9B.2 SUCCESS OF THE SYSTEMS RESEARCHED

The difficulties of defining success have been discussed in the literature review (Walsham, 1993; Sauer, 1993), however, if implementation on time, to a budget, and having a system which is acceptable to all users are the criteria none of the case studies would be defined as successful.

In Case 1 (MIS) the modules of the system which were meant to be implemented and used in the sub units of the organisation were completely abandoned in the 40+ units after an acquisition and implementation period of over 8 years with computers programmed and placed in the units and training of all involved personnel having taken place. Part of the system was, however, still used in the head office of the organisation. The system was judged a complete failure by the sub units of the organisation studied.

During the last interview held with one of the professionals in a sub unit he said:

“Well, to be frank, I think they are keeping some modules going to save face.”

The interviewer mentioned the cost of the system and how difficult it was to cost all the indirect costs and the professional said he thought that the part which could be costed would be in excess of £3 million, which might be why the system was being used in head office.

The Head of IT said that the system was not a success by any measure but possibly it was not wholly a failure. He pointed out that there were ‘factions’ working to different objectives. He said that no two groups have the same agenda and said “it is virtually impossible to get them to have the same agenda.” Judging where the barriers to implementation of this system occurred was made more complicated because legal proceedings had been instigated against the supplier and an out of court settlement was in process. Therefore, although the Head of IT talked about factions with different objectives the system must be judged a technical failure if the supplier was agreeing to an out of court financial settlement because of the eventual non use of the system.

In Case 2 the system had not progressed beyond initial planning after 2 years of continual optimistic planning by a competent professional who continually put the business case forward to a higher management level for the proposed new system.

In Case 3 (theatres) the system was still in the process of implementation after 8 years. There were continual difficulties to be overcome. If length of time for implementation, and acceptance by proposed users are criteria for success, the system is so far unsuccessful. However, some computers have been set up and programmed and are being used by clerical staff to input data about the operating procedure. Information from this data is being generated for management use. Therefore, from a management perception, the system has had some success.

In Case 4 (community) the system had been under implementation for three years, with a pilot implemented and evaluated, but at the time of withdrawal of the researcher from the case study, work appeared to have halted as the information director had left, the CEO had a vote of no confidence from the clinical directorates, the personnel director had left 'suddenly' with no warning, and those involved in the implementation would not be involved in the study any further. Judging success of the system is, therefore, difficult but the implementation process can be viewed as being beset with difficulties. The clinical director, the personnel director and the nurses interviewed did not think the system was successful. It must be mentioned, however, that another research institution had been involved in research in this case and a paper had been written and published which showed a picture of a 'successful' implementation having taken place. Indeed this was one of the reasons for the initial choice of this particular implementation as part of the study. The hope that

comparison of a 'successful' and 'unsuccessful' implementation would show where differences in process had occurred.

9B.3 STRATEGY

- **Vision - mission statement - of organisation**
- **Written IT strategy document**
- **Active leadership - motivation of staff**
- **Commitment at top level CEO of resources to change process**

In all of the case studies the organisations involved had no vision or mission statement, or at least no written version which was reaching the units studied. In one unit in Case 1 (MIS) an organisational diagnosis questionnaire was sent to all staff (see Appendix 5). When this was designed and given to the technical managers and professionals for comment they advised omitting a question on vision or mission statement saying this would not be an appropriate question as staff would not recognise what this meant. Instead, employees were presented with the statement 'The organisation has a clearly defined plan for the future.' This was agreed with by 20% of employees. An additional statement of 'I am confident that our managers have the ability to lead us successfully through the next decade' was agreed with by 23%. This supported the impression gained from the individual interviews that a vision or mission statement or ideas of the future direction of the organisation were not reaching the rank and file members of the organisation. Nor was there active leadership or motivation of staff.

The organisations studied did not have IT strategy documents at the beginning of their implementation process except for the community implementation where, although they had such a document it was criticised by one of the clinical directors as being only a piece of paper.

In Case 1 (MIS) the strategy was made by management at head office to purchase and install a centralised management information system with terminals in all the individual units. There appears to have been no consultation on the need for the system and it was a 'top-down' implementation. The Head of IT was not on the top management board where strategy was formed. The strategy was, however, government led rather than an idea stemming from the top management board.

In Case 2 (strategy) the implementation was initially planned to be in 5 units in the same organisation. A 'bottom up' strategy was encouraged on the 'surface' by top management but two and a half years later the finance required for the system had still not been released.

In Case 3 (theatres) the system was Government led for resource management purposes, but not wanted by clinicians. It was in the process of implementation for 8 years. There were many difficulties with resources being unavailable which appears to be because there was not enough support from top level management in the organisation. The system manager said he thought funding was made available to Trusts but was not ring fenced and therefore was not always spent on IT.

In Case 4 (community) the strategy was Government led, supported by CEO and director of information but the system was not wanted by clinicians. As the clinicians were on the Board, there was top management disagreement about the system. It was still under process of implementation after three and a half years. During the study the CEO was given a vote of no confidence by the clinical directors and left. The information systems director suddenly left with no warning and could not be contacted. The personnel director disappeared one day and could not be contacted. This person had also 'left' for no obvious reason.

When the clinical director of one of the units was interviewed he/she said in relation to IT strategy “There might be a bit of paper somewhere called strategy but it certainly isn’t.” The clinical director said that (name) from the finance department was going to write a strategy (April, 1997). At the end of the interview when the clinical director was asked what the IT department could have done better in relation to the new system he/she said:

“Well, produce a proper strategy. Clinical Directorates and other managers and directors such as the human resource director should be involved. All those who run the show.”

Active leadership and motivation of staff was missing in three of the cases. Such motivation was provided in one case by the IT manager (Theatres) who acted as system champion and who tried to liaise and access staff at all levels to promote the system. However, he felt he was not really at a senior enough level to carry out his task to ensure its optimal acceptance.

In three of the cases there appeared to be no commitment at top level CEO level of resources to the change process. In the case where such support had been given from top level, Case 4 - community - the CEO was removed by the clinical directors giving a vote of no confidence and this effectively brought the implementation process to a standstill.

9B.4 STRUCTURE

- Organic/flexible or formal hierarchy/power?
- What is the strength of informal power?
- Centralisation/de-centralisation?

The larger an organisation the more difficult it might be to implement a system because of communication difficulties both geographically and hierarchically. The variety of different stakeholders might be greater according to increasing size and certainly in Trust Hospitals

the trend towards having clinical directorates who function separately with separate budgets would increase the difficulties of liaison and agreement on 'best' systems.

First, from a 'geographical' view, the cases studied all took part within large organisations, but not all systems involved all units in their organisation. Case 1 (MIS) had more than 40 geographically separate sites with a definite main head office where the computer system was planned and designed before being 'rolled out' to the sub units. Case 2 (strategy) concerned a system which 'hovered' between being put into one or 5 sites. Case 3 (theatres) was in one geographical site but in 12 locations. Case 4 (community) was a system being implemented into 40 sites.

It was possible to look in detail at the structure of the organisations used as case studies. Case 1 (MIS) organisation could not be seen as organic or flexible. There was a formal hierarchical structure with a director and board in the head office and directors in each of the units. Although power theoretically stemmed from the director in head office, the local directors and consultants held informal power in relation to local decisions. The new system would have interfered with this informal power and this could have influenced the perception that the directors had of the desirability of the system. The organisation was large and the system was being implemented into 40+ sites, each with in excess of 50 staff.

In Case 2 (strategy) which was to have been the study of a technical system which could have been used to 'group' separate units into a more coherent form, the units did not seem to view this as entirely desirable. There seemed to be undercurrents. The person who was doing most of the work on forming the strategy for acquiring and implementing this system was keen on a group system, but it would appear to the researcher, only if he were doing the

choosing and if the main system was in his unit with terminals in the other units. There seemed to be a view in the units that remaining independent, with their own system separate from others was a safer option. The individual units had avoided a centralised MIS imposed from head office and an information system grouping 5 units would open up possibilities of standardisation and control which they would rather avoid.

In Case 3 (theatres) the hospital had a formal and hierarchical structure. The system was cutting across clinical boundaries and affecting those specialisms who used the hospital operating theatres. It, therefore, affected many clinical directors who would have to get their information from the IT manager or the director of theatres. The theatre nurse interviewed said that there were discussions about the theatres splitting into their specialities, and instead of a director of theatres each speciality would have its own theatre and, therefore, she assumed, its own computer system. A move to more autonomous units. The system being implemented was giving more strength to central management. The system was originally aimed to go into 15 theatres on one site, plus theatres in two other separate sites. The two other sites would not have the system and had avoided doing so even to the level of data input by clerical staff.

Case 4 (community) was also a hierarchical organisation but again had units (40) some of which had operated autonomously but would have their information drawn together on the new system available for central management to access at will. One of the clinical directors said that the system was 'sold' to them as a clinical tool but was used as a 'management weapon' for contract monitoring.

IT/IS department and its place in the structure.

In the 3 organisations studied the IT/IS departments were separate departments and two were headed by staff with director titles and one was labelled Head of IT. The IT/IS departments were relatively small departments and the directors were not on the top executive board of the organisations.

The structure in the NHS is specified as a maximum of 12 board level directors of which 5 are non executive and 5 are executive full time (paid) directors. There is also one chief executive and one chairman post. Of the 5 executive directors it is specified in the Community Care and NHS Act that one will be the director of finance and contracting, one will be a doctor or dentist and one will be a registered nurse. This leaves two possible places for other directors to be appointed at the discretion of the chief executive.

In Case 3 (theatres) there was only one other board member and this was the deputy chief executive who, coincidentally, had previously been the director of information. In Case 4 (community) there was also only one other director and this was the director of corporate development.

In Case 3 and 4 there were, however, two levels of board meetings. The Trust Board which met once per month and were the top level, and a separate Management Board, which was the next level down. In Case 3 and 4 the information directors were on the management board who would be involved in formulating top level strategy.

In Case 4 (community) the Information Director was actively involved in implementing the system being studied and therefore implementation issues were reaching the top level of the

organisation. This, however, did not appear to act as a catalyst to implementation, which perceived wisdom would predict. The information director subsequently left the organisation very suddenly without informing the researcher that he/she was going.

In case 3 (theatres) the system was being managed and implemented by a person who was not in the IT/IS department at all and who reported to the Manager of Theatres. This distance from the IT /IS department might be seen as a barrier.

9B.5 TECHNOLOGY

- What are the benefits envisaged from the company's point of view? Why did the company change or introduce the new system?
- Will the new system fulfil the objectives set? Is the system technically competent? Does it perform the job specified to the standard and speed expected?
- Will the new system allow the department to function better?
- How was the system developed ?
 - a) Off the shelf package.
 - b) Purpose built - in-house or external.

- **What are the benefits envisaged from the company's point of view? Why did the company change or introduce the new system?**

In all the case studies the organisations appear to have introduced the new system in response to the Government's demands for efficiency and for more statistical information on the use of resources and on work performance. The benefits of the systems from the organisational point of view were envisaged as easier collection and presentation of the necessary data.

- **Will the new system fulfil the objectives set? Is the system technically competent?
Does it perform the job specified to the standard and speed expected?**

In the 3 completed case studies there was 'potential' for the system to fulfil the objectives set by the Government. (Collection of more statistical information). However, the systems were judged to be technically flawed and below expected technical standards by those who were expected to use them and by others. In one case by the Head of IT, one case by the evaluator, and indirectly in one case by the IT manager. The IT manager (theatres) said that the system was not Windows based and that this would have made it better and easier for the users to access the information they needed. He said it was not viewed as 'user friendly'. The medical consultant who was interviewed (about the same system) said in relation to the system he thought one difficulty was with suppliers not supplying on time and not keeping up with technology once they had your contract.

Systems were also not meeting objectives because those who were meant to use the system were in the main not using them. In Case 1 (MIS) the resistance to using the system resulted in complete abandonment of the stock control module of the system in 40+ units after an implementation process of 8 years and non use by staff of the personnel module although that part of the system was not 'officially' abandoned at the end of the study period. In Case 3 (theatres) the system was meant to be used by consultants and nurses but after an implementation process of 8 years was being used by clerical staff only. In Case 4 (community) the system was being used by one clinical department who were cynical and critical of the system, and was still being resisted by all other departments. One of the nurses interviewed said there were "lots of technical problems". She thought the system

was not reliable and “would crash when you wanted it.” In all of the cases there were not enough actual computer terminals for ease of use by the user groups.

Additionally, in Case 1 (MIS) and Case 4 (community) the system did not appear to be powerful enough to cope with the amount of data being processed and it was therefore perceived as slow and unwieldy by the users. One of the nurses in Case 4 (community) said “What they say will take 10-15 minutes actually takes 1-2 hours.” One of the directors in Case 1 said:

“If you had shown me this system 15 years ago I would have been impressed, but in 1995 it makes me depressed.”

On one of the training days when discussing the password needed to get back into the system the trainer made a joke about the password saying “Don’t put it on a sticky note attached to the computer.” The director said dryly:

“ I don’t think there is any danger of anyone wanting to use this system voluntarily!”

In Case 2 which was a system implementation still in the planning stage (after two and a half years) there is a suspicion that the system may not fulfil objectives set because the planning is being severely constrained by financial restrictions. Thus, although those procuring a new system have objectives in mind, these might be compromised by having to buy either an ‘old’ system because it is cheap, or a system already used elsewhere in the organisation because that is also considered a ‘cheap’ option.

- **Will the new system allow the department to function better?**

In all the case studies those who would be using the new system did not think that the system would allow the department to function better. In fact the reverse was true. They saw the system as potentially slowing down the work process. In Case 2 which was still in the planning stage it was thought that a new system would allow the department to function better but as there was never an inspection of any particular system during the study this remained an assumption. The basis of the assumption was that the present system was obsolete and kept 'crashing'. The idea was that 'any' system would be an improvement. The work process in the other cases was not helped or improved by the system (See section on people for more detail.)

- **How was the system developed ?**
 - a) **Off the shelf package.**
 - b) **Purpose built - in-house or external.**

In two of the cases the system was specially designed and purpose built by external suppliers (Case 1 (MIS) & 4 (community)). In both cases the process was problematic. In Case 1 the external supplier used a sub contractor who went bankrupt and after 8 years of continual problems the supplier was threatened with court action and settled out of court because of technical failure of the system.

In Case 4 (community) the system did not meet the requirements of the users and was criticised for 'crashing' on many occasions. A clinical director was concerned that their department was allowed no dialogue with the software supplier and said:

"Our needs are filtered by the information department and they do not incorporate our ideas."

Case 3 (theatres) was a purchased package which was modified for use in the particular setting. Although the IT manager and users (clerical) were not critical of the system it had nevertheless taken 8 years to be implemented to the stage where it was used by clerical staff.

(Not the target users who were the consultant surgeons and the nurses.)

In Case 2 the system will probably be a package because this is seen as the cheapest, easiest and safest option.

9B.6 PEOPLE

- **Consultation or involvement in new systems.**
- **Training.**
- **Attitude to new systems. Were users in favour of new system?**
- **Change of task. More, or less work?**

This section examines possible barriers related to individuals in the organisation. These would be related to training, involvement in choice of system, how the system affects individuals in their work, whether individuals were in favour of a new system.

- **Consultation**

In all of the cases studies the users did not feel that they had been consulted about the need for a system or involved in the choice or design of the system. In Cases 1 (MIS) and 3 (theatres) the implementation had been in progress for eight years and those in the NHS in charge of IT procurement and implementation had probably not been aware of the importance of this aspect. So possibly consultation had not taken place. In Case 4 the implementation on which papers had been published the IS director said that consultation

and involvement had been carried out but those using the system denied that this had taken place.

In Case 2 the system which was stuck at the procurement stage, top management were allowing local 'managers' to be involved in 'choice' of a new system but in fact the constraint of the financial budget was taking any 'choice' away. The units in Case 2 had been approached to 'choose' the system used by about 20 other units in the organisation (geographically distant) but the units studied did not want to choose that particular system which they saw as 'old'. Another 'choice' had been to take the system used in their 'host' hospital but they also did not want that system. They wanted a 'free' choice of system. At the end of the study period of two and a half years they appeared little closer to a new system. Reflection on the process leads to suspicion that the units were 'given a choice' but head office management were manoeuvring them into 'choosing' the system favoured by some of those in the head office IT department. (Not the Head of IT who thought they should have a free choice.) The Ford 'You can have any colour car you like, as long as it's black' choice.

Head office had told the unit to go ahead and choose a system to be used in the group of 5 units and that funding for the system was available though no concrete budget figures were mentioned. When the management from the units had spent much time having strategy meetings and making business plans and talking about a new system they were then told the money was not available.

In relation to consultation, although the head office had told local managers to go ahead and choose a system, not only did the manager in charge not involve all of the affected units in

his strategy meetings, he did not consider involving any of the potential users of the system in the planning and procurement exercise. This was in spite of the fact that he had just had experience (in Case 1) of having a system implemented in his unit, about which he had not been consulted and therefore was not happy. He had not related his experience of disliking a 'top down' implementation, with no consultation and no regard of actual work process, with the process he was now undertaking. He was repeating the mistakes he had just seen being made and which he had criticised. He seemed oblivious of any similarities.

As time progressed and money for the system was not forthcoming, it could be argued that it was pointless involving users until the budget was acquired but this argument was not valid in the beginning as the professional thought at that time that the budget was definitely available and he still did not involve or consult even one potential user.

- **Training**

In Case 1 (MIS) those questioned in the units said there had been training for the system 'last year' but were vague about the date. However, the system was then changed and that training was obsolete. The training was then carried out in a one week block in May 1995, with those concerned going to head office which entailed staying in a hotel. However, only 2 people from each unit were allowed. This was not considered to be long enough and did not allow all of those meant to use the system to be trained. A number of staff from this organisation commented that they really needed a longer training time to take in all the information that was necessary, but there was no provision for this. Even the director level could not get extra training when requested. A senior technician's view was that training was not adequate and he said:

“They send us back with the manual and expect us to use it next week. Crazy with the training given.”

Although they perceived that they needed more training, one of the comments by a professional indicating the feelings of those attending the training was:

“x(manager) and y(professional) had a week’s agony but z(director) only had to suffer one day!”

A number of staff in Case 1 (MIS) thought that there was too much time between training and using the system. However, theoretically, they could have returned to their unit and used the system immediately. The problem was that first, with the personnel module, the staff did not feel confident with using the system and when they tried to use the system were unsuccessful. After a few tries they gave up because they were already extremely overworked and felt that they could not afford the time to ‘mess about’ or ‘waste time’. The training was therefore not successful. The second problem, with the training for the stock module, was that the module could not be used until the stock and suppliers had been entered on the system first. This task which would take a long time to accomplish was put to one side because they were too busy. It meant that there was indeed a long time between training and use of system. No-one from head office seemed to be prepared to allow for such problems. One of the directors tried to get them to make some provision for paying his staff overtime to undertake the extra work involved but was not successful. The local director did not feel able to pay the overtime because they were already financially squeezed by cuts in their budget.

In Case 4 (community) the training was described by one user as ‘abysmal’. She said she had minimal training and more was not available. The personnel director talked about the attitude of IT trainers who took the wrong attitude with consultant doctors. She said:

“I think as well there’s a tendency to (she went slowly and chose her words carefully) if a skilled clinician doesn’t understand the system very well or is having difficulty working it, it is sometimes difficult for people in IT to go out and say ‘You are a highly intelligent person, but you have a small problem here.’ The tendency is to say ‘For goodness sake you must be useless.’ And you are talking about highly skilled clinicians in their own right, and of course it’s reached a bit of a block really. Because...you tell a clinician they are useless because they don’t understand an information system and what are they going to do? They will say ‘I’ve got a busy job, you play with the information system, I’ll go back to my patients.’ There’s a bit of that I think.”

The evaluator, however, said that they had a very good trainer and training had gone well.

(A different perspective on the training from the nurse, and this shows how important it is to take into consideration who is evaluating a system and from what perspective.)

In Case 3 (theatres) the training of the clerical staff was not criticised and the nurses and consultants had not yet been trained. The plan was to train them ‘on the job’. The IT expert would be in the theatre and the user would be trained on ‘real time’ data entry so that users would have the experience of using the live system and become comfortable with it in the actual situation.

- **Management Training (general)**

With regard to management training and expertise this was an area which seemed to be lacking in the cases studied. In Cases 1 and 2 the ‘managers’ involved had no training in management and their practice might have been improved by such training.

In Case 3 the implementation was being managed by a former operating theatre nurse with no management expertise at all and although this person had the personality and charisma to motivate and persuade staff about the system he had no knowledge of change management or theory which might have helped him in his implementation task. He had not been trained

to use PRINCE methodology and thought this would have been of advantage to him. He said if he undertook another implementation he would use PRINCE methodology but he had no knowledge about it when he started the implementation.

In Case 4 (community) the personnel director said that there was little management training being carried out.

- **Attitudes to the new system**

One area identified in the literature is defined as computer phobia. There is an inference that medical staff at least do not 'like' computers, if not actually fearing them, and consequently, will resist using them, with little other reason.

This may have been the case in the past but there was no evidence of this in the cases studied. There was no evidence of any initial 'dislike' of computers per se. There was, however, a feeling by the director level of staff and their support staff in Case 1 (MIS) that their (costly) time would not be best spent using a computer keyboard. If they needed information from the system it was seen as more appropriate for other staff to extract this from the system for them. In one case the director was prepared to use the system but when he found that the 'transactions' took so long and he had to sit and wait for the computer for long periods of time, he too concluded that his time could be better spend on other tasks. He was additionally aggravated by the fact that the system could not be used before 8.00 am or after 5.30 p.m. as he said that this was when it was most convenient for him to carry out office tasks.

The other staff in Case 1 (MIS) who would have been using the new system (administrators, secretaries, technical staff and managers) were already happily using computers in other tasks and their attitude to the system was based on its perceived slowness and the fact that it did not help them in their work but was another extra task added to what was perceived as an already over full schedule of work. The office administrator/manager had said in relation to the office “I have worked as hard as I’ve ever worked. It’s constant pressure and you come away exhausted every day. It’s knife edge - because of the work load.”

Other members of staff reported feeling overworked and stressed, one consultant had taken early retirement on stress related health grounds, another consultant had suffered stress such that he, according to other staff, had been almost in tears. Staff feeling so stressed would not welcome what they perceived as either a ‘slowing down’ of their present work process or a system which gave them extra tasks.

In Case 2 (strategy) where the system was still in the strategy and planning stage, the clerical staff who were operating the present system were very keen to have a new system. The present system was regularly ‘crashing’ and when this happened they all had to work extra hours to catch up with the lost work. This extra time worked was promised to them in lieu but in practice they had great difficulty in taking their due hours because their high level of work meant there was never any slack time and they felt guilty taking the holiday leave due to them let alone this ‘extra’ time.

However, in Case 2 (strategy) the new system envisaged might mean a change in work routines. Instead of the clerical staff entering the data, the task might be carried out by the technical staff. This would be a change in their task. They might view it in the same way as

the directors in Case 1, seeing their time as more costly than the clerical staff and therefore preferring to do only the technical aspect of the work and not the 'clerical' side. There was also a possibility that a new system might mean that 'time sheets' would be introduced.

The technical manager said "They won't know what hit them." If this were the case one might expect resistance from the technical staff. It is likely that they would view the proposed new system as deskilling, and as control and surveillance. They would then probably have a negative attitude to the system based on the changes to their work routine and the change from a skilled autonomous work process (albeit they had a technical manager who in effect monitored their work levels) to a process which included keyboard tasks and was timed and counted via the computer system. The attitude of the technical staff to a new system was not known because they were never told that a system which might involve them inserting routine data was a possibility.

In Case 3 (theatres) those actually operating the system at present, the clerical staff, were quite happy using the system. They had been specially and newly appointed for the task. The attitude of the medical staff who were meant to be the final users was less positive. The consultants had actively worked against the system by fighting against the old system being changed, the system of entering operation details in the large leather bound theatre registers.

This case study interviewed only one medical consultant and he was guarded in his information on the system. He said it was 'reasonable' but a bit out of date because it was not Windows based, he also said it did not give him the data he required. More information on this aspect was forthcoming from the nurses interviewed. They did not think it appropriate for a consultant doctor to be using a computer but said their objections were also

more practical. The theatre nurses said that computers had “suddenly appeared in the corner of the operating theatres on trolleys”. They had been surprised to see them there and no-one had been trained yet. No one had said anything about them and they had sat there for three or four months unused. Eventually, one of the theatre sisters had said “There isn’t enough room in my theatre for that computer” and had wheeled it out into the corridor where it remained.

One nurse said “The theatres are quite small when you have full staff in there. The theatre nurses said that there had also been the problem of cleaning the theatre. It was stripped down and thoroughly cleaned every night by the porters but no-one knew what to do about the computer. They said it sat there and got dusty and splashed with blood and “how do you clean it?” They thought it was not practical to have it there in the theatre which was supposed to be sterile. They were not sure how the problem had been resolved.

One of the theatre nurses said that nurses would probably be expected to use it in the theatre as doctors certainly would not. However, she said:

“But we will not do that as there will not be enough time. I can see the system collapsing. I have a feeling that the computer system will be abandoned.”

The idea of consultants using the system was probed (with this nurse) and she said that the IT manager had tried to persuade the consultants to fill in their part of the forms in use (manually), like the code number of the operation done, but she said he had persuaded only about two or three surgeons to do that. She said “So they certainly won’t fill that information in on a computer.” She said if they do fill it in it is easier for everyone as the consultant knows the code number of the operation he is performing but it is more difficult

for the data input staff to find this afterwards. At the moment the nurses try to fill in the part meant for the consultants.

A theatre nurse said:

“Nurses don’t like computers, if I had wanted to play with computers I would have gone into IT like my sister. She earns a fortune. But I wanted to nurse.”

The same nurse, however, said that she had volunteered to do ordering of sutures on another computer system EROS. The computer was in the theatre reception and although she had no training whatsoever, and had no computer at home, she had learnt how to use it from other nurses (she said there had been no training available). She did not seem to mind using this system, could see the reason for using it, and found it easy to use.

The nurses attitude was that the paper system was more appropriate and when they were in the operating theatre all their concentration should be on the patient and not on a computer. The consultant attitude is mainly learned second hand from the nurses and the IT manager but appeared to be negative and that they were not going to use the system.

However, staff might have a different attitude to **other** computer applications and the IT manager in Case 3 (theatres) said “I am quite enthusiastic about the use of computers which sometimes comes across. I made a mistake one day, I thought well I really need to know who are the key people who are really interested in using computers in the theatre because I am going to have to call upon them. I put up an A1 sheet asking if anyone was interested in computers, put your name below, and the whole department put their names down. Which was very nice to think that people were that keen and interested, and of course I didn’t have

6 people, I had 106 people. So, people are very interested, and I have tried to keep their interest up by, if they ask for it, I send them off on a computer awareness course.”

In Case 4 (community) the attitudes to the system being implemented appeared negative but the negative attitude appeared to be towards this particular system and not to computers in general. The clinical director felt cheated by the fact that the system was “sold to them as a clinical tool but was used as a management weapon for contract monitoring”. He/she said that in that department everyone used the system but they ‘minded’ using it because there were not enough terminals and they had to take piles of papers from their office to another to input data. Lack of terminals was a problem over the whole system.

Although they were using the system the director said ““We are used to it and we do use it but we still want a lot of changes to the system. We meet with the Information Department and tell them what we want and eventually they do make tiny changes but they are not really responsive to our needs.”

The evaluator of the system was questioned and said:

“I mean this is getting better as the system is developed but it has fundamental problems that turn them against the system.”

The researcher said “Technical Problems?” And the Evaluator said “yes”. On being asked whether the system was ‘not wanted’ the evaluator said

“No, its not that they don’t want it, because I don’t think anybody devalues information, its not that they don’t want it - its just that they see it as an extremely time consuming method.”

disliking cars. Attitudes to 'computers' were not negative, but attitudes to the particular system were.

- **Change of task. More or less work? Changed job in any way?**

This important aspect could be studied closely in the case studies and in all of the cases the potential users of the system would have their job changed because of the new system. In Case 1 (MIS) the directors were expected to use the system to approve orders and payment and to extract management information. If they used the system as planned by the designers their job would change from having data presented to them, to actually using a computer themselves to carry out tasks. The technical manager and/or his staff would be expected to use the system for ordering and stock control which would entail using the computer and using a much longer more time consuming process. Some units had a storekeeper post dealing with stock ordering and control and these units were worried that the storekeeper would not be able to use the system. They (the storekeepers) were certainly not supposed to have authorisation to use the system which needed passwords. Only the office manager/technical manager, his deputy and the director were issued with passwords.

In one of the units in Case 1 (MIS) the technical manager was expected to use the system to enter personnel details of shifts/holidays/sick leave, when he had previously used what he described as a pegboard system and piece of paper. He considered this would be extremely time consuming and a five minute job would be transformed into a half day job. He refused to do this and said the office manager/secretary would have to do it. (She was already overworked, working lunch hours and coming to work an hour early for no extra pay.)

When asked whether the evaluator thought it was a time consuming method the evaluator said yes it was. The researcher said “So, they are not being unreasonable?” The evaluator replied:

“No, they are not being unreasonable. And it also produces..... its a number crunching system, it doesn't produce....I think what they would like is for information to be reproduced in a user friendly way that they can use it for their own managerial practices. Be it advising on care planning or reproducing information for the patients, in a patient friendly way, and it doesn't. It doesn't speak normal language. It speaks it's own language. And it doesn't speak information that they want the way they want it. It produces figures.....Which can be very useful.”

It appeared that there were technical problems in the systems which gave rise to negative reactions and such reactions were based on rational reasons and not ‘technophobia’. It also appeared that the new systems either coincided with other changes in work process or led to changes in work process which had not either been envisaged or discussed. The changes in the process were not welcomed and the particular computer system, being the tool of change, was therefore not welcomed.

In Case 4 (community) one of the heads of units had asked for the new system to be modified for his use, this would have cost £23,000 so he was refused the changes. He went ahead and:

“got someone else to devise a system all on its own that produces the information needed for contracts.”

Although he was refusing to use the main system, he was not refusing to use computers at all, but using an alternative system. He could not be accused, therefore, of having a negative attitude to ‘computers’ only to that particular system, which did not provide what he wanted and additionally would allow direct access to information about his work and ‘his’ patients to other professionals and to management staff for various purposes. If a salesman refused a mini to do his work, but wanted a BMW 2 litre car, he would not be accused of

The consultant doctor post in the main unit studied had previously been responsible for collecting data and presenting it to the director of his unit, if the system had been implemented and used he would no longer have done this, as the director would have extracted this information from the system himself. The system, therefore, potentially affected all the management posts in the unit.

In Case 2 where the system was still in the planning stage there seemed to be no discussion or recognition of the potential for the system to change jobs. Even though a new system would probably make the clerical staff redundant and the technical staff have to gain keyboard skills and change their work process.

In Case 3 (theatres) there was no recognition of the change in the work process for users of the system. If the package system designers work process was followed the consultant surgeons and the nurses would be expected to key in data in the theatre, in the recovery rooms and at different stages of the process. They would change from filling in forms (mainly seen as a nurse task) which followed the patient on the operating 'route' to filling in computer information on computers along the route. (One in the ward, one in the pre-operation room, one in the theatre and one in the recovery room.) This was viewed as time consuming and inconvenient. If the process was followed, once again the clerical staff would be redundant.

In Case 4 (community) jobs again would be changed in that medical staff would be inputting data on the system and also accessing patient information. Their work would be affected in subtle ways. At present they had case notes for patients which were kept in their own offices and rarely referred to by others. If they (the notes) were referred to by others this was by

making a formal application to the professional for sight of the notes. The new system would allow access to the case notes by other registered users of the system with a password. Their work practice would be opened up to a very wide audience including their own managers.

This was a very unpopular aspect of the system with much argument about breach of confidentiality by some user groups. The system was implemented in the mental health department first and they had not realised that it would allow access to dates, treatments and outcomes of mental health patients to other parts of the Trust. They were, therefore, not happy about all records being on the system. They had plausible arguments related to confidentiality for why they did not like the system.

The community drugs service organiser had the same misgivings about putting patient information on the system. The change in work practice from paper records under lock and key in their office to being inputted on a computer with fairly general access was seen as an unacceptable change.

Mental Health and Community Drug workers saw their work as needing confidentiality which was compromised by use of a computer system, especially one with general access. This was viewed as a reasonable stance by the evaluator and something which should have been addressed at the system planning stage. Their work was also seen by them as a process which needed a certain 'fluidity' that could not easily be fitted into the 'timed' and 'measured' processes which the computer screens would demand.

The community system had the ability to, and was being used to, time and cost what professionals were doing in a more rigid and transparent fashion. The new system allowed recording of the number of visits, (that was the only measurement previously recorded on paper), time of visits, length of visits, reason for visit, treatment given, outcome of treatment. The nurses interviewed thought that the system meant they had less control of their work. They also thought it took time which should be spent on patients.

One nurse thought the use of the computer could be detrimental to the professional/patient relationship. If the professional used the computer for notes when the patient was there, she thought this could be seen as threatening, and also she thought it would interfere with the rapport between them. If the notes were made as before on paper and then transferred to the system later, it would be a duplication of work. It would add an extra step to the process which might allow mistakes into the system. (When transferring the notes to the computer later, and in a hurry, mistakes and omissions are more likely to occur.) The nurses could see no advantage to them in using the system, only advantage for management informing them about work levels for contracting and management purposes.

The new CEO of the (community) organisation in reference to computers in general said he was concerned that sometimes, in relation to IT, 'the tail was wagging the dog'. He thought that each department worked differently and any system needed tailoring to suit the different working processes. He made the point that people do not want a system that makes more work for them. He said that too few computer terminals could be a problem as busy professionals do not want to queue to use a system. He was quite keen on hand held computers for nurses and said that as district nurses probably cost £20,000 per year to employ, a computer for say £300 each, which made their work easier, and saved them time

would be a good investment. He seemed to be aware that the aspect of 'queuing for computers' was a problem in the organisation.

9B.7 MANAGEMENT PROCESS

- **Planning method**
- **Who managed the change and was there a system champion?**
- **Involvement of HRM department**
- **Management style**

The management process concerned with IT/IS implementation is complicated and possibly an area of 'fuzzy' problems. That is, there may be no clearly 'right' or 'wrong' process, only different approaches. However, notwithstanding this very cautious stance, many writers criticise the process followed in some of the 'failed' implementation processes.

After a thorough review of the literature conclusions were drawn that the best way forward for organisations implementing a new IT/IS system would be to use some form of 'soft systems methodology' in the conception and design stage of new systems, which would include even if not specifically stated, a kind of risk analysis stage, then a project management tool which allowed for full involvement of staff of all stakeholder groups.

- **Planning and who managed the change**

Only in Case 4 (community) had PRINCE methodology been used. The evaluator thought that the information director was trying to put into practice the 'utopian' implementation. However, in spite of use of this the planning had not gone smoothly and the evaluator said that they:

“used to do wonderful project plans in Excel, but they had stopped putting in the dates” while she was there because everything took much longer than anyone anticipated. She said they thought the implementation would take a year but it was in its fourth year now.

Although PRINCE methodology should allow for consultation and involvement of users this did not seem to have taken place in this case. The evaluator said people had voiced concern and had still been ‘told’ they were going to have the system. The system ‘champion’ in this case was the IS director but she did not seem to have the charisma or personality or power to ‘successfully’ implement the system.

In Case 1 which had begun 8 years ago PRINCE methodology was not used but the secondary data showed that a similar planning method had been used and outside consultants used to advise on the process. Therefore, it appeared that the initial approach to planning had been sound. Planning had not, however, included any consultation or involvement phase of the units to be included in the implementation of the system. Also the implementation had been rolled out from head office but had not included any provision or ideas or instructions about who should have responsibility for planning and implementation in each unit. The system was supposed to ‘just happen’ without any local responsibility or champion of the system. There was no recognition of the local staff time which would be necessary to implement the system, the learning and familiarisation time, or the change in work process time. In addition, there was also no recognition that the local units were already overstretched and there was no spare time for extra tasks. No apparent ‘system champion’ either at head office or in local units could be identified.

In Case 2 (strategy) the person leading the procurement had made excellent time plans on a spreadsheet but they were impossible to use because of the problem of funding being promised then taken away. PRINCE methodology was not going to be used (unless the cost was over a certain limit, when it's use would be mandatory). The planning process was not including any ideas for user involvement or consultation.

In Case 3 (theatres) also begun 8 years ago PRINCE methodology had not been used but the IT systems manager said if he did another implementation he would definitely use PRINCE. He had used spreadsheet planning tools and regularly updated these but actually committing plans to paper does not make them happen. He had himself worked hard as 'system champion' and tried to 'sell' the system to the consultants and nurses. He had persuaded them to change from the theatre register to a specially designed form which contained information for the computer and which was input by clerks but he had not yet managed to persuade the consultants to fill in their part of the form, or to actually use the computer. The nurses filled in the part of the form meant for the consultants to complete.

When he was asked who was managing change he said:

"Well the management of change almost takes place unseen. In as much as I am here, I am putting the system in, I have my project plan for the next 12 months to initiate the change that is going to happen but the word change doesn't appear here. I don't want to use the word change in any ways because the staff will say 'oh blimey..' they would be alarmed."

When his attention was drawn to the HISS management of change document from the Information Management Group he said:

"Well, yes people like this will talk about management of change, but when you come into a department like this, if you start using the words change you get a defensive curtain go up. Basically, what you have to do is to talk to the people within the area you are moving into, yes, you are going to bring in change, and things are going to happen, but in some ways you don't actually con them but you don't tell them."

When asked if there had been enough higher management support of change he said:

“No, almost certainly. I have been left to my own devices to implement a project, without being given the right resources, despite the fact they were identified by management they were listed and recorded. The system was procured on the back of the requirements of the hospital, but when it came to it, the resources were not there. I wasn't even employed on a proper basis, I had a 6 month contract which repeated for 2 years until I got stroppy.”

However, the IT manager also said that he could understand their view:

“Because if I were in their position and someone was asking me for a quarter of a million pounds to put in a project properly would I want to say, shouldn't we be sure it actually works, going on past Wessex mistakes. Do I want to throw in all this money, or should I throw a little and see what happens?”

- **Involvement of HRM department**

The HRM department was not involved in any of the implementations studied. In Case 4 (community) the HRM director said their department was not involved in implementation and she/he thought this was a deficit. She/he said:

“I think we will be involved because I think some of the chickens are coming home to roost. I think, probably..... and its not a criticism of anyone, it is difficult for people in most specialities to think outside themselves. So you know what you have to do and think down your track, and it doesn't occur that you have to mesh people from a different track. You can think time after time of where things have gone wrong because one bit of the organisation has said that's how we have got to do it and completely ignore others. If you are not trained in picking up the human implications then you tend not to see them. I think that's probably the problem.”

- **Management style**

In Case 3 (theatres) the management style of the IT manager was not autocratic but persuasive. In Cases 1 (MIS) and 2 (strategy) which were within one organisation the style was definitely autocratic with no ideas of people as valued members of a team. They were expected to do as they were told with no reason or persuasion.

In Case 4 it was difficult to judge management style from the data gathered. The IS director talked about selling the system and persuading the clinicians of the merits of the system. He/she described consultation and involvement and constant evaluation of the system and process of implementation. The evaluator, however, said that the IS director had asked those at the bottom what they wanted and then gone to the clinicians and said "This is what your staff want." So trying to impose the system on the clinicians. However, he/she later said that users voiced concerns and were still:

"told they were going to have the system. So their attitude to the whole thing has been 'we've been told that, and we don't want it'."

The HRM director had said:

"The message that would come back would probably be that the system was imposed, it doesn't take account of users needs 'and the tail seems to be wagging the dog.'"

There does, therefore, seem to be some evidence of autocratic management style in some parts.

- **Learning Organisation**

There was no evidence from 3 of the cases that the organisations showed any signs of being learning organisations. They certainly did not learn from the mistakes made in the past. Mistakes were seen as failure and to be hidden. In Case 3 the implementation appeared to be a failure so far, by any measures, or at least not a 'success'. In spite of this the IS director had published papers reporting on its success. (Harrow, 1995 reported on similar happenings in the health service organisations she studied.)

In Case 2 (strategy) which followed case 1 (MIS) and was in the same organisation, the person leading the implementation seemed to have learnt nothing from what he had personally identified as mistakes made during the head office implementation of a system. Although he had that system 'imposed' upon him without consultation he then intended to do the same himself to his staff and to the other 4 units involved. However, in Case 3 (theatres), the IT manager was more open minded and had learnt from the process so that he said he would use PRINCE methodology in the future. He thought that this methodology which involved user groups would be helpful in gaining commitment from different staff groups.

9B.8 CULTURE

NB When writing up and analysing the data from the case studies it has been difficult to separate the concepts of culture and power. The two are intertwined. Power struggles often relate to cultural differences. Analysing complexity presents problems. Therefore, although the information has been put into two sections this point is acknowledged by the writer.

Throughout the 4 case studies the researcher endeavoured to remain open and receptive to information about the culture of the organisations. However, this aspect of data collection was a problematic area. If culture is 'the way we do things around here' then the potential for data collection is daunting.

What is noticed and recorded as an important cultural aspect by one observer might not be so for another. Choices on what is presented are made. There is also the thought that all of

the data presented so far is giving a picture of the culture of the organisations. With this caveat, there are certain aspects of information about the cases which will be categorised here as culture.

In Case 1 (MIS) the units could be said to have a culture of independent working related to professional autonomy. They had their own ways of doing their work, built up over many years. They were averse to being standardised in any way with other units in the large organisation even though all units were doing the same work. A task carried out by one type of worker in one unit was being done by another grade, or another type of worker in another unit. As an illustration, some units had storekeepers, some units had that work done by technical staff. Some units had data entered by clerical staff only, considering that typing was not work for skilled technicians, others had the same work carried out by technicians.

In all of the cases the concept of the organisation as a 'business' rather than a service was seen as problematic. There was a definite culture of service and sense of worth felt by those working in the cases. This can be substantiated best by illustrations from Case 2 where one of the data input staff said that she had fulfilled her ambition by working in the NHS. She had worked in what might be thought as more interesting secretarial posts in other organisations but her ambition had been to work in the NHS which she felt was worthwhile. She enjoyed her work because of the contribution she felt that she was making towards patient well being, although her working conditions were not good, she sat sometimes in an office with a window looking out onto a brick wall, and sometimes a windowless office to carry out her task. There was little time for social discourse, and the system being used to input data was unreliable and caused much extra work.

On all of the visits to the Case 1 (MIS) site (which included Case 2), which were over two and a half years duration and after an initial period were often of the 'drop in' variety, the office staff were observed to be working very hard and there never appeared to be time for chat between themselves.

The technical staff were not quite so constrained, and they also were pleased and proud to be working in the NHS in spite of their perceptions of Government interference in the running of the service. However, in Case 1 (MIS) the technical staff and the management staff were fearful for loss of their jobs. The Directors were in a better position, being trained consultants, but nevertheless their position of complete autonomy was being threatened. The attitude of the technical staff was that they were pleased and proud to work in the NHS but were not happy about the changes which they saw as being imposed from Government. They were happy with local managers but mistrusted management at the top of the organisation, who they saw as carrying out Government policy. The organisational diagnosis survey (Appendix 3) in Unit 1 showed that 63% were proud to be a member of the organisation, with 26% neutral but only 33% agreeing that there was a good spirit within the organisation, which reinforced the information from the qualitative interviews.

In Case 4 (community) the element of culture was more difficult to assess from the limited information available. There did appear to be a culture where the separate units wished to remain separate and not be joined by an information system. The tendency to guard their independent position, also related to professional autonomy.

Case 3 (theatres) was not closely observed but the same tendency towards professional autonomy was detected because the nurse interviewed said that she thought the theatres

might be split into separate units in which case they would not use a centralised system but each have their own system. The IT manager was most guarded about whether the new system was in the interests of the consultants but when the researcher said that it must be difficult for consultants who have previously been left very much alone to do as they pleased and not costed or compared he said:

“I don’t have any empathy with them at all, the information is there and they choose to turn a blind eye to it and they do that because as doctors they can keep this to themselves and if a surgeon isn’t quite as good as someone else then internally they might be seen by the ‘three wise men’ and told to pull their socks up, but the rest of the world is no wiser and has no idea of what is going on. But here you are playing with people’s lives and I think people have a right to know if there is a particular problem.”

In another interview some months apart the same IT manager said:

“They may also feel threatened. There are certainly medical staff who have felt threatened by the information that we hold. We could if we wanted to, but we don’t, and I am very careful not to, compare one surgeon against another in terms of times they take to do the same procedures. I have always encouraged them to take the information for themselves and make their own judgements on it as a profession rather than allowing managers to make some statement about their professional skills. And I think that’s quite right that’s the way it should be but they have also got to be shown to be doing something about it also, because if they don’t, certainly management will take it on board and say right.....”

In Case 4 (community) there certainly seemed to be a culture of secrecy. Some members of the organisation were known in other capacities but they declined to be interviewed for the research. There is not enough evidence to claim that a climate of fear for job security was prevalent, however, losing the CEO with a vote of no confidence, losing the information director suddenly, and with no explanation, losing the personnel director, who was suddenly whisked out of the building and never returned, would hardly engender security in other staff.

The evaluator during one of the interviews was shown the MIT90s model and asked her opinion about the addition of politics to the model. She said she would actually have politics round the whole model together with culture. She said:

“although it is not the whole picture, it is part of the jigsaw.”

There seemed to be conflict between the information department and the clinical directors.

The vote of no confidence in the CEO was said to be related to her management style of imposing the new information system on the clinical directors. The evaluator said:

“It wasn’t just (name of director) fault, it was to do with the way the CEO managed the board. If the clinical directors were not convinced and the director said “you are having it”, well, I mean, someone has to lose that kind of argument. Well, at the end of the day (name of CEO) is the loser and the clinical directors are still there.”

9B.9 POLITICS AND POWER

Politics includes both a struggle for power and a struggle to limit, resist and escape from power. Wrong (1979:13)

When the study began, it was guided by the MIT 90s model of organisational change. There is no mention of politics or power in this model though it could be argued that the aspect of culture could be used to include organisational power.

After only a few interviews had taken place in Case 1 (MIS) the importance of ‘power’ in relation to the new system became obvious. The new computer information system was being implemented but was not actively ‘wanted’ by either the directors, the consultants, or the technical managers of the units concerned. The office managers had a more ambivalent attitude to the system because they had little power and so the system would not affect them

directly. Their reasons for disliking the system were related more to the perception that the system meant more day to day work for them rather than less.

Gaining evidence related to political/power factors is not easy and in addition to interview data impressions are gained from 'throw away' remarks and off the record comments. The most obvious factor to be disliked about the system was the fact that the system opened up the potential for more central control of the previously autonomous units. Each unit had operated separately, they had been set up originally as part of each host hospital and their ways of working were very different. They all showed anxiety to keep their own ways of working and even the central objective that the units should work together to achieve standardisation of their work had remained an objective which appeared to be at a standstill and remained so for the two and half years of the study. The director of the main unit studied was on a central (head office) strategy committee working on standardisation but said that they did not seem to make any headway at all.

The MIS would allow information to be collected and analysed in head office. There would be no intermediate collection by the local units, who at present perform the task and send totals to head office. The new system would also make it possible and easy for figures not already collected and sent to head office to be extracted from the system. Such data could be used to compare, to cost, to control the units in ways which had not been possible before.

The reason for the acquisition of the new system was difficult to establish from the available data. The Head of IT had joined the organisation when all decisions had been made to purchase the system and he did not know of any documents actually giving reasons for

acquisition of the system. He said there was a strategic policy that the systems in the sub units should link together and he also said that:

“there has been a sudden realisation that they do need IT for management information.”

When three individual directors of the units were asked if they knew the reason for acquisition of the system the answers were:

“To drag us into the 20th Century.”

“We need new data, this will enable the data to be generated.”

“To improve working practices and efficiency.”

One said it had been brought in as a central management tool but he hoped it would be of ‘some’ use to them. None said that they had been consulted in any way about acquisition or choice of the system.

Taking an overview of the situation, bearing in mind literature on Resource Management (Coombs, Cooper and Rea, 1990) and resulting from many other comments about saving money and becoming more efficient the writer believes that the system was a response to the Government initiative on resource management but none of the interviewees actually used the words ‘Resource Management Initiative.’

The Resource Management Initiative was based on ideas that if there were moves to be more efficient this would lead to financial savings and indirectly benefit the ‘customer’. The resource management initiative and its aim (which the new computerised management information system could be used to further), was not in the interests of the professionals in this organisation. They had traditionally worked autonomously and they had made decisions locally about needs and how they should be met. They had, of course, been constrained by budget considerations but these considerations had usually been guided partly by ‘tradition’. If a unit had ‘always had’ three consultants, then no one questioned the fact that three

consultants were necessary in that unit in spite of the fact that another unit serving the same size population might manage with two consultants. The new system was therefore part of the drive towards more businesslike decisionmaking. The head office of the organisation would have reliable 'scientific' figures on which to base decisions about staffing and other matters. For example, whether to keep all the units open at all.

The new MIS has to be seen in this background of change. The system was not just a computerised way of collecting data. It was allowing transfer of power from the local units to head office. Head office had for some time been trying to gain more control over the autonomous local units. To this end they had during the study period inserted an extra layer of management in the form of a group director. This meant that groups of five local directors would report to the group director who would represent them at head office. The change was not welcomed by local units. It took power away from the local directors. There was talk that the local director post might be taken away and the director would resume his consultant status. There was also talk that there might be a reduction in consultant posts. This was because the idea that the units should be able to compete for business with private units was becoming apparent. Such private units do not have the same level of consultant posts as the NHS service.

The technical staff were aware that in other countries the service had been privatised and the Head of IT said that this had been a possibility for them but there had been too many important people against the idea.

When reflecting on the whole implementation, the idea emerges that even the head office top management do not seem to have been one hundred percent behind the idea of having a

computerised management information system. The system was the idea of central Government for particular resource purposes which were possibly not top of the organisational agenda. Top management did not therefore either 'push' or 'lead' the system into the organisation with the enthusiasm which would have been necessary. The Head of IT had said that IT did not appear to get onto the agenda of top management and an example he gave was that the Director (of the whole organisation) was having a meeting with the Minister (planned ahead) but on the morning of the meeting he had a call to put together a presentation for lunch time for the minister on what the new IT system had accomplished so far.

Thus, in Case 1 (MIS), the impression gained was that the local directors, consultants and technical managers did not perceive the system as being 'in their interests' and as such did not work towards achieving a smooth implementation. Their tactic was more to do nothing, which as one manager said can be 100% successful. Doing nothing certainly does not allow successful implementation. There is no movement forward. Even head office did not seem to be actively working towards implementation of the system. Problems were not perceived or when they were perceived they were not acted upon.

In fact in all of the case studies the systems would interfere with the present power structures in the organisation and allow easier and faster access to information and in some cases allow access to information not previously gathered, so that those using the systems (or those about whom the information was being gathered) could see that the systems were not in their best interests.

In Case 2 (strategy), the technical system, which was still in the strategy stage, and was being held up by lack of funding, raised some interesting questions relating to the issue of power. Head office wanted the professional leading the acquisition to put in a system which would link the 5 units. If possible they wanted him to put in a system already used in 20 other units. The professional definitely did not want the system used by 20 other units, saying it was old fashioned. However, there is the point that if he did accept that system the head office would be gaining momentum towards a system which would give easier access to standardised information on a larger number of units.

The 5 units who were to be linked, were not keen on the idea. They all had separate ways of working which would have to be standardised if they were to use the same system. They were not keen on the system being run by the lead professional, who thought that the system would be based in his unit with terminals in the other units. This was seen as a loss of power and they did not 'feel' like a group at the time of the study. In fact in some ways the grouping might have acted to make them less likely to want to work 'together' because there were thoughts that one of the units at least might be closed. None of the units liked the idea that it might be their unit and, therefore, if a group system was implemented, and work standardised, it would be easier for any one of the units to be closed and the work assimilated into other units.

The lead professional working on the acquisition of the new system had taken the incentive to become lead professional and this may have been related to his perception that the unit which managed to have the main system was in a stronger position if questions of closure became more evident. In this unit the group director was reported as saying that the

managers should dissuade their staff from making any large financial commitments in the near future. A remark guaranteed to fuel speculation and rumour about closure of units.

In Case 3 (theatres) power struggles need reflection and analysis and also need to be related to issues wider than the specific case in order to make sense of what was taking place. The most obvious incident related to the IT manager making a decision to do away with the theatre registers which were leather bound volumes containing hand-written information. These registers contained minimum information, were extremely difficult to read, were filled in by the nurses, and were not used for management purposes. In taking away these registers and enforcing the use of special forms which were designed to be inputted onto the computer system he was directly crossing swords with the consultant surgeons who did not want the system changing. A second incident which could be related to power and to culture was the theatre sister actually taking the computer out of 'her' theatre because it was in the way.

However, the issue of power is wider than this and the slow implementation of the system (theatres) (8 years for a purchased software system) cannot be understood if it is seen only in the context of information being input to a computer rather than collected manually. In this case, once again the information was going onto a (computer) system which could affect the power of consultants. It would enable management to have easier and faster access to some information which had always been gathered but additionally it opened the way to the collection of much more information about the process followed which could be costed, compared and used to control professionals who had not been open to such control before. It was interesting that the nurse interviewed said that she had heard that the theatres might split into 'specialities' and have their own computer systems. This might be a strategy by the

consultants to keep information within their own smaller (collegiate) group rather than allow central management immediate access.

Near the end of the research the IT manager in Case 3 (theatres) was shown the MIT90s model which he had not seen before and was asked what he thought about the addition of politics to the model. He said:

“Politics is probably the biggest single individual influence upon everything. It probably wants to sit in the middle of the model. It’s probably where it all starts.”

He went on to say that:

“Politics are everywhere, I feel threatened ... every day. If I make a wrong move, make a wrong decision, maybe I don’t have to do anything wrong. The government said to the Region you have to lose 5% of senior managers. Well, I am a senior manager. I wasn’t the last here, but...I am under threat and I may have to move out or get the sack. For no other reason than the government say you have to lose 5%.”

In relation to Case 3 and power, the IT manager mentioned that he thought that the audit department wanted to gain some sort of control over the system.

“They actually want to gain some sort of control or at least I feel, they want control over what we are doing here, and I am not ready for that, not at the moment. I don’t think the system is ready for others to take any form of control.”

He said that they wanted to use information for audit reports. The use of information from the system for separate audit reports was not part of the initial brief for the system but shows how such information can be used by different departments once it is on the system without actually asking or involving the professionals being reported upon.

Power struggles appeared to be taking place in Case 4 (community) with the CEO and the Information Director on one side and the clinical directorates and other clinicians on the other. The CEO and the Information Director had been implementing an information system which again had the potential to make the work of professionals more transparent and open

to control. Although they considered that they had 'consulted' with clinicians, they had obviously failed in that aspect because power struggles ensued and the CEO was given a vote of no confidence by the clinical directors and removed from the Trust. The Information Director left shortly afterwards with no explanation for the departure and the information that the IT/IS Department might be taken into the Finance Department. The Director of Human Resources also left under strange circumstances shortly afterwards. The researcher could not find out the detail of what had occurred but there were strong feelings about the new system and it was certainly disliked by those who were meant to use it.

Professionals and managers were both affected (but sometimes the professionals were the managers). Their professional power was being eroded. This analysis of what was taking place has been influenced by labour process theory and by other evidence from the literature and it is discussed fully in the 'discussion' section.

The point must be made, however, that in the cases studied the users were often lower level staff inputting information which would impact on higher level staff. Therefore, if a study were carried out with the objective of finding out why a system had failed or been confronted by barriers to implementation, asking only 'the users' of the system about their experiences or attitudes, would not allow collection of all the relevant information.

9B.10 CONCLUSIONS AND DISCUSSION ON THE CASE STUDIES

Although the conclusions are presented under the MIT90s Model headings, the implementation process is complex and it is not always possible to deal with topics entirely separately. They are inextricably interconnected but have been separated to some extent for

ease of presentation and clarity of analysis. The conclusions presented here are from the case studies and are discussed more fully in relation to the relevant literature and to other parts of the study in the overall conclusions (chapter 12).

9B.10.1 Conclusions on success

The case studies showed that to some extent 'success' is 'in the eye of the beholder'. Except for complete abandonment of a system there can be different perceptions of the success of systems. Even in the case where abandonment of modules had taken place the head of IT said that possibly the system was not wholly a failure.

Some of the measures suggested in the literature for judging success of systems are; implementation on time, to a budget, and having a system acceptable to all users. None of the 4 case studies filled these criteria. They were all subject to difficulties or barriers to implementation.

They all ran over time, over budget, and they all appeared to have the potential to please and fulfil only the needs of top management in their aims to collect statistics for government and to cost, compare and control the work of managers and professionals alike.

The cases studied, therefore, presented the opportunity to examine where in the implementation process, and in the organisational elements, barriers were occurring.

9B.10.2 Conclusions on strategy

The vision or mission statement of an organisation is considered an important part of strategy and this was missing in all four cases. Whether such a vision/mission was held by those at the top of the organisation would be of no use if those lower down the hierarchy are not aware of it, or inspired by it.

The strategy element of the organisation consists of more than just a written document, however, such a document is important and none of the organisations studied had an IT strategy document at the time of first acquisition of their system. One organisation 'supposedly' had such a document (community) but one of their clinical directors said:

"There might be a bit of paper somewhere called strategy but it certainly isn't."

This view was confirmed when questions were asked about who was replacing their IS Director and the researcher was told that the Finance Director was going to write an IT/IS strategy.

Whether the vision is transmitted could be related to the leadership qualities of management and their ability to motivate staff. There was no evidence of such qualities in three of the cases, or of any awareness of the need for such qualities. In Case 3 (theatres) the IT manager was aware of such a need and he personally tried and succeeded, to some extent, in motivating staff. However, he was not a high grade of staff and, therefore, his perception was that he could not reach the consultants and top managers 'at their level'. He did his best under the circumstances and his personality and awareness of the need to persuade and motivate staff probably helped in the implementation. The theatre implementation was taking place as one system implementation amongst many in a large Trust hospital and this

IT manager was not part of the IT department. The advantage of this was that he was part of the theatres department and, therefore, closely involved with users but conversely he was separated from the IT department and somewhat 'out on a limb'. The IT director was not involved in the implementation at all but, theoretically, could have been helpful in persuading the consultant level of staff to become involved with the system.

Commitment at top level of resources to the change process was deficient in 3 cases and in the case where commitment was fully given, the CEO was removed by a vote of no confidence by clinical directors who did not want the system.

9B.10.3 Conclusions on structure

In all of the cases the organisations could be viewed as bureaucratic with formal hierarchies and power theoretically stemming from the centre. However, although this should mean that there would be power to push in a system this had not happened in Case 1 and was not happening in the other cases.

All of the systems would have aided a move to centralisation of power, or at least provided the potential for such a move. Informal power was present in the units, or departments involved in the implementations. This power was held by staff such as the directors of the units, the professionals (consultant level doctors, clinicians who were heads of departments) and the higher level technical staff and managers. This aspect is discussed more fully in the sections on power and culture.

9B.10.4 Conclusions on technology

Benefits of the system - Although in all of the cases the benefits envisaged for the organisation were for more statistical information on use of resources and work performance only one system was delivering this benefit and in this case because it was not actually being used by the target users (clinical staff), the information was open to criticism and doubt about its accuracy.

Meeting of objectives - In the 2 cases where systems were being used by at least some of the target users (MIS and Community) the technical performance was seen as disappointing. The systems were not seen to be 'user friendly' by the users.

Many users have experience of Microsoft Word and packages such as Excel and consequently have high expectations regarding the presentation and output from computer systems. When they are presented with a 'new' system which they feel does not reach such standards, and additionally which entails their sitting waiting for screens to change, for access to information and for particular transactions to go through series of 'steps' which cannot be bypassed (the director of one unit was told not to start a particular transaction after a certain time as it took one and a half hours to complete) they become irritated and stressed. Their perception is that they are already overworked and technology should be there to speed up their work, not take more of their precious time.

In Case 3 (theatres) this frustration was not apparent as the users were still the clerical staff whose reason for employment was the system. The system was, therefore, taken for granted by them as they knew no different system. However, it appeared from the information

collected that should the system be used by the target users (clinicians and nurses) the same type of frustrations might be experienced because the system was not 'word' based and the IT manager said it might be perceived as 'user unfriendly'.

The proposed system in Case 2 (strategy) can also be seen as a potential technical disappointment to the proposed users. The systems under consideration were the 'older' systems without the refinements and speed which users have grown to expect.

Will the department function better? - The systems were not in any way tools which would aid the departments to function better. Their work process would not be enhanced.

Development - Whether the system was a package or designed in house had been thought to be a factor which might affect successful implementation. Intuitive assumptions that a package which could be seen working before purchase might ensure an easier implementation were not supported by this data.

9B.10.5 Conclusions on 'people'

Consultation The data showed that consultation or involvement in new systems by potential users was not occurring. In Case 4 (community) the director said that consultation had taken place but users interviewed said this had not happened. In Case 2 which was still in the planning stage there was no thought of consultation with potential users and one of the reasons was that managers thought they should not 'worry' the users. Actually, this might also be viewed as an avoidance of potential conflict. The thought that if there is going to be a system (no matter what) and users don't want it, why 'stir up a hornet's nest'?

A crucial point little discussed is also, 'who are the users?' and so who should one consult? The 'users' who input the data might be clerical staff with no other interest in the data and the system than how fast they can input the data. The 'users' who use the information coming out of the system might be, and often are, a completely different stakeholder group. The 'users' are not always the ones who will benefit from the system. In these cases the users whether clerical, clinical or management did not see the data as being of use to them.

The theory of consulting all the potential user groups is sound but the practicality is fraught with difficulties. These difficulties include; the sheer size of the organisations involved; the number of users; their lack of time. The fact that if one consults, say 5 units out of 40, the other units can feel; resentment that they were not consulted ; consider their unit is 'different'; or because of communication problems all staff might not know about consultation taking place.

When words like consultation and involvement are used do they include the idea that not to have a computer information system is a choice? Or do they only include discussion on which system or how the system will be designed? The cases did not include either type of question.

Training The study showed that the sheer logistics of training all the users of the large information system creates a problem. The 2 large information system involved a large number of staff. Case 1 (MIS) in excess of 40 units geographically scattered. The cost of travel and accommodation was perceived as a problem and so only 2 staff from each unit were 'allowed' to attend training courses. However, the potential number of staff using the system in each unit was at least 5. Those trained were expected to train others but this had

resulted in a case of 'the blind, leading the blind'. In Case 4 (community) the approach to training appeared sound and according to the director of information, the evaluator and the IT manager the training had been good but the small number of users consulted did not agree with this and nor did the clinical director and human resource directors who were interviewed.

Management Training Management training was found to be an area which was being neglected in the cases studied. Although management titles were not held by some staff they were carrying out management posts and would have benefited from some theoretical knowledge in this area.

Attitude to the System and Change of Task The attitude of the majority of staff to the new systems was one of disappointment and dislike. They had not been consulted about the system or involved in choice or design of the systems and had high expectations which were not met.

They did not find that the systems speeded up or enhanced their work in any way, in fact quite the opposite, and as they all felt overworked already they were not amused or impressed by expectations that they would use such a system.

This has implications that planning of new systems must take account of the work process and any changes in work process which will be engendered by the system. No account of or planning for, changes in work process, were carried out in the cases studied. The envisaged change from clerical staff inputting data, to medical staff (doctors and nurses) (Case 3, theatres) was not worked through in a practical fashion before implementation. The nurses

talked about the computers 'suddenly appearing' in the theatres. The users were not persuaded of the use of the system. They could see no merit in the system either for themselves or for their patients.

Attitudes to 'computer systems' were not negative but attitudes to the particular systems, which were viewed as more of a retrogressive than progressive step were negative.

9B.10.6 Conclusions on management process

Planning method The planning process seems to have been initially approached in a sound way by those involved in Case 1 (MIS) and Case 4 (community). PRINCE planning methodology was used in Case 4 and outside consultants were brought in by management in Case 1. However, in spite of this initial sound approach mistakes were made. Consultation and involvement were not carried out in Case 1 and in Case 4 although the IS director thought that consultation HAD been carried out, this was not the perception of users. This initial step is recommended throughout the literature and was definitely not part of management practice in 3 of the cases and if carried out in the remaining case was not successfully carried out.

Management of change and system champion - Management of the change process/implementation in the local sites in Cases 1 and 4 was not adequate and there were no 'local' system champions to ensure this. In Case 1 (MIS) there was no system champion in the process at all. The head of IT had joined the organisation when the system supplier was already chosen. He had seen their design and criticised it and although they modified the design it was not 'his' system and although he appeared to be working 'for the good of

the organisation' he did not identify any 'allegiance' to the system which he viewed as 'flawed' from the beginning.

The sheer size of the organisations in Cases 1 and 4 made control of the management process difficult but there seem to have been no initial ideas or suspicions that this might be problematic. In Case 1 (MIS) there was no named person with responsibility for managing, supervising or championing the system in the local units. In both large implementations there was no allowance for the time or cost which would occur in the recipient units. Time and cost are inexorably linked in such implementations. One of the technical managers said he would need to pay overtime to someone to do the initial data entry necessary for future use of the system. This would be a one off time/cost exercise and he wanted to know who would pay for it, extra work time equalling money cost. Top management seemed to assume that such tasks could be assimilated by the units within their 'normal' working hours. This was difficult in Case 1 and Case 4 because units were already working to full capacity. They did not have time to take on extra work, and although they appeared to do this for patients if necessary, they were not prepared to do this to enable use of a computer system which would not benefit them.

Perhaps this assumption is related to the NHS 'culture' where people were expected to work extra hours for the good of patients, however, as staff did not see the system as 'for the good' of anyone, they were not prepared to work the extra hours on computer work.

HRM involvement - There was no involvement of the human resource department in any aspect of the change management process or the implementation in any of the cases but the HRM director in Case 4 (community) thought this would have been helpful and said

it might happen next time because of the problems encountered. (She was subsequently removed from the organisation.)

Management style - There was evidence of an autocratic management style both at top management level and at local level in the units in 3 of the cases. In Case 3 (theatres) the IT manager who was leading the change was not autocratic but persuasive. However, as his target users were mainly consultants who he viewed as being above him hierarchically, and nurses who he viewed as equal, he had little choice but to use persuasion and his personality to try to win them over to use of the system.

Learning Organisation - There was no evidence in 3 of the cases of the organisations showing any characteristics of a learning organisation. Nor did individuals in Case 2 (strategy) learn anything from their experience of having a system 'forced' upon them. They seemed to be verging on a process which would repeat the mistakes they themselves had complained about. The person leading this acquisition/implementation showed no signs of self reflection or reflection on the process he had experienced. His manner was not arrogant but there might be a tendency towards an arrogant style of management by consultants who are used to being the 'stars' of the show and not experienced in the need for reflection on the attitudes of other levels of staff.

Case 3 (theatres) showed the only evidence of learning having taken place. The IT manager had not used PRINCE methodology but could see its potential and said he would use it in any future implementation.

9B.10.7 Conclusions on culture

One of the main conclusions on culture was the tendency for the separate units to prefer to remain independent and autonomous. In Case 1 (MIS) and Case 2 (strategy) which were separate studies in the same organisation, the centre was trying to gain control of the units and this failed. In Case 2 (technical system being planned) a sort of secondary try to group units to make them more easily 'manageable' was occurring but was again unpopular and seemed doomed to fail.

In Case 3 the theatres had been drawn together under a theatre manager but there were speculations on splitting the theatres into specialities. There were those who obviously did not want aggregate data on theatre performance in the hands of one manager. In the instance of theatres there is work by Yates (1995) which could aid understanding of such resistance. The consultants were refusing to use the system and as long as they do not use a system the data resulting is open to criticism by them of being inaccurate, thus weakening the position of managers over its use for audit or other purposes.

In Case 4 (community) the system would draw on information from multi units and make it available to head office as in case 1. This was not openly criticised as a reason for not wanting the system but must be brought into the analysis as a possible reason.

If the Peters & Waterman (1982) type of writing on culture which sees top management creating a vision and taking people with them in an evangelistic experience, is the way forward, then the organisations in this study were not performing. It could be argued that

Government initiatives are focused on changing the culture in the NHS from service to business. This had not happened.

The computer information systems being implemented could be seen as tools of change. Observation seemed to indicate that although the Government might have the vision of change this was not being transmitted sufficiently to the top management in the NHS organisations. Some of these top managers possibly had 'feet in both camps' that is they were part of top management but also held allegiance with other groups (for example consultant surgeons) and, therefore, were not themselves fully convinced of the worth of the 'vision' they were employed to transmit.

Those top managers who we might categorise as 'pure' management, with no other 'allegiance' were still not in the position to push changes through against the wishes and interests of other groups. In Case 4 (community) the inadvisability of taking such action is illustrated. The CEO was given a vote of no confidence by the clinical directors and the information director and the personnel director were both removed from the organisation within a few months. The new CEO subsequently said that an information strategy was being written and the organisation was being restructured but there would probably not be an IT/IS director in the future, this function would be located in the finance department.

This data confirms research by Harrison et al (1992:18) who said:

"However, even where nurses, managers and other health workers are conscious of clashes of interest with the medical profession they may rationally choose not to fight. The odds against success or the time and energy needed may make the cost of challenging medical power seem too high. We encountered a number of examples of this among managers during our research into the impact of general management. Several managers said that it wasn't worth pushing resource management too hard because of medical resistance. Such exclusion of an issue from formal agendas, or at

least relegation of it to a low priority position, is typical of the exercise of second face power.”

The above quote by Harrison et al (1992) also has relevance in relation to the information director being removed from the organisation and the post being cancelled. The fact that the organisation will not in future have an information director at top level to ‘fight the case’ of the information system, or other systems, will strengthen the position of those who do not want new systems. One of the recurring points in the literature is about the fact that although information systems are given a high profile and thought to be important the IS/IT function is often relegated to being a small part of the finance department so that there is no formal voice on the board, or at other top level meetings.

That nurses did not want the theatre information system in Case 3 might be thought puzzling. They are thought to be compliant, with little power and so might not resist new systems. However, Harrison et al (1992:18) argues that both the public and health service workers are culturally predisposed to accept the authority of doctors and though deference might be lessening (though in one of the interviews with a personnel/nursing director in the study there was mention that he/she thought that compliance seemed to be increasing rather than the opposite) nurses have been socialised into accepting their (consultant’s) word as law and additionally “NHS consultants have managed to create something of a person-culture around themselves.” Therefore, if the consultants show their dislike of a new information system the nurses are likely to follow their lead.

Harrison et al (1992:148) discuss whether a broad cultural shift is taking place in the NHS. Their research suggested that among NHS staff up to 1988 there was little solid ground for any such assertion. This research finds in 1996/7, nearly 10 years later, that this still appears

to be true. The aims of a market, where hospital and even units within organisations compete for business was not seen to be acceptable by those contacted during the study.

Furthermore, Harrison et al (1992:148) were sceptical of the claim:

“(however common in management texts) that top management can re-tool the culture of a large complex organisation to suit its ends.”

Harrison said that:

“Managers continue to be seen as agents of the government in the way that doctors, nurses and other service-providers are not. The messages and proposals which come from managers are perceived accordingly.” (Harrison et al 1992:148)

Thus if changing the culture of the organisation to be receptive to information systems, which are perceived to be against the interests of powerful groups within the service, is a necessary part of the MIT90s Model, then this can be seen to be a very difficult task indeed within the NHS.

Bywater (1996:29) a consultant who works extensively in NHS organisations said:

“The old mantra that a pound spent on IM&T is a pound lost from patient care is still widespread in the NHS, albeit mouthed with less and less conviction.”

This traditional view of IT/IS would act as yet another barrier, with IM&T having a less than respectable image.

9B.10.8 Conclusions on politics and power

The new information system would move power from local units and local consultants to managers in head offices. Thus culture clashes led to power struggles. These power struggles were, however, not overt. That different stakeholder groups (Willcocks & Mason, 1988) have different interests in the success or failure of the implementation of new

information systems could be seen in the study. The systems in the study could not be seen as being in the interests of the medical profession and of some other stakeholder groups and it appeared that they were not going to use them if any excuse could be found not to do so.

As Harrison et al (1992:17) says

“..research has shown that doctor power has frequently proven more than a match for manager power.”

This research, however, would go further than this and claim that although managers might be assumed to be in line with government wishes and are indeed often seen in the light shown by Harrison et al (1992:148) “Management is not a fully paid-up member of the NHS tribal club” they cannot **always** be seen to be aligned with government wishes. They too have their own agendas, one of which is to preserve their own position of autonomy within organisations. The new information systems have the power to measure and compare the performance of managers in a very similar way to that suggested for healthcare professionals. At least at local level this means that they do not always have reason to be active in pushing new systems into place.

CHAPTER 10

RESULTS FROM THE SURVEY

SENT OUT TO TRUSTS IN EIGHT OF THE NHS REGIONS

10.1 INTRODUCTION

When dealing with a complex process there can be many voices or 'stakeholder groups' (Willcocks & Mason, 1987,1988) who need to be heard. The implementation of computerised information systems can affect many groups within an organisation and in the case of some of the HISS systems can affect all groups. However, not all groups are involved closely with the whole implementation process. For this reason whilst the case studies could hear a number of the different stakeholder voices it was thought the survey questionnaire should be aimed at a group who would know about the total process.

This section presents results from the questionnaire (Appendix 3) which aimed to look at the process of implementation and was sent to the IT manager or director in each of the Trusts because they were perceived as the most likely group to:

- a) know about the whole process of implementation followed
- b) have the interest to take the time to answer the questionnaire
- c) be involved in at least one recently completed implementation
- d) be possible to contact even where their name was not known.

Presentation of the data follows the format used in the case studies but has two extra sections reporting on respondent's answers to two open questions. One is on problems or constraints experienced in the implementation they were reporting upon and one on what respondents thought they would do differently in future. These questions are particularly important as they show the respondent's own assessment of problem areas.

10.2 SAMPLE DETAILS

Full lists of Trust organisations were obtained from the individual Health Authorities. All of the NHS Trust organisations except the ambulance trusts were sent a questionnaire and where possible the name of an individual director or manager was used. The reason the ambulance trusts were excluded was the belief that the ambulance trusts might prove to have different organisational structures and less variety of staff involved in their implementations and thus be too different from the hospital trusts to be included in the sample. Thus the total possible population in eight Authorities was targeted. The Authorities are listed below with the number of questionnaires sent to each region.

Area 1	Trusts in Anglia and Oxford Region	39
Area 2	North Thames Regional Health Authority	54
Area 3	North West Regional Health Authority	41
Area 4	South and West Regional Health Authority	38
Area 5	South Thames Regional Health Authority	54
Area 6	Trent Regional Health Authority	33
Area 7	Northern & Yorkshire Regional Health Authority	54
Area 8	West Midland Health Authority	46

Total questionnaires sent out 359

Total returned 185 = 51.5% response rate

10 additional questionnaires were returned with the explanation that they had no recent implementation on which to base the questionnaire.

10.2.1 Details of respondents and their organisation

1. Table 10.1 Who filled in the questionnaires? (N=185)

<u>Title</u>	<u>No</u>	<u>Percentage</u>
'Managerial' titles	77	41.62
Head of Information	48	25.94
Directors of Information or Technology titles	33	17.83
Directors of Finance & Information	18	9.72
Directors of planning and information type titles	6	3.24
Directors of Development	2	1.08
Operations Director	1	0.05

The questionnaires were addressed to the Director or Head of IT/IS or the IT/IS Manager, and they were asked to either fill in the questionnaire themselves or to hand it to an IT/IS manager. The majority were filled in by respondents with managerial titles.

2. Person to whom they report.

One of the issues of interest related to IT implementation is related to who actually has the responsibility to represent the IT function (Have they IT expertise?) and whether representation reaches board level. For this reason the respondents were asked to whom they reported. The majority reported to either the CEO (23%) or the director of finance (41%). Only 8% reported to someone with a director of information title.

Table 10.2 Person to whom respondent reports in the organisation (N=185)

<u>Title</u>	<u>No</u>	<u>Percentage</u>
CEO	43	23.24
Director of Finance	77	41.66
Head of Information of	9	4.86
Director of information	16	8.64
Information Manager	4	2.16
Director of Business or Planning	11	5.94
Director of corporate development	6	3.24
Director of Performance Management	2	1.08
Miscellaneous other titles	17	9.18

3. Who is responsible for major IT implementations in their organisation?

Answers to this question did not contain finance titles. Those carrying out IT implementation, therefore, whilst more likely to be reporting to a finance person, did not see them as responsible for IT implementation. This raises the question of why a high percentage of those carrying out IT implementation are responsible to the finance director but the finance director is not seen as responsible for IT implementation.

Table 10.3 List of titles of those responsible for major IT implementation (N=185)

<u>Title</u>	<u>No</u>	<u>Percentage</u>
Information Manager	32	17.30
Head of information	44	23.78
Director of planning	2	1.08
Board	8	4.32
IM & T director	6	3.24
IT department	6	3.24
IT steering group	6	3.24
Director of information	27	14.59
Other answer	36	19.45
Missing answers	18	9.72

4. No of people in IT/IS department.

This background detail was considered to be of importance because the size of the IT department might affect the number of IT staff available to support the implementation process and reflect the degree of importance attached to the IT function.

Table 10.4 No of people in IT/IS departments in respondent organisations (N=185)

<u>No in IT/IS dept.</u>	<u>No of Organisations</u>	<u>Percentage</u>
1-5	24	12.97
6-10	62	33.51
11-15	33	17.83
16-20	22	11.89
21-30	15	8.10
31+	11	5.94
Missing answers	18	9.72

5. Table 10.5 Type of Trust

<u>Type of trust</u>	<u>No</u>	<u>Percentage</u>
An Acute Trust	79	42.70
Community Trust	63	34.05
Mental Health Trust	7	3.78
Combined	29	15.67
Missing	7	3.78

7. Table 10.6 Number of people using the system. (N=185)

<u>No of people using the system</u>	<u>No</u>	<u>Percentage</u>
1-10	16	8.64
11-20	24	12.97
21-40	25	13.51
41-60	19	10.27
61-80	10	5.40
81-100	15	8.10
101-200	15	8.10
201-400	20	10.81
401-1000	21	11.35
1001-5000	10	5.40
Missing	10	5.40

10.3 SUCCESS OF THE SYSTEMS RESEARCHED

The survey questionnaire was filled in by a member of the IT/IS staff or the IT/IS director. This might lead to the suspicion of bias towards a positive view of the success of the process. However, in the major case study the Head of IT did criticise the system and judged it a 'failure'. Therefore, although this consideration should be born in mind the view of the IT stakeholder is still a valid view to hear. The question on success was a simple question with no definition of success given to the respondent. His/her answer is, therefore, an intuitive perception of success and could not be viewed as a 'precise' instrument. Consequently, questions were inserted about the process of implementation which could be used as a check on the perception of success given by the respondent.

85% of respondents considered that 'in general' the implementation was a success. 5% actually answered no, the implementation was not a success, 1% said the implementation was 'half and half' and 9% of respondents did not answer this question because they were still involved in the implementation. However, they had said that people were using their system. Respondents were also asked if the change progressed smoothly, had its ups and downs or was in general difficult. This question was inserted as one of the checks on the respondents perception of 'success'. The majority of answers (56%) were 'had its ups and downs', 27% thought the change progressed smoothly, whilst 15% answered that it 'was in general difficult'.

When respondents were asked if acceptance (use) of the new system (by employees) had been achieved, 77% answered yes, 9% answered no, 8% answered that it was 'partially' accepted, 1% said it was too early to answer and 6% did not answer. As, according to

respondents, in 71% of the cases use of the system could definitely be seen by staff to result in immediate benefits to them, it is not surprising that acceptance of the new system had been achieved in 77% of the cases. When asked if there was difficulty in gaining acceptance of the new system, 27% of the cases said yes, and 68% said it was not difficult.

In 80% of the cases respondents thought that before its introduction more users were in favour of having a new computer system than against it.

One might theorise that if systems implemented were generally thought to be successful in the organisations surveyed, then those answering the survey would be likely to view money spent on IT as being 'generally well spent' when answering the general attitude questions. This proved to be the case, with 14% strongly agreeing that 'money for IT is generally well spent', 51% agreeing, 25% being neutral and only 9% disagreeing or strongly disagreeing.

In judging success of new systems there are those who consider that if the implementation process took longer than planned, then the implementation can be judged 'less than successful'. In this survey, 64% of implementations took longer than planned, some substantially longer. 30% of the respondents said their implementation was on schedule. If this was a criteria of success, then only 30% of the systems could be judged to have been successfully implemented.

Another 'objective' measure of success is whether an implementation is completed within budget. Because of limits in the length of the questionnaire, this line of questioning was not pursued, however, 17% of respondents did mention 'lack of project funding' as a 'problem or constraint'.

10.4 STRATEGY

- Vision - mission statement - of organisation
- Written IT strategy document
- Active leadership - motivation of staff
- Commitment at top level CEO of resources to change process

New computer systems should be part of the overall organisation strategy and 85% of respondents said this was the case. In order to check on strategic reasons for the new system respondents were asked why the new system was introduced. They could choose any number of reasons from a list of ten but were also given an 'other' option. The results are listed below.

Table 10.7 Reasons for introducing a new system.

Reasons for introducing a new system (More than one could be chosen)	Percentage who chose each option
To improve quality of information for decision making	72
To enable better organisation of work	60
To improve control of resources	57
To improve quality of patient care	54
To save time on paperwork	51
Because the old system was obsolete	43
To collect data for Government statistics	42
To aid professional practice of clinical staff	40
To allow more efficient planning of staff time	34
To save on labour costs	28

If the new system was part of overall Trust strategy, who decided the computer system was necessary? This is very pertinent when looking at barriers to implementation because if those

deciding the new system is necessary, and those using the new system, are from different groups, then the system might be facing the barrier of 'user antagonism' to the system from the very onset of decisionmaking and planning. When asked this question the most chosen answer was executive director level with board level decision as second. The questionnaire did not ask for 'either, or' answers and so the respondent could have chosen a number of the options given, which might have been the case if choice of having a system was a joint decision. The frequency of choices are shown below (in order of choice.)

Table 10.8 Who decided a new computer system was necessary?

Who decided a computer system was necessary?	Percentage (More than one Category could be chosen.)
Executive director level	55
Board level decision	48
Middle managers	31
Clinical staff (Consultants/Drs)	30
Department or ward managers	29
Clinical staff (Nurses)	18
Clerical staff	11
Other	9
Regional Health Authority	6

Ideally, strategy would allow for cost benefit analysis to be carried out before the system is purchased, this had happened in 67% of the cases but not in 28%.

- **Top level support**

At the strategy level, that is at top board and executive level, there needs to be both a visible commitment to IT/IS and actual support for new systems. Whether this was the case was tested in the questionnaire by a number of questions. The respondent was first asked if the amount of money available to purchase the new system was considered by the IT/IS department to be adequate. 76% of respondents answered yes, but 23% answered no. This means that in approximately one quarter of the cases there was not adequate financial support for the new system (dealt with in the questionnaire).

Additionally, respondents were asked if there had been enough 'top level' support for the change process and 68% said yes, 24% said no, and 3% said they did not know. Therefore, again nearly one quarter did not perceive top level support for the change involving the new system. They were asked what could have been done to provide more support and the answers are summarised below. It is difficult to categorise such responses which, in the nature of questionnaires filled in by busy people contain only brief notes.

41 (number) responses were received but a few fit into more than one category.

Table 10.9 Type of support needed from top management

Category	Category description	No. of respondents
1	More broad commitment	11
2	More time	6
3	More resources	10
4	More active demand for information	3
5	Better management/more involvement by managers	9
6	More visible ownership by clinicians	3
7	More understanding of impact on hospital	3

Attitude questions about the respondents' attitude to implementations in general, rather than the particular one under discussion, together with the results, are shown below.

Table 10.10 Attitude questions related to 'implementations in general'.

Q	Statement	Strongly agree %	Agree %	Neutral %	Disagree %	Strongly disagree %
62	Senior managers (and boards) have a duty to be fully involved in the planning and staffing aspects of information management and IT	74.0	22.0	4.0	Nil	Nil
63	This is normally the case in this Trust.	27.0	41.0	14.0	13.0	5.0
67	In this Trust the full cost of procurement and implementation of information systems is recognised and adequate provision is made for them.	11.0	28.0	23.0	29.0	9.0

Although 74% strongly agreed with statement 62, only 27% strongly agreed that 'This is normally the case in this Trust.' Therefore, it would appear from this data that there were a substantial number of organisations whose senior managers were perceived as not being as involved in IT/IS as they perhaps should be for its optimal success. Even if the percentage who agreed and strongly agreed are aggregated so that 96% agree to some degree with statement 62 and 68% agree (to some degree) with statement 63 then 18% do not think that their Trust senior managers are as involved as they should be in planning of IT and 14% were neutral which does not suggest involvement. The question is similar to the one asking if there was enough top level support for the change process which had 24% saying no(Q.36).

There was much less agreement that in general cases the full cost of procurement and implementation of information systems was recognised and adequate provision made for them. 39% agreed or strongly agreed, 23% were neutral and 38% disagreed or strongly disagreed.

10.5 STRUCTURE

- **Organic/flexible or formal hierarchy/power?**
- **What is the strength of informal power?**
- **Centralisation/de-centralisation?**

Respondents were asked how many geographical sites were involved and the details are shown below. That 37% of Trust organisations were implementing systems into 4 or more sites is significant. This would make implementation more difficult. Many of the Trusts are made up of previously independent hospitals whose professional staff are not always

reconciled to their new affiliation, and, therefore, might not always act in a 'rational' way. It is suggested that different sites might have different cultures which clash at different levels causing difficulties of communication and liaison.

Table 10.11 Number of geographical sites into which the systems were being implemented

<u>No. Of sites</u>	<u>% of organisations</u>
1 site	33%
2-3 sites	23%
4-5 sites	13%
6-10	6%
11-20	12%
21-90	6%
Missing	7%

The size of the organisations was explored by asking the number of personnel employed. This was between 250 people and 7,500 people, but only 21% had below 1000 employees.

Table 10.12 Number of people employed in each organisation.

<u>No of people employed</u>	<u>% of organisations</u>
250-500	3.7%
501-1000	16.8%
1001-1500	15.9%
1501-2000	19.9%
2001-4000	26.0%
4001-7500	7.8%
Missing data	9.9%

All of these organisations could be classed as 'large' organisations and as such implementation may be a more complicated process than in small organisations.

Respondents were asked if the new system had caused any changes in the structure of the organisation (levels in hierarchy, formality/informality etc.) and 24% answered yes, 72% answered no. Question 90 asked where possible barriers to implementation could occur and one of the elements listed was structure and 29% thought this could present a barrier.

Many NHS organisations are said to be outsourcing much of their IT work and respondents were asked how many people worked in the IT/IS department. According to this data, 46% of organisations had less than 10 people in their department (see Table 10.4: P280). These appear to be fairly small departments in view of the size of the organisations and the importance attached to IT/IS in the literature. How this compares with comparable size organisations in the private sector is not known.

10.6 TECHNOLOGY

- **What are the benefits envisaged from the company's point of view? Why did the company change or introduce the new system?**
- **Will the new system fulfil the objectives set? Is the system technically competent? Does it perform the job specified to the standard and speed expected?**
- **Will the new system allow the department to function better?**
- **How was the system developed ?**
 - a) **Off the shelf package.**
 - b) **Purpose built - in-house or external.**

One might make assumptions that implementing a package, that is a 'tried and tested' software system might be easier to accomplish than a purpose built system. 77% of

respondents said that the system they were answering about was a package, but some added the note that they had modified the package for use in their organisation. Respondents were also asked if there had been a range of different packages which they could choose from, the fact that there had been a range of packages might mean that there would be one available which might closely meet their needs. 93% of those who had implemented packages said there had been a range of packages from which to choose, but some qualified this by saying only two were available. 21% of the total respondents said that their system was purpose built.

A question was asked whether, if users wish to change the system in any way could this be done. 71% of respondents said this could be done, 24% said it could not be done. Some respondents qualified this by saying it could be done, but would be too expensive, and therefore would not be done.

Respondents were asked if they considered that the number of terminals was adequate and whilst 76% said yes, 22% said no.

One of the attitude statements about systems in general was 'Technical problems are one of the main areas of constraint when introducing new information systems.' 27% of respondents agreed or strongly agreed to this, 27% were neutral, 46% disagreed with this. According to this general statement technical problems were not one of the main areas of constraint for the majority of respondents.

However, in question 84 which asked about delays or problems or constraints during acquisition or implementation of a particular new system, 'technical problems' were the most

mentioned item, being mentioned by 51% of respondents, with supplier not meeting deadlines being the second most mentioned item by 42% of respondents. These two items were far ahead of the next two most mentioned items which were mentioned by 27% and 23% of respondents. (That is 'People not meeting deadlines' 27%, and 'Cost implications' 23%.)

When asked to take an overview of the organisation (theory rather than an empirical case) and choose which elements listed were likely to present barriers to implementation technology was the sixth most likely choice by respondents. That is only 26% chose technology as likely to present a barrier to implementation of new systems.

Table 10.13 Elements likely to present barriers to implementation.

Q90	If one takes an overview of the organisation, which of the elements listed are likely to present barriers to implementation? (More than one may be chosen.)	
1	Culture in the organisation.	58%
2	Politics within the organisation.	51%
3	People	46%
4	Management Process in the organisation	37%
5	Structure of the organisation	29%
6	Technology	26%
7	External socio-economic environment	18%
8	Strategy of the organisation	15%

This data was interesting because when the respondents were answering about an 'actual implementation' (Q84) technical barriers featured most, being mentioned by 51% of respondents.

10.7 PEOPLE

- **Consultation or involvement in new systems**
- **Training**
- **Attitude to new systems. Were users in favour of new system?**
- **Change of task. More, or less work.**

This section examines possible barriers related to individuals in the organisation. These would be related to training, involvement in choice of system, how the system affects individuals in their work and whether individuals were in favour of a new system.

- **Consultation and choice of system**

Consultation and participation in decisions about new systems is an area which experts consider can cause problems (Mumford, 1979). Respondents (IT staff) were asked who decided a new computer system was necessary. The decision was most likely to have been made by executive director level or board level although they would not directly be using the systems. A question on who actually made the choice between systems was also included and 53% said the project team had made the decision, but the remainder indicated that the choice had been made by an individual.

Respondents were asked who would use the system and prior to purchase were opinions of users sought? The opinions of clinicians and managers were almost always sought but 63% of systems involved nurses and only 54% were consulted, so 9% of nurses were expected to use a system about which they had not been consulted. Clerical staff would be using 89% of the new systems but only 70% were consulted, so 19% of this group of future users were not consulted. When asked how the opinions of users were sought the answers were as follows.

Table 10.14 How the opinions of users were sought.

<u>Methods of consultation</u>	<u>Percentage using method</u>
Group discussions with potential users	62
Use of steering groups	56
Use of Prince Methodology	48
Interviews with potential users	47
Questionnaires to potential users	18
Use of other Project management tool	10
Involvement of unions	4
Involvement of staff associations	3

In early literature on IT/IS implementation there is reference to unions being involved when new systems were proposed (Buchanan & Body, 1983; McLoughlin & Clark, 1994). This would appear to be a very rare practice at the present time in the NHS. When asked a separate question about whether unions were consulted about the new system 20% said yes but 77% said no.

The majority of these IT/IS respondents were well aware that users should be involved and the attitude statement 'Users must be involved from the beginning of a project and included in the procurement process' showed that 94% agreed or strongly agreed with the statement, 5% were neutral and only 1% disagreed.

Respondents were asked whether the personnel department had been involved in the planning or implementation of the system and 19% said yes. Those who said no were asked if they thought involvement of the human resource/personnel department could be helpful and 20% said yes.

- **Training**

In the literature lack of adequate training for new systems is seen as one of the major factors which might impede successful implementation of systems and acceptance and use of new systems (Willcocks & Mason, 1987; Westerman & Donoghue, 1989). Respondents were, therefore, asked a number of questions about training. This sample of respondents all seemed to have been involved in systems where training had followed recommended principles for 'best' practice.

Users had received both individual training and training in a group in 51% of cases, training individually in 20% of cases and training in a group in 28% of cases. There was a full user manual available, in 76% of cases, and a short/simple guide available in 81% of cases. There was a telephone helpline available in 96% of cases, and a help routine within the package in 69% of cases. Extra training was available on request in 90% of cases.

One area which had been seen to cause difficulty in the main case study was that there had been a gap of more than two weeks between training and first use of the new system. When respondents to the questionnaire were asked about this there had been such a gap in 36% of the organisations. When asked if this had caused problems 37 (55%) respondents out of 67 replied yes. This means that in 20% of the organisations the interval between training for the system and using the system was long enough to cause problems.

In spite of the fact that the answers to the questions about training led to the conclusion that training was adequate in the survey organisations, the attitude statement 'Staff are usually satisfied with the training offered on new information systems' showed that 50% agreed or

strongly agreed with this, 29% were neutral but 20% disagreed. Therefore, it would appear that in spite of a correct procedure for training being followed, 20% of organisations had staff who were not satisfied with training for new systems (according to the perception of the IT staff).

Respondents were asked who organised the training, IT department, personnel department or system supplier or a combination. The results (below) show that the personnel department has little involvement in training for the new systems.

Table 10.15 Who organised the training, IT department, personnel department or system supplier or a combination. (Number = 185)

Who was training organised by?	Frequency	Percentage
1. IT dept.	66	35.67
2. Personnel dept.	2	1.08
3. System supplier	52	28.10
All involved	4	2.16
1+2	2	1.08
2+3	2	1.08
1+3	52	28.10
User department	1	0.54
Missing	4	2.16

- **Attitude to the system**

In the attitude questions used one stated ‘Staff are usually indifferent to the introduction of new information systems.’ This was used to ascertain the attitude of staff within the organisations sampled. 12% of respondents agreed or strongly agreed with this statement, 19% were neutral but 70% disagreed or strongly disagreed. Staff were, therefore, perceived as having opinions about the new systems and not as being indifferent.

This aspect was explored further by the statement 'Resistance is a normal reaction to the implementation of new information systems.' 54% agreed or strongly agreed with this statement, 29% were neutral 15% disagreed and 2% strongly disagreed.

In the same vein the statement 'Staff are reluctant to explore and make full use of new information systems' was used and in response to this, 36% agreed or strongly agreed, 37% were neutral and 27% disagreed. Aimed particularly at clinicians the statement 'Clinicians see their role as limited to care of patients and do not want to spend time managing information' was used. 58% agreed or strongly agreed with this, 19% were neutral, 23% disagreed.

'The key factor in whether an information system is successful or not is the attitude of staff towards it' was agreed or strongly agreed with by 94% of respondents, with 5% neutral. IT/IS managers and directors are therefore very certain in their perception that attitude of staff to new systems is extremely important.

From the stance that Labour Process Theory is relevant to aid explanation of the situation, the statement 'Staff perceive new information systems as a way of imposing management control of their work' was used. 40% of respondents agreed or strongly agreed to this, 32% were neutral 28% disagreed or strongly disagreed.

Also of relevance in relation to user attitude to new systems is the fact that in 80% of the cases it was thought that before its introduction more users were in favour of having a new computer system than against it. In 10% of cases it was thought that there were more potential users against having the new system.

Difficulty in gaining acceptance of the new system was experienced in 27% of the cases, with 68% saying it was not difficult.

However, when asked if acceptance (use) of the new system (by employees) had been achieved, 77% answered yes, 9% answered no, 8% answered that it was 'partially' accepted, 1% said it was too early to answer and 5% did not answer. Only 'yes' or 'no' boxes were provided to this question in order to gather the IT manager's perception of general acceptance of the system, therefore, the missing answers might be in the 'don't know' category.

- **Change of task. More or less work.**

Respondents were asked if the system would change the nature of the main user's job (Q38). 52% answered yes, 42% answered no. They were further asked if the user would have enhanced job skills resulting from use of the new system and 69% answered yes and 25% no.

According to respondents (who were IT staff) use of the system could be seen to benefit their work for 71% of the staff, but for 17% this was not the case. The 17% who could not see benefits to their work and who possibly might also have an extra workload might not be pleased and co-operative with the implementation process.

Whether the system would involve extra work for users was also asked and 54% answered yes to this question. Another question was whether the new system would involve less work for any staff and 44% answered yes to this question.

When then asked if this was likely to cause redundancy or reduced working hours 10% said yes it was likely to cause redundancy, 5% said it would cause reduced working hours, 1% said it was too early to answer. The system would affect different groups/stakeholders in different ways with some being involved in more work and some in less. Therefore, one would expect attitudes to the system to differ between groups. One of the attitude statements said 'Implementation of new systems is complicated by the fact that there are stakeholder groups with different interests.' 75% agreed or strongly agreed with this statement with 19% neutral and only 6% disagreeing.

10.8 MANAGEMENT PROCESS

- **Procurement method**
- **Planning method**
- **Who managed the change**
- **Involvement of HRM department**
- **System champion**

The management process concerned with IT/IS implementation is complicated and possibly an area of 'fuzzy' problems. That is, there may be no one 'right' process, only different approaches. However, notwithstanding this very cautious stance, many writers criticise the process followed in some of the 'failed' implementation processes.

After a thorough review of the literature conclusions were drawn that the best way forward for organisations implementing a new IT/IS system would be to use some form of 'soft systems methodology' in the conception and design stage of new systems, which would include even if not specifically stated, a risk analysis or force field analysis stage, then a project management tool which allowed for full involvement of staff of all stakeholder groups.

Initial questions to IT managers (at the beginning of the project) showed that soft systems methodology was not used by them, but PRINCE project management was a tool which was mandatory in the NHS for systems costing over £1m but optional for those costing less. The questionnaire therefore asked about project management.

Firstly respondents were asked what procurement process, if any, was used. Poise or Step were the most used methods with 46% naming these methods. 10% said they used some internal procedure which they did not name, 13% named other miscellaneous methods, 21% did not answer this question at all and 10% said they did not use any method.

Secondly, a question was asked about whether a named implementation methodology was used. PRINCE methodology was used by 68% of the respondents with 30% using other methods of planning (2% missing data). Of those who said they used PRINCE, 9% said they did not find it helpful. When asked if they would use PRINCE again 9% said they would not. This infers that 91% of those who used PRINCE (68% of the respondents) would use this methodology again and had found it helpful.

In the attitude questions one statement was 'Using Prince Methodology as an implementation method (where appropriate) leads to successful outcomes.' 46% percent agreed or strongly agreed, 40% were neutral and 14% disagreed.

Of the 30% of respondents who had not used a named methodology, 23 out of 54 or 43% said they would use Prince next time, 21 or 39% said they would not use a methodology next time. There were 9 (17%) missing answers and one person said it depended on the size of the implementation.

Those who did not use a methodology were asked how they had gone about planning. The majority of these respondents mentioned common sense and experience but also made some mention of some kind of project plans except for two respondents one who said the method used was 'haphazard' and they had put in a system because they had some budget surplus, and one said the method had been to fudge it! However, in both these cases the respondents said the implementation had been successful.

There is mention in the implementation literature that a 'system champion' is important and one of the attitude statements was 'A 'system champion' who is involved in all phases of the process is an important factor for implementation success' 94% agreed or strongly agreed with this statement and in fact only 1 person disagreed out of the total sample. When asked whether there was a 'system champion' in the implementation they were describing in the questionnaire, 74% answered yes, 15% answered no and 11% were missing. Because of the limitation on questionnaire length respondents were not asked who the champion was.

Respondents were, however, asked who had managed the change. The majority of answers (32%) were that the IT department had managed the change. The second most chosen answer was that both the IT department and the main user (29%) had jointly managed the change. The third most chosen was that the main user only (18%) had managed the change. The remaining 20% of answers were spread fairly evenly over other combinations of options. Seven percent of the remaining answers included an external consultant together with internal management.

A number of questions were then asked about the management process. First whether this role of managing the change was in addition to their 'normal' role. It was in addition to

Table 10.16 The way HRM departments were involved.

<u>Ways involved</u>	<u>No. Of respondents (35)</u>
Working with the system	5
Planning change management	18
Offering training	2
Procuring training on request	2
On steering groups	8

(some involved in more than one way)

Respondents were asked 'If HRM were not involved do you think their involvement could be helpful?' Of those who answered this question (138 in number) 20% said 'yes' but 80% said 'no'.

10.9 CULTURE

Culture is notoriously difficult to research. The concept is often vaguely defined and to operationalise it, is not easy. Some of the literature infers an anti-technology culture in the NHS. A number of attitude questions were inserted to test this idea (some of which are also reported in the 'people' section).

These questions are not perfect instruments but they at least give some idea of the perceptions of respondents. In general, respondents were fairly evenly matched on whether staff were reluctant or not to explore and use new systems. 36% thought staff were reluctant to explore systems whilst 27% thought they were not.

Table 10.17 Attitude statements related to resistance.

Q	Statement	Strongly agree %	Agree %	Neutral %	Disagree %	Strongly disagree %
56	Staff are reluctant to explore and make full use of new information systems	7.3	28.8	36.7	24.9	2.3
57	Clinicians see their role as limited to care of patients and do not want to spend time managing information.	19.8	37.9	19.7	21.5	1.1
61	Staff are usually indifferent to the introduction of new information systems	1.1	10.7	18.6	53.1	16.4
64	Resistance is a normal reaction to the implementation of new information systems	10.2	44.1	29.4	14.7	1.7
66	Implementation of new systems is complicated by the fact that there are stakeholder groups with different interests.	22.0	52.5	19.2	6.2	nil

However, there was a wide divergence of opinion on ‘Clinicians see their role as limited to care of patients and do not want to spend time managing information.’ 58% agreed or strongly agreed with this statement, 22% disagreed. Which seems to indicate that clinicians might be viewed as more of a problem in relation to acceptance of new systems.

Question 61 on ‘indifference’ also showed a divergence of opinion and 12% agreed that staff were indifferent to the introduction of new system but 70% disagreed, which would indicate that staff are viewed to have opinions about new systems.

Whether resistance was a normal reaction was a subject broached, and 54% of respondents thought this was the case, 16% disagreed. The majority, therefore, saw resistance to new systems as a normal reaction.

The final question in the attitude questions relating to culture (and politics) was question 66. This showed that 74% of respondents thought that implementation of new systems is complicated by the fact that there are stakeholder groups with different interests.

In the question asking people which aspects of the organisation were most likely to present barriers to implementation culture was the most mentioned element and was mentioned by 58% of respondents.

10.10 POLITICS

The survey questionnaire was not the main tool used to explore the element of politics within the organisation. However, two questions were relevant to this aspect. Willcocks & Mason (1988) mention the competing political interests of different stakeholder groups and when the following statement was made, the results appeared to confirm this aspect.

Q	Statement	Strongly agree %	Agree %	Neutral %	Disagree %	Strongly disagree %
66	Implementation of new systems is complicated by the fact that there are stakeholder groups with different interests.	22.0	52.5	19.2	6.2	nil

Additionally, in the question asking people which aspects of the organisation were most likely to present barriers to implementation, politics was the second most mentioned element (51%).

10.11 PROBLEMS OR CONSTRAINTS

Respondents were asked to tick any number of suggestions for reasons or delays or problems during their implementation process and more than one could be chosen. The two most mentioned problems were technical problems mentioned by 51%, and supplier not meeting deadline mentioned by 42%.

Table 10.18 Implementation Problems.

Items which caused delays or problems or constrains during implementation.	% of Resp.	Items which caused delays or problems or constrains during implementation	% of Resp.
Technical problems e.g. programming	51	Budget delays	14
Supplier not meeting deadlines	42	Resistance from managers	14
People (internal) not meeting deadlines	27	Training took longer than expected.	14
Cost implications	23	Private Finance Initiative (PFI)	10
Difficulty in getting project team together	21	Staff queries about confidentiality of system	8
Staff not able to get to training sessions	21	Lack of training	8
Conflicting interests of different groups	19	Staff viewing as means of control	7
Resistance from staff	17	Resistance from trade unions	0.5
Lack of project funding	17	Unemployment Issues	1
Clinicians queries about system	14	Other issues	24

It has to be remembered that the respondents answering the questionnaire are giving but one view of problems and that respondents were predominantly from the IT/IS departments. However, it is interesting to note that though the implementation literature gives the view that problems are predominantly ‘change management problems’ which relate to people, the most often chosen item on the list was technical problems, followed by supplier not meeting deadlines.

10.12 WHAT RESPONDENTS WOULD DO DIFFERENTLY IN THE FUTURE.

Respondents were asked what they would do differently if they were to introduce another new system. It is theorised that if the respondent would do something differently next time then this might have been one of the 'barriers' in their present implementation. There were 108 replies. The ten 'failed' respondents are listed first.

Table 10.19 What people would do differently next time - failed systems

-
1. Get the specification and contract right (i.e. correct) 'up front'.
 2. Use Prince and Poise methodologies
Ensure the system was 'open'
Ensure the system was a clinical tool
Have to go through PFI (reluctantly) - not a requirement when original system bought.
 3. Ensure capital and revenue funding is available for the life of the system
 4. Monitor suppliers more closely to ensure they deliver on time. Be firmer with Academics and their requirements where projects cross boundaries from the NHS to Academia.
 5. Be involved from earlier in the process (Comment by Head of IM&T.)
 6. Choose a different supplier (Filled in by Finance Director - Trust Board chose system!)
 7. Separate specification from programming and design.
Use experienced staff.
Highlight the risk factors more closely first.
 8. Move back into industry.
 9. Use a different project manager.
 10. Not commission a bespoke system.
-

Four of these answers relate to technical issues and two to suppliers. One mentions using more experienced staff and one says a different project manager would be chosen. One person said they would highlight the risk factors more closely first. One Head of IM & T said he would be involved earlier in the process. One person mentioned that he would ensure the system was a clinical tool which infers that the clinicians were not happy with the system. One person mentioned finance.

Therefore out of the ten failed systems the most mentioned problems were related to technical problem and supplier problems.

When the total answers were analysed (108) (by counting the number of times the different issues were mentioned) the most mentioned issues were:

Table 10.20 What people would do differently - successful systems.

<u>Issue mentioned</u>	<u>Times mentioned</u>
Technical	20
Finance	20
Time	19
Management	12
User involvement	10
Supplier	9
Top level support	8
Gain support for system	5
Use methodology	4
Use PRINCE	4
Training	4
System champion	3
Planning	3
Clinician support	3

This showed that technical, financial and time issues were the most important barriers followed by management issues, top level support and user and supplier issues. The remaining issues mentioned only once each were:

Table 10.21 What people would do differently - issues mentioned once

More external consultancy needed

More project staff

Change attitudes

Flexibility needed

Be more formal

Project staff, social skills

Management by users

Infrastructure of organisation needed first

Organisational change to be acknowledged

More IT department input

Risks should be highlighted

Keep project manageable

Better choice of staff

10.13 CONCLUSIONS AND DISCUSSION OF THE SURVEY RESULTS

10.13.1 Conclusions on the success of the systems researched

Although the majority of IT based respondents answered that the systems implemented were on the whole 'successful' (85%) only 27% thought the change progressed smoothly or conversely 73% did not experience a smooth implementation. This shows that the change process can have difficulties but still be judged a success by certain stakeholders. Both Walsham (1993) and Sauer (1993) draw attention to this fact. They also comment that perceptions of success can also vary over time, so that a system viewed as unsuccessful immediately after implementation, may be judged successful after some time has passed.

If use of the new system had been achieved in 77% of cases and partially achieved in 8% of cases then 85% of the systems were being used to some extent and this supports the respondents assessment of successful implementation of their system.

10.13.2 Conclusions on strategy

The data showed that decisions on whether a new computer system was necessary were most likely to have been made by executive director or board level staff. Very few respondents answered that clerical or nursing staff decided a new system was necessary. Decisions, therefore, appeared to be made at the top of the organisation. In spite of this, the various questions asked to check on their support of the new system showed that in at least a quarter of the cases it was consistently felt that top level support of the implementation was not occurring.

With regard to the costs of procurement and implementation of the system, being recognised and provided for (by top management) 38% did not think this happened in their trust. This was an area of recurring criticism in the literature (Long, 1987; McKersie & Walton, 1991). The issue of top management recognising the costs incurred in implementing new systems is important. Many systems cost considerably more than planned for, but this may be because of over ambitious expectations about what can be accomplished by staff implementing a system when they are already fully extended by their normal work routine. (With all the aspects that IT/IS implementation entails, such as training, moving data from one system to another, actually becoming familiar with the new system, purchasing adequate hardware, making space available for new and extra machines, recognition of the cost of upkeep of machines and software).

Nearly 30% of the implementations had not had a cost benefit analysis carried out before purchase. This should be part of strategy and is a problematic area. Actually carrying out a cost benefit analysis for computer information systems is not an exact science. Additionally, in the NHS where central government made decisions on 'Resource Management' which necessitated a huge amount of extra information, cost benefit might be set to one side because of perceptions of 'no other way' of collecting data.

Also, money was specifically set aside by the Government for computer systems in the NHS both for hospitals and general practitioners, so that eventually they would all be linked by computer network. With the impetus of this central thrust from Government to computerise, and the perception that other Trusts were going ahead and following this route, it would be difficult for board level or middle managers to take a decision **not** to computerise information systems.

Therefore, even if actual users, managers or lower level staff, were less than keen on the idea of new computer systems, to take an overt stance and refuse to have them might not be thought by them to be a feasible option.

10.13.3 Conclusions on structure

The survey did not investigate this aspect in detail but 29% of respondents thought that structure of the organisation could present a barrier to implementation and 24% said that the new system had caused changes to the structure of their organisation.

Two thirds of the organisations were implementing a system on more than one site and the geographical distance between sites can cause difficulties. Additionally, because of the formation of Trusts from a number of different hospitals and clinics, the different geographical sites were often previously autonomous units and their inclination might be to remain autonomous in some ways, for as long as possible (as was found in the case studies.) One of the interesting findings was that 45% of organisations had less than 10 people in their IT/IS department. If the IT/IS departments are managing the change process then their level of personnel appears to be low. If the IT/IS departments are so small, this may account for one of the reasons the IT function is often placed within the finance department. Top management may consider that to have an IT/IS Director is an unnecessarily high expense in view of the size of the department. Although, many personnel departments are also small, because there has been a move towards devolving personnel matters into individual 'functions'.

10.13.4 Conclusions on technology

A quarter of respondents agreed that technical problems were a main area of constraint when introducing new systems, when asked a theoretical question. When asked specifically about any problems encountered in the particular system they were reporting upon, over half (51%) mentioned technical problems as a constraint and supplier not meeting deadlines was mentioned by 42%.

Inadequate facilities to use new systems whilst not stopping implementation, would impede acceptance and use of new systems and therefore indirectly affect 'successful' implementation. This research found that 22% of respondents thought that the number of terminals was not adequate. For those who are not sure about a new system, to have to 'queue' to use the system would hardly enhance their views of the system.

Whether there was adequate processing power available to cope with demand at peak times was also asked. 84% answered yes, 9% answered no. This technical inadequacy would also serve to irritate and annoy those who were not entirely happy with the change to new systems and therefore impede acceptance and implementation of the system.

10.13.5 Conclusions on people

Consultation - In this survey respondents were well aware that users should be involved in consultation (Mumford, 1979; Checkland, 1981; Bailey, 1993) and in the majority of cases respondents reported that the opinions of users had been sought before purchase of the new system. Those least likely to be consulted were clerical staff (19% not

consulted) and nurses (9%). Users were unlikely to be consulted through the unions with only 20% reporting that unions were consulted about new systems.

Training - In spite of the evidence showing that correct procedures had been followed for training, 20% of respondents reported that the interval between training and use of the system caused problems. Additionally, in attitude statement 68, it was found that only 50% of organisations had staff who, according to the perception of the IT staff, were satisfied with the IT training offered to them. 29% of respondents gave a 'neutral' answer and 20% actually disagreed that staff were satisfied with training. The respondents reaction to this statement leads to suspicions about the adequacy of training, at least from the user perspective.

The majority of training was by the IT department or the system supplier or a combination of the two. This might not be the best way forward and there are those who consider that input from the personnel department (who undertake other training) would improve this process.

Attitude - The survey showed that the IT respondents perceived that there was resistance to new systems (54%), that staff are sometimes reluctant to explore and make full use of systems (36%), that clinicians did not want to spend time managing information (58%) and that staff perceived new systems as a way of imposing management control on their work. Thus attitudes to new systems were theoretically seen as rather negative. However, in spite of this, respondents thought that in 80% of the actual implementations in question, more users were in favour of having a system than against (this could of course

mean just over 50% of personnel concerned with the system were in favour and is rather a generalisation, but it does give the IT stakeholder view of the situation.)

Ideas that Labour Process Theory could be helpful led to the statement 'Staff perceive new information systems as a way of imposing management control of their work'. A significant number of respondents, 40%, agreed or strongly agreed with this, with 32% being neutral and 28% disagreeing. Once again, a survey questionnaire cannot help us with in depth information on this aspect but, superficial as it is, the information is helpful in gaining a picture of other NHS organisations in addition to the 4 case studies.

Change of task - The evidence showed that in the implementations covered by the survey, use of the system could be seen to benefit their work by 71% of staff with some staff being involved in less work and some in more but only 10% of the implementations was there any likelihood of redundancy. Perhaps in the implementations reported upon change of task had not caused problems but in case studies such as Bailey's (1993) (and other such as Mumford, 1983) change of task was an important aspect.

One could theorise that those groups having less work to do would view the system positively but those with more work would take a more negative attitude. Limits to the length of questionnaire meant that this aspect was not pursued.

10.13.6 Conclusions on management process

The majority of respondents had used Prince Methodology (69%) and of those who didn't nearly a half said they would next time. Nearly three quarters (74%) had a system champion

and 94% of the sample thought a system champion was an important factor for implementation success.

Managing the change was seen to be in addition to their normal role by 68% of respondents and it increased the workload for 74%. That this had a negative effect on the time available to manage the change was believed by 38% of respondents. (Respondents were sometimes giving their view of this process in relation to others.)

Management of projects and therefore 'change management' was seen as an area which needed improvement by the Audit Commission (1995) and although the majority of these systems were seen as being 'successful' by the respondents, the data showed that there were management areas which might be improved.

The majority of respondents did not see any need for involvement of the HRM department in implementation and they had been involved in only 19% of cases. Westerham and Donoghue (1989) said "Often in our consulting activities, we have discovered that clients are spending a great deal of their time attempting to develop and implement complex IT strategies without giving due attention to the effects of major changes on their key investments - the human resources."

The research therefore reinforces the points made in the literature (Willcocks & Mason, 1987; Eason, 1988; Westerham & Donoghue, 1989; Gatticker, 1990) that HRM specialists have little influence in relation to technical change either at strategy level or over implementation or training.

10.13.7 Conclusions on culture

Over half (58%) of respondents thought that culture was likely to present a barrier to implementation of information systems and this was the most chosen 'barrier' in the theoretical question.(Question 90.)

Related to the culture of the organisation was the fact that in response to the attitude questions a majority of respondents perceived some resistance to new systems from staff. In the health service there are often comments about the fact that there is an 'anti technology' culture. This data supports that view. It does not, however, give the reasons why that view is taken by staff. There is a possibility that the particular technology disliked is not in the user's interest.

Clinicians were seen to view their role as limited to care of patients by 58% of respondents which is a highly significant result. Only 22% of respondents disagreed with this statement.

10.13.8 Conclusion on politics

Over half (51%) of respondents mentioned politics as a likely barrier to implementation and three quarters thought that the presence of different stakeholder groups complicated the implementation process. This confirms previous research (Willcocks & Mason,1987; Walsham, 1993; Sauer, 1993) that the conflicting interests of different groups could interfere with implementation.

10.13.9 Overall conclusions from the questionnaire

The overall impression gained from the questionnaire survey was that the picture of the majority of systems implementations as being absolute failures which is gained from the press and media is not an accurate representation.

85% of respondents saw the implementation on which they were reporting as being successful'. If the system was being judged on use of system then this was a good representation. If measures of success were being within budget and within planned timescale then less of the implementations could be judged successful. However, given the size of the organisations, the multi site structures, the different stakeholder groups, the conventional project planning measures of success might be seen as flawed. Walsham (1993) and Sauer (1993) both argue that there needs to be changes in perception in relation to information systems implementation. The measures previously used have sometimes been too simplistic and it is pertinent that Winch (1996) when discussing project management in general, points out that it is a rare project which is finished on time and within budget, therefore, using these measures of success might need re assessment.

An additional major finding from the survey was that Board representation for IT/IS as recommended by the Audit Commission (1995) and others might not be taking place. Although 33(17%) of respondents had director titles only 12 were directly responsible to the CEO, the rest reported to a director of finance. It is probable that only those with direct responsibility to the CEO would be on the board and therefore only 6% of organisations in this survey appear to have an IT/IS director at board level.

However, in spite of this, there was a high success rate of implementation reported which might lead to the perceived wisdom of IT/IS director at board level being questioned. Conversely, the view could be taken that some of the barriers which confronted these 'successful' implementations might have been overcome more easily, or avoided, if there was IT/IS representation at top level.

CHAPTER 11

RESULTS

HRM DIRECTORS SURVEY AND INTERVIEWS

PART A -THE SURVEY RESULTS

PART B -THE INTERVIEW RESULTS

PART C - CONCLUSIONS FROM SURVEY AND THE INTERVIEWS

11 HRM DIRECTORS SURVEY AND INTERVIEWS

11.1 INTRODUCTION

One of the issues which was seen to be important in the literature review was whether human resource departments were involved in IT/IS strategy and in the implementation of systems or training for the use of new systems. The Institute of Personnel Management in a review of new technology implementation (Evans & Wilkinson, 1983:32) found that:

“A senior member of the personnel function should be involved from the start in the planning and decisionmaking process human aspects should be considered alongside technical, financial and other considerations as an integral part of the planning process.”

It was inferred that involving the human resource departments might help to avoid barriers, and to raise and deal with change management issues.

The human resource department was not involved in any way in the first case studied (MIS) and it was considered important to find out whether this was typical of the practice across the NHS. A questionnaire was designed (See Appendix 3) to ask about this and-related issues and was sent to the relevant department in NHS Trust organisations. The titles of the heads of the relevant department differ across the organisations so the questionnaire was addressed to either Personnel Director or Human Resource Director. The questionnaire was sent to those named on a list which was sent from the Information Management Group. The questionnaire was sent out to 400 directors and was returned by 192 respondents which was a response rate of 48%

The questionnaire data was supplemented by 8 interviews with individual human resource/personnel directors. All of those contacted by telephone agreed to take part but in two cases assistant directors were interviewed because of time constraints. The sample

covers Devon and Cornwall. The interviews were taped and transcribed and followed the sequence of the survey questionnaire.

The chapter is divided into three parts, Part A covers the survey information, Part B covers the information from the individual interviews, and Part C contains the conclusions from both data sets.

11.2 PART A THE SURVEY RESULTS

11.2.1 Name of the department

An initial question was asked about the name of the department because how they and others view their role may be influenced by their name and description within the organisation. 47% were labelled human resource departments and 53% personnel departments. Respondents were asked how long they had been in their present post and 54% of respondents had been in their post for less than 3 years and 67% for less than 4 years.

When asked if they saw any difference between a personnel department and a human resource department 61% said they did. When asked what they saw as the difference, the majority thought that the human resource title implied involvement in the macro level decisions of the organisation related to human resources rather than the more micro level implied by a personnel title.

11.2.2 Success

In the survey of HRM directors a question was asked about whether an IT implementation had taken place during the last 2 years and if so was it successful. Of those (74%) who said an implementation had taken place, 89% said yes it was either successful or partially successful and 11% said it was not successful.

11.2.3 Strategy

The survey questionnaire asked if the organisation had an information technology strategy and 91% said yes, whilst 8% said no. Directors were then asked if they as directors were involved in forming this strategy and 64% said yes, 33% said no. They were also asked if they were involved in strategy 'of other kinds' at board level meetings to which 81% answered yes and 13% answered no.

11.2.4 People

Consultation or involvement in new systems

Respondents were asked about union consultation or involvement and 40% of respondents answered that unions were consulted.

Respondents were asked if there had been an evaluation of the system and 69% said there was an evaluation, 23% said no and 8% did not know.. They were then asked if this took account of user views and 96% (of the 69%) said it did.

Training

A question was asked about whether their department dealt with training of personnel and 94% said they did. They were then asked if this included computer training to which 48% answered yes and 51% answered no.

11.2.5 Management

Respondents were asked whether the organisation had ever conducted an organisational diagnosis and 30% answered yes. This question was asked to find out whether any of the organisations were following the IMG ideas that an organisational development approach to IT implementation was worth following. However, an interesting finding was that a large percentage of respondents did not answer at all or asked what an organisational diagnosis was.

Whether they were involved in the **implementation** of IT was also asked. 61% answered yes, 39% answered no. To check on their attitude to involvement a question was asked 'Do you think your department should be involved?' and 75% answered yes, 24% no.

When asked if they knew what implementation methods the organisation used for IT implementation 37% answered yes, and they were able to name the method used. When asked if they felt that human resource department personnel involvement in IT implementation is, or would result in, more successful outcomes, 56% said yes, 13% said no and 29% said they did not know.

Also in the personnel director questionnaire was a question about management development approaches observed by Fonda (1986). See Table 11.1 below.

Table 11.1 Answers to Question 22 - Fonda's (1986) classification of management development approaches.

Category	Description	No	%
1. 'Sink or Swim'	Managers are left to their own devices. No training assistance is given unless asked for.	31	16
2. 'Management training'	Managers are given formal 'top-down' courses to provide the knowledge and skills they will need to carry out new responsibilities resulting from IT.	67	35
3. 'Hands-on' with support	Managers spend off-the-job time using IT equipment to develop work-related projects under trainer guidance.	46	24
4. 'Management education'	A long term approach which integrated development programmes for general management competencies with management development for IT. This begins well in advance of technology decisions being taken.	7	4
5. 'Management culture'	This is a long-term approach which may utilise aspects of all the above approaches. It takes a 'whole' organisation view and careers are closely related to training programmes in order to develop managerial track records in handling IT competently.	15	8
6. Multiple answer	A number of respondents ticked more than one of the categories. So a category has been subsequently added which allows for a multiple approach.	24	13

NB 2 missing answers.

Directors were asked if their organisation's approach to IT training fitted any of the categories. These categories are rather broad and they are given in full to avoid any confusion, however, they do at least give some way of categorising approaches.

Directors were also asked about the average number of days training per annum per employee. 61% said they did not know this figure.

Surveys have reported that the 'best' companies report that 6 days training per employee are given per annum. This may be a difficult area to gather information from NHS organisations as there may be no central database on which such records are kept. However, with the new initiative 'Investors in People' in the future there may be more awareness of the importance of this area.

11.3 PART B THE INTERVIEW RESULTS - 8 interviews

11.3.1 Name of the department

An initial question was asked about the name of the department because how they and others view their role may be influenced by their name and description within the organisation. Six said they were called personnel departments and two were human resource departments. However, all those interviewed were labelled Director of Personnel as part of their title. One of those who said he worked in the Human Resource department said:

“Well, its called both really, there’s a personnel bit and a human resource bit.”

One labelled personnel said “Well we see it as the same thing.” The view that a personnel department is the same thing as human resource department may be unproblematic within personnel function but there is a possibility, that if they are labelled personnel, their role is seen as very specialised, and thus they may be less likely to be involved in the macro personnel decisions which seem to be inferred from the title human resource management.

One issue which arose from the individual interviews which may be of significance is that two of the directors interviewed were Director of Nursing and Director of Personnel. One said that she did two jobs and that was how they kept management costs down in their Trust. In these two organisations the Director of Finance was also responsible for the IT/IS department although neither of these directors had any expertise or qualification related to IT/IS.

11.3.2 Strategy

The interviewees were asked if the organisation had an IT strategy and all answered yes, they did now, but for three of the organisations it was only formulated this year, and for the others it had been formulated only in the last few years. They were then asked if their department was involved in formulating the strategy and five said yes and three were not involved.

11.3.3 People

Consultation

In the individual interviews with personnel directors they said that the unions were not really interested in the introduction of IT systems and were not normally consulted.

Training

With regard to training issues, all personnel departments were involved in general training of personnel, however, only one department dealt with computer training (though not for new systems). In this organisation, the IT manager had been active in promoting the idea that training issues should stay firmly within the personnel department. In fact in this particular organisation the IT manager appeared to be trying to involve the personnel department in IT implementation by inviting them into project teams and project meetings, but the personnel department staff rarely took up his invitations.

Management training

A précis of the Fonda (1986) classification of management training was shown to the interviewees. In an interview situation it enables the opening of a debate on the kind of training being given to managers within the organisation. On being asked to place their management training into one of the categories, all interviewees chose category one or two (see Table 11.1), though one qualified this choice by saying that there were some exceptions in the organisation. One director said that they had previously included IT/IS input on one of their management training modules, but the managers found it so boring they removed it.

One director said:

“I think that is one of the problem areas because ignorance equals resistance. If your senior people are slightly resistant. Not obviously so. They won't say they are. (Laugh) I count myself amongst them. If we are slightly resistant then that is going to have a knock on effect in the organisation.”

This director was then asked if he/she thought the resistance was covert and said:

“Well, yes, but also here's me, with my PC being trained by a junior colleague and though I don't have a problem with that...I don't have the time necessary to save time, time is just not available to me. You set say half a day aside in the diary for training and then a crisis comes up and that is what is cancelled. We can't take the time to save the time and that's not an excuse, it's the truth.”

11.3.4 Management

Respondents said that their organisations had not conducted an organisational diagnosis though a number had taken part in a national survey on stress.

All interviewees answered that their department was not involved in IT implementation at all and some made comments about being computer illiterate.

The method their organisation used for implementation was known by 6 of the directors and they said this was PRINCE methodology but one said it was really better for large implementations and wasted time for larger ones. That two directors had never heard of PRINCE at all is amazing because it is the recommended methodology for IT implementation and there should be training available for those who have to use it. However, in many NHS organisations the literature on managing change etc. would go to the CEO first and he would cascade it down to what he thought was the appropriate department. This means that if he decided wrongly, important information could be missed by some high level management.

One director said:

“We do get a list of all the circulars, so I could go through and say, you know this one has come and I think I should see it. That is the idea. But so many of them nowadays have ‘catchy titles’ and you can read the title and wonder what it is about, and if it isn’t sent to you, you think well perhaps it isn’t relevant, so you don’t bother.”

11.3.5 Should the HRM/personnel department be involved in IT implementation?

Ideas about the routine involvement of HRM in the acquisition and implementation of IT/NT seem to be relatively new. Initial assumptions were made about the technicality of IT and often information systems were seen in the light of ‘add on tools’ which were unproblematic in nature. Subsequent difficulties with the implementation of new systems and the documented failure to extract full use of systems because of ‘people’ problems has led to the more recent debates of who should be involved in implementation.

The interviewees were asked if they thought their department should be involved in IT implementation. Over half (5) said no, they should not be involved and the reasons they gave for this were:

“It’s better there (in the IT department), as we see it as specialised. We are involved in the strategy so that’s OK.”

“We have a project level input.”

We have enough to do.”

“It’s not necessary, we have no expertise.”

“We are computer illiterate. But one of the trainers in the IT department has an IPD qualification.”

These interviewees had no desire to be involved in implementation in any practical way but were pleased to be involved in strategy.

Of the three interviewees who answered yes their department should be involved one said that they had not been involved because:

“traditionally IT was seen as finance based and so only finance people were given money for it.”

However, the three interviewees who felt that they should be involved gave the reason that they had a general wide ranging experience of personnel issues and knowledge of how to deal with people which would be useful in IT implementation. One of the directors of personnel said that the organisation had now realised they should be involved and they were moving towards future involvement.

Interviewees were also asked near the end of the interview whether they thought HRM involvement in implementations would result in more successful outcomes. Four answered no, three answered yes, and one did not know. One personnel director said that because the implementation which was currently being ‘attempted’ in their organisation was facing

problems, perhaps organisational learning would take place and they (personnel) might be involved next time.

11.3.6 How could the HRM department be involved in IT implementation?

The three interviewees who thought they should in theory be involved, apart from involvement in training, had no practical ideas for involvement. However, as the idea of their being involved is a new concept and they were unready for the discussion this does not mean that, given thought, they would be devoid of ideas on how they could have an input.

11.3.7 OTHER ISSUES WHICH AROSE IN THE INTERVIEWS

11.3.7.1 Budget constraints

The issue of there being a 'shortfall' of money for new systems was raised. One director said:

"There still may be a shortfall for money for the new equipment. It is still a pain. It still took me 4 months to get that thing. (Her laptop which she said cost £4,000) We didn't have any money in the personnel budget it had to come out of the IT budget, and I'm still not on the network at home because of the cost."

One directors said that there were difficulties because the users are employed to do a clinical job and:

"If you don't involve them in implementation they get fed up, but if you do involve them, it goes on longer and takes them away from their fundamental work, and you have this tension all the time. As far as I know there is no explicit recognition of time and resourcing. If you put in the context of contracts for service, i.e. x amount of money for delivery of x patient care episodes, unless the person agreeing the contract is clear in saying 'and within that contract I will allow you x time for being on PRINCE consultation team' the clinician is saying but I have to deliver my contract and someone is saying 'but we have to have you here on the PRINCE team.'"

11.3.7.2 Labour costs of clinicians and nurses

One of the directors said that the system they had just implemented enabled them to find out about the unit labour costs of clinicians and nurses. When asked about resistance by the clinicians he said there wasn't any:

“because there was always a reason if one clinician was more expensive than another or one nurse doing less than another”.

He went on to say that:

“For example if a nurse was say, doing a lot of eye drops, this was OK if she did a few but if she did too many it was not cost effective and a Grade B nurse could do that. It enabled a skillmix approach to be used.”

Another point he made was that:

“A team in one place might not be accomplishing what a team in another geographical location was. In the past staff were ‘randomly’ allocated to areas and this needs to be changed for efficiency. This had to be investigated, and possibly the team who were not accomplishing as much per unit cost would be reduced. This could be perceived as BIG Brother watching you, but we explain that we are being squeezed for finance from central government and we must make the best use of resources for the good of us all.”

11.3.7.3 The lean organisation

All of the directors talked about the need to save money. Two were actually doing two jobs in their organisation. They were all extremely busy and felt that they were suffering from information overload.

11.3.7.4 Control

One director had brought up the issue of nurses and implementation and said that nurses provided no barrier at all as they were very compliant, she thought too compliant. She went on to say:

“It would be managers who block it, the workforce at large do not have any choice. They go along with it.”

She was asked why she thought managers might not want new systems and she said:

“I think the biggest reason that people don’t like systems is that they are very controlling and people don’t like to be controlled, managers don’t like to be controlled.”

“And its controlling in another way, we have just got EROS system. Ordering system. Finance. Instead of ordering things on paper we order on the machine. (Name), my secretary will order and I authorise. It has been a nightmare, there is no flexibility any more. So where I might have signed a study leave form to say a nurse can go on a conference, now we have to put an order through the machine, and she can’t book until this is done, for me it has created a lot more work. But it is also very controlling because you cannot any longer go to W H Smiths with your money from Petty Cash for, say, paperclips. You have to do everything from the system. It’s more of the perception than the reality, you know the organisation is making me do this and controlling me. And I think that is why managers don’t like it.”

“Managers feel they are losing some of their flexibility. And we are, there is no doubt, there are increasing controls in the NHS. It may well be the same in the private sector I don’t know.”

The interviewer asked if she thought it was surveillance? She answered:

“Oh, yes. Every telephone call you make is logged by the computer system. And every month I get a list. There are advantages, it means we don’t waste public money and control it but I think that is just one of the concerns.”

11.4 PART C CONCLUSIONS FROM THE SURVEY AND INTERVIEWS

In both the survey and the interviews the majority of respondents were labelled with a 'personnel' title rather than 'human resource' title and in both samples the majority thought that the human resource title inferred a more macro level approach and involvement in the macro level decisions of the organisation. If this is so, then those with a more human resource oriented approach and with a human resource title might be more likely to be involved in IT/IS strategy because it might be viewed by others as more appropriate to involve them.

Whether there was an IT strategy was asked and in the survey 91% of organisations had such a strategy but when the respondents were asked whether they were involved in this only 64% said yes. As they reported that they were involved in other kinds of strategy in 81% of cases, their involvement was possibly not thought of as appropriate in relation to IT strategy. Of those interviewed 5 out of the eight were involved in IT strategy but the important point was that in three organisations the IT strategy was only formulated that year, and for the others it had been formulated only in the last few years. This may be the case in other organisations but unfortunately was not a question that was asked in the survey.

Over half (61%) of respondents in the survey said they were involved in IT implementation but three quarters thought they should be. There is some doubt however, about what the respondents mean by involvement, because when they were asked what implementation methods the organisation used for IT, only about one third knew the method and could name it. In individual interviews, however, none were involved and over half did not think they should be involved giving lack of expertise and 'computer illiteracy' as reasons. Two of the

eight directors interviewed had not heard of PRINCE methodology which was surprising. In theory the human resource department should be able to offer training for use of this methodology and if they had not even heard of it, this was obviously not happening. The data therefore raises doubts on whether there is 'enough' involvement of personnel/human resource departments in IT implementation.

Although 75% thought that the personnel/human resource department should be involved in implementation, only just over half (56%) said they thought that this would result in more successful outcomes. This is a strange discrepancy but could be because though they think they should be involved they know they do not yet possess the expertise to do so competently.

Although 94% of departments dealt with training, less than half dealt with computer training. The question asked about computer training in general and did not specify training for a 'new system'. Therefore, routine training for word processing and other packages would not appear to be part of the normal personnel/human resource department training packages. The same was true of the interviewees organisations except for one organisation and in this organisation there was a rather innovative IT manager who actively promoted that idea that **all** training issues **should** stay firmly in the personnel department.

HRM Directors (survey) were asked about management development approaches observed by Fonda (1986) in relation to IT. Over 50% thought managers were in category one or two which were the 'sink or swim' category and the 'Management Training' category. In the interviews, all interviewees chose category one or two and the ideas that computer training was boring and that ignorance equals resistance were put forward.

Directors (survey) were asked about the average number of days training per annum per employee and 61% did not know this figure. Those interviewed also did not know this figure but two of the organisations were becoming involved in the 'Investors in People' awards and this aspect would then receive attention.

During the individual interviews, although they were not asked specifically about time, respondents all mentioned lack of time and being too busy. Two of the directors were doing two jobs, that is acting as Director of Nursing and Director of Personnel. They felt that they were part of the 'leaner' organisation syndrome. The feeling of being under constant pressure could act as a barrier to their involvement in IT implementation even for those who thought they should be involved. It could also lead to a superficial involvement because of lack of time.

The data showed that management training and training in general might need more attention but that the departments involved in the interviews were so financially stretched and so time constrained they were finding difficulty in this area.

During the interviews with the directors a number of issues were raised by them which are of relevance to the study. Firstly, the difficulty of budget constraints and tight 'contracts' and who actually pays for the time when individuals are involved in consultation or on project teams.

Secondly, the fact that some systems implemented enable them to find out about the unit costs of clinicians and nurses. The particular director who talked at length about this subject at first said that there was no resistance by clinicians to this aspect but later he said this could

be perceived as Big Brother watching but said that they (the managers) explained that they were being squeezed for finance from central government and “We must make the best use of resources for the good of us all”.

There is difficulty in interpreting the ‘real’ understanding and interpretation of the new systems from the different stakeholder groups. Although this director at one point said he thought that clinicians did not resist the systems because they were for the good of all, he also listed a number of reasons which show that the system was not ‘in the interests’ of the clinicians or nurses and he further said that this could be perceived as ‘Big Brother’ watching you. He was, therefore, aware of the ‘control and surveillance’ aspect of the system.

Another director brought up the issue of control and said that nurses have little choice but to accept systems whereas managers don’t like to be controlled. She went on to explain how she personally felt controlled by the system and that the system made managers feel that they are losing some of their flexibility. She said that there was no doubt that there are increasing controls in the NHS.

Perhaps the most important findings from the data are that only 64% of directors were involved in IT strategy, only half the organisations trained for IT in the personnel department and though over half the respondents said they were involved in IT implementation over one third of respondents did not know the method of IT implementation used in their organisation. Additionally, the data showed that there was a ‘superficial’ approach to management training in relation to IT and the interviews showed that this might be exacerbated by the lack of time of managers.

CHAPTER 12

CONCLUSIONS AND DISCUSSION RESULTING FROM THE 3 SETS OF DATA

12 CONCLUSIONS AND DISCUSSION RESULTING FROM THE 3 SETS OF DATA

12.1 INTRODUCTION

This section draws together the three sets of data collected. Additional evidence from the literature is drawn into this discussion to allow deeper understanding of the issues and show some of the areas where this research confirms previous findings.

At the end of each section the main barriers to implementation of information systems found in the study are listed as bullet points.

The part of the MIT90s model related to external environment has not been specifically addressed in the empirical research but was dealt with in the literature review under the background section. However, its importance is acknowledged and reference to its impact on implementation is made in the final note in Chapter 14.

12.2 SUCCESS

This study aimed to look at barriers to the implementation of computerised information systems in the NHS and the literature review (Walsham, 1993; Sauer, 1993) and the case studies show the difficulty in deciding what can be taken as success in relation to implementation.

The survey showed a high percentage of successful implementations reported across the NHS organisations (85%), the illuminating finding from this study is that in spite of this

perception of success the implementations had not been without difficulties and constraints and all had faced some barriers during the process. However, the picture painted by the press of wholesale gloom and doom and 'absolute' failure of implementation is not confirmed by the survey data. At least one stakeholder group, the IT/IS managers and directors, considered their implementations to be a success.

In the case study implementations, which were beset with problems, and were judged to be failures by some groups in the organisations, there were still those groups who would not judge the implementations as total failure.

Coombe et al (1990) said that systems might be fulfilling their brief if they even raised the awareness of the professionals of the need to limit the use of scarce resources. Information systems which are responsible for bringing onto the agenda even the possibility that the work carried out by professionals might be costed and compared, from this perspective might be seen, as the Head of IT commented in Case 1 (MIS), to be not quite failures.

Certainly in the case studies, if some of the suggested measures of success (user satisfaction, implementation on time and within budget) are used, then none of the case studies were successful. Case 1 (MIS) remained in the implementation stage for over eight years and finally certain modules of the system were abandoned in the units with only the personnel module remaining. Even this module although scheduled for use was not being used by the 5 units studied and it was thought that the only reason this module had not been abandoned was to 'save face'. The Head of IT said that there was an 'out of court' settlement going on after action had been taken against the supplier of the system. Blame for the failure of the system was, therefore, being transferred to the supplier and to technical difficulties.

Although technical difficulties were indeed present, and these provided a rational reason for users to dislike the system, there is a possibility that technical difficulties can be overcome, if there is a will to do so and support for the system (Sauer, 1993). There seems to have been little of such will present in this case, although proving this is not possible. From the first strategy decisions to acquire the system mistakes were made.

The staff were not consulted at director level (local directors) on the need for a CIS, the system was to be purchased within a budget which appears to have been thought inadequate by both the IT personnel and the supplier, and there appears to have been no consultation with the users of the system, either clerical or managerial. There was no inspection of the work process and how it might be improved, no inspection of the different ways of working in the different units and how these differences could be reconciled so that the computer system could record similar data from each unit.

Strategy level planning appears to have taken no account of the likelihood of any resistance to a new system which might have arisen from the transfer of power from units to centre. Of course, such resistance might have been foreseen but not overtly recognised, in the hope that the system would be pushed into place eventually in spite of this. The research could not access such in depth information but the possibilities should be recognised. Eason (1988) concluded from his study that the principle ways of developing systems are not meeting the users' needs very successfully:

“especially not the needs of the local end-user, who may not like the systems planned by senior management partly because they may represent an attempt to exert more central control over them.”

In Case 2 (Technical system) which never left the planning stage during the study, once again, although reasons for the delay can be theorised there is no 'hard' evidence available. Access to the Head of IT and to the 5 local units was gained but no further access was possible. Local strategy decisions were seen in action but funding for the system was dependent upon decisions made in head office and the reasons behind their seemingly irrational instructions to go ahead and choose a system as quickly as possible because funding was available 'now', then when the units fulfilled their instructions, to change their minds and say no funding was available could not be understood even by those in the units. Taking an overview of the situation could lead to the conclusion that the money would not be forthcoming until the units 'chose' the system approved by head office.

In Case 3 (theatres) the system was judged to be successful so far by the IT manager, by the clerical users, and (so far) by management. The system was allowing management access to information which they had not had before. However, it was not judged successful by the nurses, or the consultant doctors who were still not using the system. They could give plausible reasons for not using the system but whether they are the 'true' reasons or not is questionable. Not actually inputting the data themselves, and for the consultants, not even filling in the forms which would be input into the computer system gave them a 'let out' area for disputing information from the computer information system. If they had not put in the information themselves, they could cast doubts on that information, saying that it was open to errors. (The consultant in Case 1 had made such accusations of computer systems saying that often information was missing or incorrectly filled in and garbage in equalled garbage out.)

In Case 4 (community) the system had been the subject of academic papers relating the success of the implementation. However, apart from the IS director and the IT manager, the picture gained of the system was of a system which lacked support from users, had taken longer to implement than envisaged and was costing more than planned. It seemed to have been one of the major factors in the CEO leaving the organisation and had certainly been the main reason for the demise of the IS director. In spite of this evidence, once again the system cannot be judged a complete failure if it is being used by some of those within the organisation, and this was the case. It could be argued that its very presence could be contributing to a change in the culture from professional autonomy to a more managed, costed, compared and accounted service.

If the survey results are considered in relation to the case studies there could be seen to be area for doubt related to the IT manager/director perception of success of systems if it were related to user satisfaction. However, if it were related to 'some use' of the system it could be seen as more reliable.

The main finding related to success of systems in the NHS is to re-enforce Walsham (1993) and Sauer (1993) in their contention that success of systems is a complicated and debatable area. If survey questionnaires had been completed by the IT managers of the 3 case study implementations it might be predicted that the answers would be:

- | | |
|--------------------|-----------------------------|
| Case 1 (MIS) | Partially successful |
| Case 2 (Strategy) | Still in the strategy stage |
| Case 3 (Theatres) | Successful |
| Case 4 (Community) | Successful |

because there was 'part' use of the systems.

Thus the complexity of discussing or reporting upon 'successful' systems implementation is illustrated. The reality may be that, as with other types of project implementation (Winch, 1996), it is 'normal' for implementation to be faced with constraints and barriers. This does not necessarily mean that systems professionals have not worked well, or that they could have done better. Sauer (1993:315) says it is implied that:

"all those missed deadlines, budget overruns, flawed systems and so on could have been avoided."

He argues that this has encouraged a narrow view of the information systems process:

"a view in which solutions can be simple, and where next time things will be better."

His contention is that this has not encouraged deep thought about the process.

Forrester & Morrison (1994:225) say:

"In fact there are fifty-seven varieties of the poor management hypothesis. Hundreds of articles in the management journals and scores of books have now been devoted to the question of how to manage IT....."

They go on to comment that there is a growing awareness that human factors and quality of work issues play a major role in determining success or failure of systems. These factors are, however, individualised by the 'fifty seven varieties of poor management hypothesis' when labour process theory might be a better theory to aid explanation of the fact that a system which has been imposed for central organisational objectives (or government objectives) and which is not felt by some (powerful) stakeholder groups to be in their interests might never have a chance of being smoothly implemented, and indeed have high risks of not being implemented at all (at least until it is technically 'out of date'.)

Therefore, if the initial strategy or aims for the system are felt to be against organisational members interests, the systems might, from the very conception, stand little chance of

smooth implementation, or in some cases, any implementation. So, whilst good management is important, and was seen to be lacking in certain areas in the case studies, good management might not be sufficient to overcome the obstacle of lack of user support. Sauer (1993), discusses this issue of user support, saying that this is the crux of most problems of IT/IS implementation. He, however, does not link this with labour process theory.

12.3 STRATEGY

The evidence from the data leads to conclusions that the element of strategy is one which contained barriers to implementation of systems. All three sets of data support this conclusion. Decisions to have new systems were most likely to have been made by executive director or board level staff but then in the case studies they did not seem able to support the subsequent implementation in the way that the literature advises and in the survey less than 70% of respondents said they definitely had top level support for the change process and this was confirmed in the answers to the attitude questions.

Whether there was a vision or mission statement, as advocated in the literature, was examined in the case studies only. This aspect appeared to be missing in the organisations studied. There is the difficulty in large organisations of actually transmitting this message even when it is there at the top. In Case 1 and Case 4 communications in the organisation seemed to be failing.

In Case 4 the final interview with the new CEO showed that the organisation was moving towards taking an organisational development (OD) approach where communications would

receive a higher profile. In Case 1, it appeared from additional information, that this organisation was also beginning to move towards the OD approach. They had undertaken two OD questionnaires but how they were dealing with the results from these questionnaires is not known.

The OD approach is advocated by the IMG and this approach encourages more involvement of the human resource or personnel director in strategy and top level decisionmaking in the organisation. The survey sent to human resource directors found that whilst 91% said the organisation had an IT strategy only 63% said they were involved in such strategy. The information from the individual interviews was illuminating in that 5 out of 8 directors had been involved in IT strategy and they said that the strategy had only been formulated either that year or in the last two years.

Perhaps one of the most important findings was that within the strategy the reasons for acquisition of the new systems were never clearly articulated or transmitted to users of any level in the organisations studied. The aims for the systems, from outside assessment, appear to be concerned with counting, costing and control of professional and indirectly managerial staff work. If this is correct then this decision at strategy level could affect the whole implementation in a negative way.

The study therefore shows what barriers were present related to:

- Lack of vision - mission statement of the organisation.
- No written IT strategy document in the individual cases at the time of acquisition of the systems and evidence from the HRM survey that only 63% had been involved in such

strategy with further information from HRM interviews that strategy had been very newly formulated.

- Lack of active leadership and motivation of staff
- Not enough commitment at top level of resources (money and time) for the change process.
- Aims for the systems which were not perceived as in the interests of (powerful) stakeholder groups acted as barriers to implementation.

12.4 STRUCTURE

In all the case studies the structure was hierarchical and rigid, however, in spite of this there was professional autonomy in the units of all the organisations and the new systems would draw information together in one place, in a manner which had not been possible before, which would allow counting, costing and control of the professionals and managers.

Professionals and managers were not clearly separated in any of the organisations, in that professionals were carrying out managerial tasks.

Deciding on how the system would alter the structure of an organisation is not straightforward but it could be seen in the case studies that the systems had the capability of moving power from local units to head office or to a central point in the organisation.

In the survey, respondents were asked whether the structure of the organisation would be changed by the systems and a quarter believed this was the case. In the theoretical question on what elements of an organisation could present barriers, structure was chosen by 29%.

All of the organisations were large and the consequent difficulty of communications and of actually implementing a system into such organisations with all the different stakeholder groups could be seen in the case studies. Multiple sites, complicate implementation, though size of system and number of people who would be using the system did not, according to the survey data increase the chances of failure.

In the case studies the IT/IS departments were independent units but this is not uniformly the case in the NHS (or other organisations). Currie (1996) explored this aspect in a survey sent to the private and public sector and found that the structure of the IT unit as sub section of another department was most common in the NHS and in the general manufacturing sector (about one third in each sector in her survey). She concluded that:

“The data suggested that a relationship existed between the nature of the core business and the structuring of IT activities. IT as a sub-section of another department usually occurred where IT was seen as providing a support rather than a strategic role.” Currie, 1996:60)

She concluded that in many organisations with this IT set up, the role of the finance department was significant. The reasons for this were historical and largely to do with the level and choice of accounting software used by the finance department. As a consequence many accounting departments set up an IT unit as a sub-section of their department and IT developed from there.

Managerial roles, responsibilities and powers are affected by the structure of the organisation. The literature stresses the importance of having a senior IT/IS director/manager in charge of these services (Earl, 1989) so that they may represent the IT/IS function at the highest level. In the NHS an IT/IS labelled director would rarely be at Board level, but some would be on the second level (often called the Management Board or

the Corporate Management Board.) However, in a large number of organisations they would not be themselves at this second board level, but would have representation through another director, who is often the director of finance. Currie (1996:63) reports that:

“An anomaly often exists between the IT/IS director and his/her decision making powers in the organisation. This was found in all sectors.”

Currie (1996) used an example of a Local Authority IT/IS Director who claimed he was unable to represent the IT/IS division at senior management meetings since he was not a member of such a committee. Instead he had to give his ‘strategic vision of IT’ to the Financial Director (to whom he reported). Currie (1996) reports that the IT/IS Director considered that this was inappropriate because the Financial Director knew little about IT/IS matters. Currie (1996:63) concludes from the data:

“Thus important issues of management co-ordination and financial control over IT divisions were influenced by other senior level groups, perhaps more than existing centralised IT divisions (with their own IT/IS director) would currently suggest.”

Further conclusions from the Currie (1996) study were that there was an impetus and desire to cut the costs of IT/IS services. Some 89% of the organisations in the Currie (1996) study viewed IT as a cost centre which required stringent management controls. Additionally, the service status ascribed to IT suggested that from the point of view of senior financial executives, IT was not a core business activity.

“Neither were IT Directors perceived as core personnel, and this was reflected by their relatively low managerial status and decision making powers compared with other groups.” (Currie, 1996:64)

Currie’s (1996) research throws light on the decision by those in Case 4 (community) to ‘lose’ their information director and make the information department part of the finance department. Instead of research impinging on practice, practice carries on using intuitive wisdom and tradition. The finance department retains power, the information department is

viewed as a 'support' tool and not an integral part of business planning. The information director is, therefore, considered expendable.

It is difficult to know exactly who is making these key decisions, though of course the executive board level of management has 2 out of 4 executive directors who have a medical professional background.

- Whether the formal hierarchy was creating barriers to implementation was not proved.
- It was found that the informal power (professional autonomy) held in the units of the organisations interfered with the implementation process.
- It was found that the new information systems would lead to centralisation of information and consequently power and it was suspected that this was one of the reasons that the information systems were disliked.

12.5 TECHNOLOGY

In spite of the fact that much of the literature claims that the main barriers to implementation of new information systems are related to social reasons (Earl, 1989) and writers such as Galliers (1993) often take an organisational and management stance in discussing information systems research issues, this study found that technical issues were an area of difficulty and a barrier to implementation.

In the case studies the systems were not seen as user friendly by either the users or the IT managers. In Case 2, which was still in the planning stage, lack of money for a new (up to date) system together with a (suspected) desire by management to put as many units of their

organisation on the same system as possible, are leading to the choice and purchase of an 'older' designed system which will not be perceived as 'user friendly' by those who will have to use it.

There was no attempt at job design or business process re-engineering (BPR) in any of the cases. BPR can be used to examine the work process before designing a computer system which will enhance the work process rather than being a copy of the present process, or worse still, a more lengthy way of carrying out the present work process. In one of the writer's conversations with a member of the Information Management Group staff, a discussion on BPR took place. The IMG's approach is that BPR is what is needed in many NHS organisations but this is an emotive concept and best left undiscussed at the present time.

The deficiencies in the technical systems in the case studies were in three cases related to insufficient funding for the systems. In Case 4 (community) there were initial assumptions that the system was adequately funded, but in the light of subsequent data, such as refusal of adjustments to the system for the community drug advisor, claims by a clinical director that their requests for changes were not dealt with, this might not be the case. The sudden departure of the information director from the organisation and limited access to the organisation have precluded further gathering of information.

In all of the case studies there were insufficient terminals for use of the system. In some instances users had to book time on the system and move into another office with all their paperwork in order to use the system. In the survey almost a quarter of the IT managers said that there were not enough terminals for use of the system. This apparently simple

factor could be a great barrier to implementation (assuming implementation includes using a system to its full potential). For users who are not initially keen to use a system to then have to go out of their way and be inconvenienced (when they are already overstretched in their work) to use the system is felt by them to be an intolerable situation.

Time and new technology are enemies. A vicious circle is set up when a new system takes years to implement. In two of the cases, (Theatres and MIS) the implementation was begun at least eight years ago. Technology has advanced rapidly but the systems have not. In Case 1 (MIS) the screens were perceived as old fashioned and the comment by the unit director "If you had shown me this system 15 years ago I would have been impressed, but in 1995 it makes me depressed" was indicative of staff feelings. The theatres system was DOS based which eight years ago was acceptable, but the majority of users now expect windows based applications and intuitive commands on screen. They are not prepared (nor do they have the time) to have to consult a manual frequently to use a system.

In the survey the majority of implementations had been completed within 3 years but 'unrealistic time scales for implementation' set by the government were frequently mentioned as a barrier. Technical problems were the most mentioned constraint to implementation with 51% mentioning this aspect and 42% mentioning that their supplier not meeting deadlines had been a constraint.

- In the case studies technology itself was a barrier to implementation because the systems were not seen as technically competent by users. In the survey technical problems were seen as a constraint by 51% of respondents.
- Suppliers not meeting deadlines was a constraint in both the cases and the survey.

- In the case studies the systems did not perform the job specified to the standard and speed expected by users. Not enough terminals were provided.
- In the case studies, the aims and objectives of the technology would have been fulfilled from the perception of the stakeholder group of top management. The local aims and objectives (for improved work processes) were not achieved.
- In the cases studies the new systems would not allow the different departments inspected to perform better.
- In this study there appeared to be no difference in the barriers present whether systems were specially designed or were packages.
- In the case studies time taken to implement the systems, often because of technical flaws, turned into a barrier to implementation.

12.6 PEOPLE

Consultation

The case study data showed that consultation with users was not taking place and consequently many difficulties arose (with work process etc.). The survey respondents said that consultation had taken place and they did report a high implementation success rate. However, the level of consultation and the attitude of the users to consultation in the survey is questioned because of the experience in Case 4 (community) where IT/IS staff were genuinely sure that consultation had taken place but users did not agree.

- Lack of consultation had caused barriers to implementation in the case studies. In the survey there appeared to have been a high level of consultation and there was a high reported success rate and use of the systems implemented.

Training

The case studies showed that the logistics of training all the users of large information systems creates problems. The cost of travel and accommodation for training where units are geographically scattered leads to a parsimonious attitude to the level of training offered. A lack of any 'spare' time by NHS staff leads to difficulties in leaving their normal work to attend training sessions. Decisions to train 'key' personnel and expect them to train others when they return to their unit leads to 'blind leading blind'. Time between training and actually having a 'live' system to work on caused problems in the case studies and in the survey.

The survey asked questions about the process of training and the answers to the questions showed that an exemplary approach had been taken. The majority were offered individual and group training, had online computer help, a telephone number for support, and access to a long and short manual. However, in spite of this, the attitude question given to respondents 'Staff are usually satisfied with the training offered on new information systems' elicited a positive response by only 50% with 29% being neutral and 20% actually disagreeing. This throws some doubt on users' satisfaction with their training.

- Training was an area where barriers were occurring both in the case studies and in the survey

Attitude to the system and change of task

In the case studies the attitude of the majority of staff was of disappointment and dislike. They had high expectations of the system which were not met. Their work process was not improved or speeded up.

There was evidence that higher level professional staff did not think their time was best spent on extracting data from a computer (Case 1 MIS). If efficiency is the aim of new systems and efficiency means saving money, then they might be correct. It would not be appropriate to discuss specific salaries here but a number of the professionals were on top level management/professional salaries and in the past secretarial or clerical staff (perhaps on a quarter or less of their salary) would undertake any computer work and present them with the figures (on paper) on which they would then base decisions. Such changes of work process and task should have been discussed at the planning stage of the systems.

Lower level staff were happily and efficiently using computers for other tasks with no trouble but did not like the particular systems being implemented (Case 1 and Case 4). In Case 3 (theatres) the consultant doctors would not fill in the forms which were to be given to clerical staff for data entry. Their attitude to the theatre system was to ignore it (one of Keen's (1981) listed tactics.) The underlying reasons for their attitude may be related to the explanations which Labour Process analysis suggests (Harrison & Pollitt, 1992,1994; Dent, 1991,1996). The system will most definitely allow their work to be more open to scrutiny and possible criticism by others.

The nurses attitudes in Case 3 and Case 4 were that paper systems were more appropriate and the new computer system did not improve or speed up their work process, in fact they thought it hindered them.

- Attitudes to the new computer systems under implementation were a barrier in both the survey and the case studies. However, the attitudes were not based on an 'irrational' 'resistance to change' basis. The systems were perceived by some users to slow down their work process and by others to be the cause of extra tasks.
- It cannot be proved by 'hard evidence' but must be brought into the analysis that there were background reasons why it might not be in the interests of either the users (and that term is difficult to define) or others in their organisation or unit for not wishing to have the particular systems implemented. These reasons are related to Labour Process analysis ideas that they would be more open to surveillance, costing and control when their work was entered on the new systems. For some of the units in Case 1 and Case 4 this could mean closure, for some of the consultant posts this could mean loss of their job, for the surgeons in Case 3 this could mean less time to carry out their private work in the private hospital (named 'the golden nugget' by nursing staff) across the road from the NHS Trust.

12.7 MANAGEMENT PROCESS

Planning method

The initial planning method was shown to be approached in a sound way in the cases and in the survey where the majority had used Prince Methodology. Of those who did not (use Prince) half said they would next time.

- The majority of those implementing new systems were using a sound approach to implementation and therefore this area (choice of a planning method) was not presenting a barrier to implementation for the survey respondents. However, in the 2 case studies which were begun some years ago, PRINCE had not been used and it appeared that no user consultation methods had been used.

Management of change

Management of the change process in the case studies was not adequate. There seems to have been no recognition that 'management of change' was a key issue for planning the systems implementation. There was no recognition that the change would involve all levels of staff in extra work and change their work practice. Although the survey reported successful implementation, managing the change was seen to be in addition to their normal role by nearly 70% of respondents (in some cases they were answering for others who had been managing change) and it increased the workload for three quarters. That this had a negative effect on the time available to manage the change was believed by 38% of respondents.

- Actually managing the change was a barrier to implementation. There was not enough recognition of the impact the new system would have on those involved.
- Lack of time to carry out extra duties related to implementation was causing a barrier to implementation.

HRM involvement

There was no involvement of the HRM department, or ideas that involvement might be relevant (cases). In the main survey the majority of respondents did not see any need for involvement of the HRM department and they had been involved in only 19% of cases.

In the HRM directors interviews (8 covering one region) all interviewees said that their departments were not involved in IT/IS implementation and some made comments about being computer illiterate. However, in the survey of HRM directors 61% said they had been involved in IT implementation. There is some doubt, however, about what the respondents mean by involvement because when they were asked what implementation methods the organisation used for IT, only about one third knew the method and could name it.

- Involvement of the HRM department was not occurring in the majority of implementations. According to Eason (1988) this would be a barrier to implementation.

Management style

This aspect was explored only in the case studies and the findings were that the style of management was mainly autocratic. An autocratic style of management is considered by writers such as Scott Morton (1991) to be a barrier to implementation and use of new systems. A much more flexible approach which allows for user consultation and involvement in decisions relating to new systems is seen as more appropriate.

- Management style was considered to be a barrier to implementation in the case studies.

Management training/knowledge in relation to IT implementation and change management

Management training both in relation to IT and in general was found to be an area which was being neglected in the case studies. This aspect was explored in relation to training for IT offered to managers, in the survey to HRM directors. Respondents were asked about the management development approaches used in relation to IT and over 50% said their organisation was in the category 1 or 2 range, which were the 'sink or swim' category and 'management training' categories. All interviewees chose category one or two and the ideas that computer training was boring and that ignorance equals resistance were put forward. In addition directors were asked about the average number of days training per annum per employee and 61% did not know this figure.

Dent (1996:72) discusses the management of computer projects and the failings found by the National Audit Office. He lists some of the attributes and skills needed by the new 'hybrid managers' and says "This constitutes a formidable list for many computer specialists...." (ibid., P73)

- Lack of management training and lack of knowledge about the whole area of IT implementation and change management were found and these would be a major barrier to implementation.

Learning organisation

Examining aspects of a learning organisation would be a study in itself but there were important facts found in the case studies which are of importance and should be noted.

There was no evidence from three of the cases that the organisations showed any signs of being learning organisations. They certainly did not learn from the mistakes made in their organisations in the past. Mistakes were seen as failure and to be hidden. In one case which had certainly not experienced a 'smooth' implementation the Information Director had published papers on the 'success' of the system. In another case, in spite of the fact that the professional had just experienced a failed implementation, he proceeded to make the mistakes he had seen made by others and which he had criticised.

One IT manager implementing the theatres system had learned by his previous experience and said in future he would use PRINCE methodology because it gave an implementation structure which included users. (This person has now left the organisation because he did not view his future as secure in the NHS. The government edict that 5% must be saved on management costs was very high in his mind. He considered that IT personnel were often 'the first to go' and he wished to secure his future before he was 'pushed'. He had joined the computer association and he was taking a higher degree and was very aware and involved in self development and training.)

- In general there appeared to be little recognition of the need to learn from past mistakes or to reflect about current situations.

12.8 CULTURE

Nearly 60% of respondents in the survey mentioned culture as a likely barrier to implementation and resistance of staff to new systems was considered to be a normal reaction by 54% of respondents with only 16% actually disagreeing with this (29% were

neutral). Additionally only 22% disagreed with the statement “Clinicians see their role as limited to care of patients and do not want to spend time managing information” which would infer that IT managers and directors view clinicians as having a view of IT as, if not negative, at least not at the top of their priorities.

In the cases there was a culture of professional autonomy, and this might have contributed to negative attitudes by clinicians and managers to the particular new systems being implemented. However, assessment of reasons for negative attitudes to the systems is complicated because criticism of the technical inadequacy of the systems was a rational reaction to their obvious failings. Thus more covert reasons related to a wish to remain autonomous (labour process analysis) would be unlikely to be aired when those whose interests were not served by the system had more than enough ‘rational’ evidence for refusing to use, or disliking the systems implemented.

- If culture is in this case related to a wish to retain professional autonomy then cultural reasons for blocking the implementation of new systems were present.

12.9 POLITICS AND POWER

In the survey over half of respondents mentioned politics as a likely barrier to implementation and three quarters thought that the presence of different stakeholder groups complicated the implementation process. In the cases, in the terms of power and resistance it appeared that the centre (of organisations) which had previously allowed a great deal of local autonomy were implementing systems which would be capable of allowing costing, counting, comparison and surveillance of local units. The aims for the new systems were either never

fully articulated or were sold to the clinicians as systems which would be of use to them, when subsequent use of the systems showed this was not the case.

In Case 1 (MIS) although the units were part of a large organisation they saw themselves as very 'individual' and thought that they could not be compared and did not wish to standardise any of their procedures. As long as procedures were not standardised then comparisons, except in very general terms were difficult. The information they had always had to provide was collected in individual ways and there were no checks on its reliability. The new MIS did not mean uniformity of the main work process of the units (which were technical procedures) but it would standardise collection of other data and timing of when data entry was carried out. It did not simplify or ease the local work process and was seen as something imposed by the centre to ease their work process. In fact the local units were carrying out extra work by running two systems. Both their own 'record system' with which they felt familiar and confident and of which they felt ownership and the 'central system', which they did not keep up to date and left as long as possible because they said they were too busy to do the extra work.

The general tendency of the system to move power and responsibility to the centre and away from the units seems a paradox given the general message that the new NHS should work on market principles. The units in Case 1 (MIS) were receiving conflicting messages. First the central government's implicit aim for market principles which would mean competition between units. Second, the imposition of a management system which would draw information together and to the centre. Thirdly, the later decision to group units (between 3 and 5 units) with the idea of working together (independent of the centre), but then bringing into the arena ideas that in some regions one or more of the units might close if efficiency

(saving money) demanded this. Asking units to share information and work, with the 'carrot' of closure hardly seems a productive strategy.

The inherent contradiction of a centralising information system being implemented in an organisation with a culture of autonomous units raises questions. Was the system intended to remove power from the local units? Was there intention to compete with private units (not NHS) and recognition that to do this would mean employing less director and consultant level staff? In other countries the service has been 'warehoused' in that it has become highly automated and deskilled with fewer high grade technicians and consultants and also more concentrated with less local units thus allowing 'economies of scale' and a very much cheaper 'unit processed' cost. The MIS when coupled with the subsequent grouping of units could be seen as a starting point towards such a process.

Did the initial instigators of the system (who are not known, because the Head of IT changed and written documents could not be accessed) realise the power change which was inherent in the system, or was there the naiveté, which is implied by much management and IT systems writers, that new systems are merely a support of existing work, an add on tool which requires only technical competence for successful implementation?

This research cannot categorically answer these questions. The subject is too sensitive to allow very direct research questions and answers to many of those involved. Either because they are at the top and access is refused or because NHS organisations deal harshly with 'whistleblowers' or those thought to be indiscreet.

Conclusions are made based upon 'informed' supposition using all relevant information to complete the difficult jigsaw.

- Background, unarticulated political reasons existed which (using labour process analysis) can be seen to be likely barriers to implementation of new computerised information systems (which would interfere with the present situation). These reasons are related to the professional wish to retain autonomy.
- Domain theory showed that there are potentially different domains, one for the medical staff and one for the managers, who are seen to be allied to the policy makers. These data suggest that in some cases the managers are not in the management domain at all but have interests which are allied to the medical domain. They also wish to retain autonomy from the centre of their organisations.

12.10 OVERALL CONCLUSIONS TO BARRIERS TO IMPLEMENTATION OF COMPUTERISED INFORMATION SYSTEMS IN THE NHS

Although a high percentage of survey respondents reported successful implementation they also experienced a high number of barriers or constraints to implementation. This was in spite of the fact that the majority had a sound initial approach to project management and consultation of users.

The case studies allowed closer examination of the implementation process and although the cases were assessed as 'less than successful' in their implementation process, it was noted that had the questionnaires been filled in by the IT director or manager these systems might

also have been said to be 'successful' by that stakeholder group (IT/IS managers and directors).

Thus definition of what constitutes success of systems, and who is defining success must be drawn into any discussion of success. Failure of systems equally contains inherent difficulties of definition and could not be said to be any exact opposite of success. There is no black and white agreed definition of either of success or failure in relation to new systems and the labelling of a system as a failure and the blame of individuals (National Audit Office 1990, Audit Commission 1995) and the assertion that with different methods, levels of staff, expertise, more funding, more time, the system implementation could have been 'perfect' may not be true.

The very great difference between the aims of the organisation, or at least the aims which NHS organisations are forced to take (by government edict) and the aims of different stakeholder groups, the most powerful being the medical group, mean that 'ownership' of computerised information systems, preached by many writers (Mumford, 1983) is not realistic. Many of the present systems being implemented were introduced, or are being introduced, with a specific aim, even if not loudly articulated, of bringing down the cost of the health service. If successful, they will do this by standardising work processes and allowing them to be costed, counted and compared. The organisational aim is, therefore, in some instances, not compatible with the aims of the stakeholder groups.

Actually presenting the newly available accounting information in a confrontational way to the medical domain is rarely done at present, clinical audit is used and once again aims of this system are articulated in ways which are non confrontational. Labour process analysis

allows a wider view of the process to be taken. Traditionally, medical professionals have been granted autonomy, and counting and costing of their work has never been on the agenda. Even now it does not appear to be on any overt agenda (Harrison & Pollitt, 1994) and was not given as a reason for acquisition of new systems either in the survey or the case studies. However, the fact that in Russia such operations as eye operations are carried out in a 'production line' fashion, with the work process split between surgeons who each undertake a small part of the process, shows that the medical profession could be treated in a very different fashion by employers. Child (1985:27) said:

"IT therefore is potentially a vehicle for changes which would put present conceptions of the 'service class' to the test."

(Goldthorpe (1982) classified the relatively advantaged white collar groups notably professionals, managers and administrators as the service class.)

The conclusion is, therefore, that although there are barriers to implementation present in the different 'elements' of an organisation and these are the concern of management the most potentially difficult barrier to implementation is found in the strategy element of the organisation wherein lie the initial aims and objectives for new information systems. If the initial aims of new systems are concerned with cost reduction, then there will normally be groups within the organisation who will be negatively affected by the system and if they realise its potential to affect them they will, either by overt or covert means work to impede its implementation. Strategy, in the NHS, is further complicated by the fact that it is government led. Therefore, in NHS Trust organisations even those on the top strategy level may not agree (to some degree) with the strategy they have to implement. The MIT90s work (Scott Morton, 1991) and much other change management literature assume agreement and commitment to the strategy of the organisation by top level staff.

As one of the most effective ways of impeding change is 'just doing nothing' then covert means might be said to be being used. In the case studies, none of the medical staff, who are the 'stars' and leaders in the health service, made any efforts to aid implementation or concerned themselves with implementation in any way. If they had showed interest in the new systems it is felt that they could have led other staff into use of the systems even if they personally would not input information. Their tactic of completely ignoring the system where possible meant that confrontation was avoided and in Case 1 (MIS) after eight years the system was abandoned from the 40+ units.

In Case 4 (community) one clinical directorate was somehow sold the system with promises of how it would be a clinical tool, but it appears that when clinicians saw the fallacy of this they grouped together and implementation did not progress to other units. Subsequently, the Chief Executive (who had championed the system) was removed and the Information Director and Human Resource Director left shortly afterwards. The difficulty for this research is that organisation members (clinical staff) could argue that the disappearance of these members of staff had no relationship with the information system being implemented. And indeed there could be a myriad of other contributory reasons. However, this study asserts that the system was, and is, seen as a threat to the autonomy of the medical professionals in the organisation and, therefore, it is not in their interest. It can, therefore, be seen as entirely rational behaviour by professionals to block new centralising information systems if they can muster the power to do so.

This research confirms La Nuez and Jermier's (1994:220) contention that:

"All employees including managers and professionals may have the motivation to resist or circumvent the imposition of management control systems which affect their work practices and their power and autonomy."

Much past work on studying implementation failure of IT/IS has concentrated on micro views of part of the implementation process and ignored the reasons for the introduction of new systems and their eventual effect on those involved. This tendency to view only part of the phenomena may have led to a distorted view of what is actually taking place.

It is suggested that resistance to some new IT/IS systems, or where resistance is not detected but a system nevertheless fails to be implemented, may be explained by overt and identifiable reasons given by those involved but that there may be other reasons present which are not articulated and are even 'actively' hidden because they are seen by those involved as being 'less legitimate' (La Nuez & Jermier, 1994) and against the 'organisational good'. Whilst identifiable and more legitimate complaints against the system are available (technical reasons, training reasons), it is unnecessary for less legitimate reasons to be aired.

This confirms Dent's (1996a:19) argument that if one is to understand the "content and consequences" of computer based technologies in hospitals then labour process theory is needed. He argues that doctors still have considerable autonomy and their position in the labour market has not to date been weakened. However, it is argued here that the introduction of certain new technologies such as MIS have the power to open up the performance of individual professionals to a more public scrutiny and the very fact that this scrutiny is possible opens up the capacity to weaken the position of the professional.

Unfortunately, a simplistic view of information systems implementation and failure is continuing to be taken and was illustrated in the BJHC & IM (April,1997c:6) by Ron McQuaker the President of the British Computer Society.

“The cause (of failure) is always professional incompetence, and the failure is always avoidable; either those to whom the projects are entrusted do not possess the required competence, or if they do, they do not apply it consistently,” (McQuaker, 1997).

The final question and debate must be, (given Sauer’s (1993) and Walsham’s (1993) comments, Dent’s (1996a) reference to labour process theory, and the analysis in this study) if the recommendations suggested in the study (Chapter 14) are followed, will future implementations be successful? It is suggested that implementers of CIS will always face barriers to implementation of some kind. The insight given by labour process theory and the literature on the difficulties of formulating strategy and of change management show the complexity involved in the process. The nature of the barriers, both technical and human, are such that at times they seem impenetrable obstacles, but nevertheless some systems, even in similar circumstances, do appear to have been successfully implemented.

The power of the different stakeholder groups appears to be an important factor. In some situations certain groups can withhold support for system, without actively ‘resisting’ implementation. Such inaction forms an unseen and difficult barrier either to locate or to combat. Knowledge by implementers of the possible scenarios will strengthen their power and improve their chances of successful outcomes. However, the type of management qualities, skills and expertise needed by managers engaged in the implementation of CIS (as listed in Dent 1996:73) are unlikely to be present in NHS managers if the present attitude (Dent, 1996) to computer information staff is continued. The case studies showed examples of the insecurity felt by staff implementing CIS and the most talented, competent and motivated staff will have no incentives to remain in NHS organisations if the short term contract culture and the ‘blame’ culture remain.

CHAPTER 13

**RECOMMENDATIONS, ADAPTATION AND DESIGN OF
MODELS AND FINAL CONCLUSIONS AND COMMENTS.**

13 RECOMMENDATIONS, ADAPTATION AND DESIGN OF MODELS AND FINAL CONCLUSIONS AND COMMENTS.

13.1 RECOMMENDATIONS

Although recommendations are being made here, the case studies showed the complexity of the process and supported Sauer's (1993:315) contention that:

“no recommendations can be made that are both simple and certain to succeed.”

Discussion of recommendations from the IMG.

The NHS Information Management Group have already, since this study was begun, started to tackle the problems of implementation. In spite of the very vitriolic criticisms levelled at them by various writers and Parliamentary Committees their recommendations for implementation are sound. Besides recommending the use of PRINCE project management methodology they have introduced the idea of using Soft Systems Methodology as a systems design tool. In addition they recommend that the IT strategy must be part of the business strategy and that IT /IS directors should be part of top level strategy decisionmaking so that it can be given the importance it is considered to deserve. However, they acknowledge that IT/IS directors rarely manage to take part in top level strategy.

They also consider that some type of process re-engineering needs to be carried out when new systems are designed. Once again 'jargon' impinges upon practice. What is meant is that the work process carried out should not be transferred unthinkingly to a computer screen. The work process should be examined, discussed and if possible streamlined with the aid of the computer information system. This might lead to parts of the work process being

abandoned or different staff might undertake parts of the process they did not deal with before. The process might also of course remain as it is, if this, after examination is found to be most acceptable to all concerned. (Bailey, 1993)

In addition the IMG recommend an organisational development approach to the organisation *in readiness for new information systems*.

These recommendations by the Information Management Group are sound. The recommendation to use Soft Systems Methodology for new systems design is particularly useful because although the title does not specify this, within the method there is a step which is similar in some respects to 'Force Field Analysis'(Lewin, 1951). However, this research suggests that even when systems are 'purchased packages' which have already been technically tried, there is a need for a Force Field Analysis stage to be undertaken. It is suggested that this is the most important phase of acquisition and implementation.

If the risks are too great initially, the decision can be made to postpone implementation, or at least those involved will be aware of the risks and act accordingly. If they are really serious about implementation then perhaps they will consider censure for those who do not comply with implementation, but given the power of the medical group at present, this does not appear to be an acceptable option by NHS top management. Also, given the possibility of covert resistance, it might not be a practical option.

Management practice does of course contain much which is based on tacit knowledge. Top managers might already know the risks but carry on anyway, considering that eventually, the

systems will be implemented. There is the comment by Coombs et al (1990) that just trying to implement information systems will change the practice of the medical profession.

Recommendations to overcome implementation barriers, based on the study

1. There needs to be a person at top management level with background expertise related to information systems and the political situations likely to arise with their implementation. This role would be best filled by an IS/IT Director.
2. Discussions need to take place at this top level on the aims for new systems and an informal and confidential Force Field Analysis after the style of Lewin (1948) should be carried out. This will then inform top management level about the situation prevailing which will allow them to make decisions about whether carrying out a more public Risk Analysis Procedure (identifying potential gainers and losers from the system) will be beneficial. It is difficult to make decisions on whether such procedures should form a part of the more public acquisition and implementation process because if there are powerful groups who will lose from the system, top management might decide they are going to go ahead in any case, and so wish to leave some of their aims for the system on their covert agenda, avoid confrontations and deploy some of their more powerful managers to be agents of change.
3. The implementation of a computerised information system must be recognised as management of change and not 'just' the addition of a computer system (with assumptions that it is a neutral tool.)
4. There must be decisions about who is actually in charge of information systems implementation. One ultimately responsible person should be named. They must,

however, have the knowledge, authority and security of tenure so that they are not continually threatened by other stakeholder groups.

5. Consultation of direct and indirect users on choice of system, or if a designed system, during the design of work process should be a priority.
6. The level of management training in all areas needs to be increased. A little theoretical knowledge and reading of own (NHS) already available training and information manuals should be encouraged.
7. The level of management training with regard to IT/IS needs particular attention.
8. The inclusion of the human resource director in both the strategy and in an advisory capacity at least regarding implementation will increase the chances that the human resource elements of change will be acknowledged. Human Resource Directors themselves will, however, need more training and a lessening of other more routine duties to enable them to fill this role.
9. There should be an adequate amount of training available (for new systems) to all users and care needs to be taken over its timing. If the gap between training and subsequent use of the system is too long then training is forgotten. If those with computer skills and an aptitude for computers are conducting training, they are sometimes guilty of assuming tacit knowledge which is not present. It was found unsafe to train users and then expect them to train other users when they were themselves still unfamiliar with the systems.
10. There should be serious thought given to the idea of all training being based within the human resource department even if it is given by computer specialists. Input by other trainers into the system training might heighten awareness of computer experts of the need for a very basic level of training for some professionals, and the need to present it in a non threatening way.

11. The literature already produced within the NHS by, for example, the IMG, needs to be more carefully targeted and available to those staff who would benefit from it. The research could not find evidence in the case studies of use of such material. Giving such material 'catchy titles' of any kind mitigates against busy professionals accessing it. They glance at titles and if the titles are not immediately fully descriptive, in the information overload situation prevalent, they are unlikely to request sight of publications 'on the off-chance' that they will be useful.
12. The use of a change model by top level, middle level managers and IT staff (Figure 13.2 on Page 381) might be useful to raise awareness of the potential areas of change in organisations. However, any model must be used with full realisation of its simplification of complex processes.
13. There needs to be an effort from the centre to work towards encouraging a more 'learning organisation' type of approach. There appears to be a culture of blame and of secrecy within NHS organisations. This makes it very difficult for managers to approach implementation of new systems in any way at all, let alone in an innovatory way. They will certainly not be keen to share the lessons from any mistakes made, because they are too busy hiding them.

13.2 ADAPTATION AND DESIGN OF MODELS

Discussion

When beginning the study, models suggested in a wide range of literature were studied. These could be categorised into process models (Kolb & Frohman, 1970; Bullock & Batten, 1985) which are similar to the basis of project management tools; or organisational models such as the Leavitt Diamond on which have been based subsequent popular models such as Peters and Waterman's 7S Model (1982) and the MIT90s Framework (an equilibrium model) (Scott Morton, 1991). The IT methodologies (Mumford & Weir, 1979; Checkland, 1981) were also examined because these too can be used as a type of change model for an IT acquisition and implementation. (The NHS recommend the use of both Checklands Soft Systems Methodology and PRINCE project management.)

Although the MIT90s Framework and the Kolb & Frohman Model were used as an aid to analysis, they are extremely simple, and their writers assume a high level of background knowledge on the change management literature and organisational development literature which may not be present in many of those who need the help of such models.

The MIT90s Framework is a diagrammatic representation of the elements which make up an organisation but even at the beginning of the study it was found to need the addition of politics/power. There could be an argument that the element of culture can include the element of politics/power and it is indeed difficult to separate these two elements for presentation of analysis. However, it is argued here that unless politics is explicitly mentioned, those using such a model could be misled. The MIT90s model has, therefore

been adapted to include politics/power. The term of politics/power has been used because discussion of the model with 6 IT managers found that if the term politics only was used to those working in the NHS then government politics was their first thought. The use of labour process theory (Dent, 1996a; Lankshear, 1996b) made more transparent the idea that the addition of the new computer system had the potential to alter the balance of 'power' within the organisation and increased the writer's confidence in adding 'politics/power' to the MIT90s model for use in the NHS setting. It would also be argued, however, that this addition to the model would increase its value in relation to other organisational settings.

Based on the empirical research it is argued that the factors of 'money' and 'time' also need prominent display in the basic diagrammatic model although they are not 'elements' of an organisation. It is also argued that the model needs at least some of the issues and variables which are implicitly inferred in the model, to be specifically included. The assumption by some management writers and academics of tacit knowledge held by all readers can be dangerous.

One of the criticisms which can be aimed at the use of models is that users may pick them out and use them without referring to any additional literature which accompanies them, or they may not indeed have adequate explanation for their intended use. The purpose of this adaptation of the MIT90s Framework is to provoke thought about the implementation process, to show the interrelationship of variables, and to show that all the elements of the organisation will be affected.

However, analysis of the data gathered in this study led to two different conclusions than those apparently reached by the MIT90s researchers. One was that the element of strategy

was the most important element in relation to success of new CIS. Strategy was a starting point and if this was faulty then the whole process of implementation was affected. The diagram has been adapted to show this. The second conclusion was that the idea of the organisation being in 'equilibrium' might be rather dated. With the present fast rate of change writers such as Stacey (1992,1993) argue that change is constant and therefore the organisation never reaches an equilibrium state.

When examining the change processes occurring in the organisations studied retrospectively, it is considered that the simple process models which list the steps to be used would not be helpful to those managing change in the NHS. They already have access (or should have access) to PRINCE methodology which is a proven process model. What is needed, (if models were to be used) is a model which lists the elements of the organisation affected by the change and shows the most important issues identified in the past literature and in this study. The adapted model attempts to accomplish this. In addition a simple model showing the areas which have already consistently proved to be barriers would be useful and this is shown in Figure 13.1.

It is suggested that initial awareness (at top board level) of the adapted MIT90s Framework with the force field analysis stage could aid organisations. Metcalfe's (1996) research within an organisation which actually designed computer software showed the difficulties of implementation when powerful individuals or groups have more to lose than to gain by complying with the implementation of new systems. Deeper thought about who loses and who gains by the system could at least raise awareness of the need to raise more support for certain new systems.

The logic of this argument, however, leads to the criticism that if the political situation is so critical and can be the main deciding factor regarding whether a system is implemented and used then the discussion of 'barriers' further along the 'process' is erroneous. However, if the implementation process is undertaken and there are powerful supporters of the system then much of the change management literature can be helpful.

Barriers to implementation occur even in systems which are subsequently used by organisation members and knowing that the change engendered in the organisation by a computerised information system will affect all organisational elements and should be proactively managed rather than reactively managed should aid implementation. The use of models can form part of this proactive management approach.

In spite of the adaptation of the MIT90s model the criticism of models as being too simplistic to do justice to a change situation is still argued. The magnitude and dimensions of the changes engendered by a new CIS cannot be shown in a diagram. However, as it would appear that the attitude at present of many top level executives/managers is still of IT as an 'add on tool', at least a model can show some level of complexity and that just using PRINCE methodology during implementation is inadequate. Prior thought and analysis of the situation is needed and all organisational elements need to be addressed. Below is shown first the simple model showing the barriers to implementation most mentioned in the study and in the literature and then the adapted MIT90s Framework.

Figure 13.1 Issues which could be particularly troublesome in an IT/IS implementation

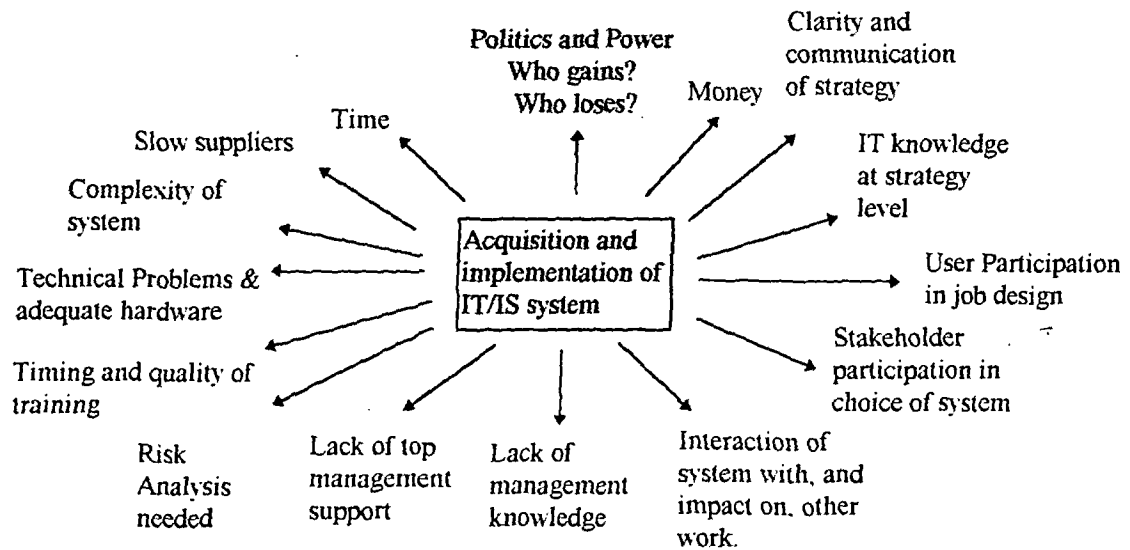
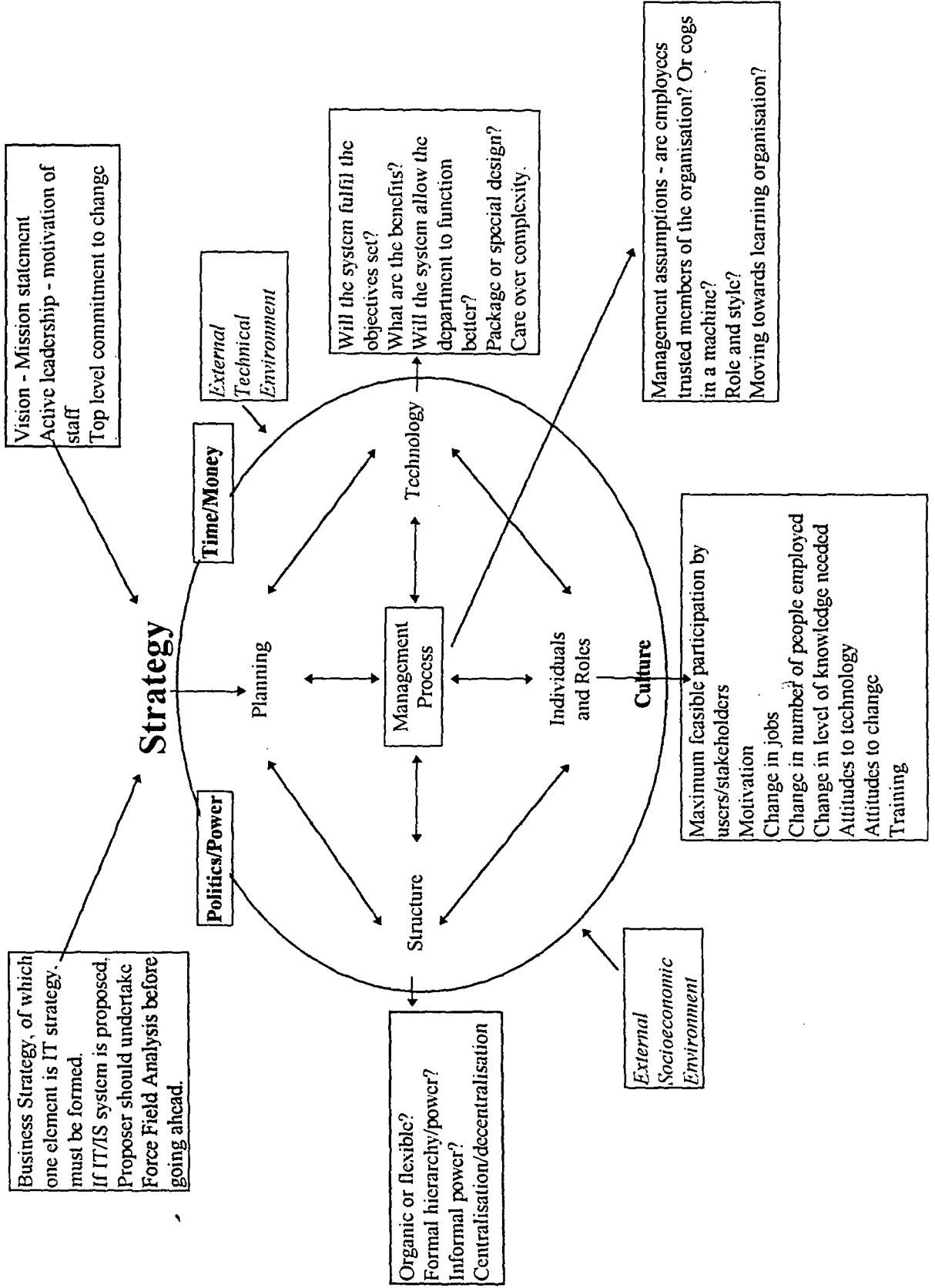


Figure 13.2 Adaptation of the MIT90s Model to show important issues for change management and IT/IS implementation.



13.3 FINAL CONCLUSIONS ON THE STUDY

The study has achieved some of its main aims. A macro-approach (using case studies) has been taken to examine the IT/IS implementation process. The process has been examined in terms of a strict theoretical base and the analyses point to the importance of a number of variables in affecting implementation results. However, they also showed the importance of taking an overview of the situation utilising such theory as Labour Process Theory.

The case studies showed the complicated nature of the implementation process and the many potential barriers which can interact and affect the process. They also raised awareness of the importance of the initial reasons for acquisition of IT/IS systems and subsequent study of Labour Process Theory reinforced the belief in the importance of these reasons and whose interests they serve. The point is made that there are many voices to be heard in relation to new systems, but there are also many interpretations of what is being said.

The justification for much management centred work has to be a prescriptive outcome. A tool kit of ideas to guide future work. This research showed that, certainly in the case of IT/IS implementation, the complexity of the process precludes such simple answers.

In spite of this proviso, an adaptation of the MIT90s Framework (Scott Morton, 1991) was constructed, based on the research findings and on the literature search. This model cannot cover all aspects of change, however, it is a useful starting point for discussion and stimulation of ideas, if there is recognition that much other background reading needs to accompany any model.

The study has aimed to add to the present implementation knowledge and it has achieved this in the following ways.

1. There are few longitudinal case studies of IT/IS implementation and Case study 1 adds to knowledge.
2. The case studies have taken a macro view, and this is rarely done.
3. There have been no other surveys to date asking about the implementation process actually followed in the NHS and its success. The survey showed that despite their imperfections, a significant proportion of systems implementations were considered to be successful.
4. The finding that technical barriers were present in over 50% of the organisations, and in all of the case studies, was significant. Claims in the literature that the human problems were most important and that technical problems can easily be overcome are questioned. In the case studies the technical problems were not easily overcome with one organisation taking their supplier to court.
5. The research shows the complexity of the process and supports Sauer's (1993:316) work on implementation failure which asserts that:

“no recommendations can be made that are both simple and certain to succeed.”

13.4 FINAL THOUGHTS ON THE RESEARCH PROCESS

Reflections on the research process are considered to be important and were an ongoing part of this study. In trying to carry out a macro view of the implementation process one of the main questions is concerned with how much information can be processed by one person and will the study give only a superficial view which will be misleading. In spite of this concern, after reviewing the literature, it was still felt that the macro approach was rarely taken (Kwon & Zmud, 1987) and, therefore, it would add to the knowledge needed about computerised information systems.

The case studies were begun, in good faith, with access promised, but because of internal politics/power within the organisations they did not provide quite the depth of access that was envisaged. More of the 'voices' inside the organisations, especially, top level voices, would have aided knowledge. However, these case studies add value, precisely because such politics were taking place within them. Reflection on the case studies does not open up ideas on how the study process, of these particular organisations, could have been approached differently. The comment by King et al (1994:6):

"An important topic is worth studying even if very little information is available."

was relevant to this study.

The main postal implementation survey, although possibly looking superficial next to the case study material, nevertheless, added to knowledge about the process used in many NHS organisations and the barriers found to implementation in these organisations. It would have been helpful to include more questions about the 'system champion' in the questionnaire but the questionnaire was already considered to be optimum length.

13.5 RECOMMENDATIONS FOR FUTURE RESEARCH

1. There is little research (apart from anecdotal comments in the popular computer journals) which has involved actually asking IT/IS directors their opinion of their involvement at board level, and how it could be brought about. This could be a useful contribution to knowledge.
2. Research into who is undertaking the 'change agent' or 'systems champion' role at present, and their experiences of the process would greatly add to implementation knowledge.
3. More research is needed asking a number IT/IS managers about their implementation experiences and the lessons they have learnt.
4. This research showed the importance of case studies in examining the implementation process and more case study based research is recommended.
5. More case studies of systems already implemented and embedded would be helpful. A wider view than the traditional 'user satisfaction' studies, finding out how the professionals and other stakeholder groups involved view the systems, would give retrospective knowledge which is rarely collected. Are new CIS viewed as a means of control, or surveillance by professionals and managers? Is there resistance to new systems? Is it always and inevitably the case that instances of resistance are designed to frustrate, rather than realise, organisational goals? How are the boundaries of legitimate and illegitimate surveillance set?
6. Methodologies, and in particular, Soft Systems Methodology has been recommended for use in the NHS. A study showing how many people are actually using these methodologies and how helpful they are is needed.

7. None of the case studies carried out, or were going to carry out a post implementation review. This would be a beneficial step to include in the process. Are they being carried out in the NHS? How are they carried out? Do they feed into organisational memory?
8. Definition and measurement of 'success' in relation to the implementation of computerised information systems would be beneficial both to implementers and to top management.

13.6 FINAL NOTE

The Queen's speech in May 1997 formally outlined plans to dismantle the internal market. BJHC & IM (1997a:9) reported that a White Paper to abolish the internal market and to 'bring forward new arrangements for decentralisation and co-operation within the Service' is to be introduced in preparation for legislation. This may well affect the aims and objectives for new systems and consequently their acceptability to the medical profession.

At the same time, the Head of the NHS Information Management Group retires and the post is being taken over by Frank Burns who was the head of one of the UK's top IM&T showcase sites. BJHC & IM (1997b:9) reports that:

"Also in a significant boost for the prospects of IM&T being raised much higher on all NHS agendas, Mr Burns will be a member of the NHS Executive Board in his new role."

Thus, two significant changes in the 'external environment' of those organisations implementing new information systems have taken place. The next five years might therefore see improvements in the implementation process which are brought about by factors which those involved in implementation within the organisations could not affect. A perfect illustration of the importance of the external environment.

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APPENDIX 1

CASE STUDIES

CASE STUDY ONE (MIS)

Write up and synthesis of relevant information.

This was a large organisation with a head office and well in excess of 40 units, geographically spread across England and Wales.

The study began with contact with a professional in one unit in October, 1994 and carried on until April, 1996 when the system was withdrawn from local units. Some interviews with staff in one unit carried on after this date to find out their retrospective view of the system. Case study 2 was also undertaken within this organisation and contact was continued in relation to this further study.

This data synthesis has a section on the background to the study, one on information from secondary data in the form of documents and letters, two interviews with the IT Director which are included in full because they give a valuable insight into the difficulties, and a section relating to the data collected in interviews with all levels and types of staff in the five group units which is ordered to follow the elements in the MIT90s Organisation Model.

1. BACKGROUND

This was to be the main (and initially the only) case study. It was a longitudinal study of a management information system (MIS) implementation in a multi site NHS type of organisation. (A head office and in excess of 40 sites in different Trust organisations.)

Access to the organisation was agreed with a professional in one unit. This manager/professional was asked if permission had been granted from head office and he assured the researchers that it had. It was subsequently found that head office had not officially been asked for access although the director of IT/IS was aware of the study and said he had no objections but permission for access would have to be gained individually from all sites (by applying to the individual unit directors).

First the organisational definition. Access was agreed to this multi site organisation as a NHS organisation. After a short time it was discovered that the organisation, whilst dealing with NHS work, and funded by NHS money, was not strictly part of the NHS but was an 'agency'. The governing body of this agency is the Department of Health and the Welsh Office. In spite of this, if one telephones the head office of this organisation and asks those on reception if they are an NHS organisation they confirm that they are. (Telephone calls were made on three separate occasions over the duration of the study.) Letterheading is on local hospital headed paper and (at the time of writing) there is no indication on that paper of 'agency' status.

After some difficulties about access it was decided to study a group of five of the units of the main organisation. The reason for this was that at the time of access (1994) the organisation was inserting an extra management layer and artificially grouping the units under separate group directors. The person who had negotiated original access to the organisation possibly thought that he would be appointed the director of his group, however, this did not happen, but he was sure he could still successfully negotiate access with the person who had been appointed.

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The organisation had a head office and in excess of 40 units all run autonomously. Those in the units thought of themselves as separate organisations but were quite closely tied with their local hospitals. The head office in London sent out their invoices and paid their accounts.

The type of work carried out in each unit was identical and the structure in each unit was similar, but there were different work practices. There were also differences in staff numbers. The norm was a director, a number of senior medical professionals, a number of senior technical professionals, lower grade technical professionals, administrative staff and secretaries and an office manager and some units had a storekeeper, and some a person with computing technical expertise. The unit where the majority of research time was spent had in excess of 50 staff.

Director/consultants	3
Manager of office	1
Office staff	12
Senior Technical Professional	1
Deputy	1
Technical staff	35

For the purpose of the study and to provide anonymity the computer system under study will be labelled NCS. The professional who gave access will be called Dr Johns.

Although access to the research site was negotiated by the research supervisors prior to September, 1994, the research process began in April 1995. Dr. Johns talked about the researcher doing action research. He said it would be a good idea and useful to draw up a project outline for the NCS project giving the aims, outline of project and the envisaged benefits.

He thought this could be used to inform head office of the project and to inform the units who would be approached to take part in the study and suggested the researcher drew up a draft and consult with him. The researcher said that with the NCS study, action research was not really appropriate, as all implementation and design decisions had already been made.

He said that this was not entirely true because it was not already decided how the system would be used in individual units. So it would be possible to have input by the researcher.

The questions he thought should be addressed were:

How will the NCS fit into their information strategy?

What parts will they use?

Will individual units give up their system or run theirs in parallel?

What is going on already that is worthwhile and they do not wish to change?

An evaluation of the system.

The difficulties of access were long and drawn out and the researcher initially suspected that the professional wished the study to be carried out because he did not want the new

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information system, was highly critical of it, and wanted some 'objective' outside data which he could use as part of a 'rational' argument against the new system.

Such objectives were in conflict with the head office strategy which was to implement the new system in all units whether the units liked the system or not.

The researcher felt that there were potential difficulties to carrying out a study within the remit of Dr. Johns. The political implications led to the view that any research output, if it were used by this professional to further his own aims, could be detrimental to both the researchers local career prospects and the future NHS access of the university. It would also compromise the integrity of the research and be in breach of the University's code of ethical practice.

After negotiation with the professional it was agreed that the study would be a longitudinal evaluation of the implementation of the system and not an evaluation of the system.

In the event, as the system was abandoned by the organisation part way through the study further problems related to use of research output by the professional were avoided.

2. SECONDARY DATA

Secondary data in the form of letters from HQ to the main case study unit and letters back to HQ show the time scale followed and charting the intention to implement, through to the eventual decision to withdraw the system from the units.

Exact Dates unknown	At some time during 1992/1993 there was a training initiative for the new System. Two people from each unit went to head office and had a training session of 3 days. This training was not useful because the system changed and also it was then a number of years before the system was actually in place in the units. No documents relating to this training could be found.
Dec. 1991	New Director of IT joined the HQ of the organisation.
2 Mar 1992	Delivery of 2 PCs for new System to main case study unit.
28 Apr. 1992	<p>Letter from new IT Director replying to a large number of letters from the units regarding the NCS system implementation.</p> <p>He apologised for not having replied earlier, "but the answers to many of the points raised are contingent on the resolution of major budgetary and logistical issues on this project, some of which, unfortunately, are still not resolved."</p> <p>Training would be at HQ (Note in ink on this letter by local staff said 'Is this cost effective?')</p> <p>Decision to use Word Perfect and Lotus 1-2-3 made at HQ. Satellite offices use a variety of systems and may not wish to change.</p> <p>Director said in this letter that after joining the organisation it soon became clear that the new System was not on track and a number of problems were emerging which would have a significant impact.</p> <p>Of these, the most significant were problems with a realistic plan for the development (of the system), the company failure of the principal sub-contractor, and changes in the technical design of the system to enable the Organisation's Operational Requirement to be met in full.</p> <p>This letter is useful for analysis of the situation because it highlights concerns brought up by the individual units which were obviously never envisaged. It also shows there was no consultation with those who would be using the system.</p> <p>Even at this stage there was no actual consultation of users, these concerns were brought to the attention of management (in letter form) by users who had concerns.</p>
July 1994	Finance and Personnel applications launched with a one-day seminar to wide range of users in head office.
Nov. 1994	<p>Notice of intention to launch the system into sub units.</p> <p>The form of training exercise and content of course discussed with, and approved by the members of the 'System Users Group'.</p>
Dec. 1994	Letter from Director of Case Study unit 1 saying he had no prior experience of the new system and could his unit send more than two staff members. He also wanted to know who exactly should attend the

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	training because the letter said that different staff might attend different days and indeed different half days. He said this was rather difficult given the distance and cost of travel and accommodation in London.
Dec. 1994	Letter confirming that a member of ITD staff would visit the unit to complete Phase 1 of introduction of the system. Giving dates.
11 Jan. 1995	Letter to the Director saying that the cost of travel etc was recognised and there was a special budget to deal with this. With reference to number of staff attending it was pointed out that the system was only ever intended for use by a few people, the Director, the head Technical Professional, the Administrator Secretary and possibly in some cases a storeman. The plans could not be changed and only 2 people could attend.
18 Jan 1995	Letter from Director saying his mind was put at rest about the costs of training but he was still concerned about the number of people who could attend the appropriate sessions on the training course. He would like consideration for extra places if they should become available.
18 Jan 1995	Letter from head office Head of Human Resources discussing who should have access to the personnel information held for staff in the unit. There was stress on the confidentiality aspect of the handling of personnel records. Access only on a need to see basis. Giving access to the personnel modules will allow the user to see all personnel records for their unit including the Director and other senior staff.
Jan. 1995	Formal Training for the system will be provided. 2 people from each unit for one week at head office.
11 March 1995	Letter saying that training is about to commence and that a trial run of training has been conducted. This has had useful comments from a variety of staff including one representative of the units. The course should be attended by at least one of the 2 people for the whole week in order to get an overview of the system. The two people who attend should act as trainers for other staff in the units when they return.
March 1995	Notification that ITD staff will be available to visit the units and assist with training 'on site' if required.
April 1995	Final notification of training dates. Saying that 'Due to circumstances beyond the scope of this letter, the training dates given cannot be changed.' Also saying that it is the intention to provide on-site support to units subsequent to training but for only one or two days per unit. Beyond this telephone support will be available from head office during normal working hours.
April 1995	Letter re System Performance in units (Précis) Although the system works within acceptable criteria in head office it is not working to this level in units. (Performance is 3 to 6 times slower). There is, however, no intrinsic problem with the system but the problem lies with a combination of elements. This information has been communicated to the system supplier who are now investigating the problem and its resolution. There is categorical assurance from the supplier that this problem will be resolved, and a solution implemented before the final round of training and full release

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	of the system to the unit network. Letter asks for forbearance in the knowledge that the problem will shortly be resolved.
19 May 1995	Notification that with the advent of 'live' access to the system input of personnel data will be a local responsibility. However this letter also says it is imperative that as well as maintaining the data accurately on the system staff should continue to complete the existing payroll forms (it mentions four, plus the weekly and monthly return forms) so that the Payroll Section can continue to receive notification of relevant information and changes.
23 Aug. 1995	System Equipment Safety Check - In one of the units a member of staff received an electric shock while investigating a problem with a piece of computer equipment. It was therefore recommended that all units arrange for an electrical safety check to be made on all computer and other electrical equipment.
19 Oct. 1995	Letter from Head of Finance on Setting up of New Cost Centres on the system - Setting up of new cost centres is not easy and it might be better to wait until the new Group Directors take up their positions before this is done. It would be better to leave this until April, 1996 Included 'NCS IMPLEMENTATION GUIDELINES'
7 Dec. 1995	Letter re System Supplies Module from Head of Finance Ordering of stock has been available since May June and though there have been teething problems modifications have been made to the software and Directors are asked to encourage their staff to make full use of the system. Notification that from the end of January 1996 paper orders will no longer be accepted by HQ Supplies and all requisitions must be made via the System. All existing stock must be on the new system by 29 Feb. 1996.
14 Dec 1996	Letter from Director of Case Study 1 to HQ Finance Office. Saying that though they would do their best to comply with the timetable outlined in the letter this would involve a considerable amount of overtime and it is something that they, along with other units approach with a considerable degree of trepidation.
8 Feb. 1996	Letter from Director of IT. Re System Performance "You will be aware that over the last three or four weeks the performance of the system has markedly deteriorated. The HQ have pursued this with the system supplier and obtained some advice on which we have acted. I have further prevailed on the supplier to supply additional processing capacity to bring performance up to acceptance criterion levels. This was delivered and installed yesterday (7/2/96). Performance will continue to be monitored closely, and further actions to improve system performance pursued over the next several weeks. I regret the inconvenience caused over the last few weeks to system

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	users. ITD continue to press the Supplier to ensure performance is raised to and maintained at criterion levels.”
23 Jan 1996	<p>Letter from Personnel Dept. Re: Attitude Survey</p> <p>Given all the changes which are occurring within the Service, the Top Management Committee has decided to carry out an Attitude Survey to establish how staff feel about working within the Organisation. Etc. etc.</p>
28 Mar 1996	<p>Letter from the Deputy Director of the Service to Group Directors Re System Supplies Module</p> <p>“The Service-wide frustration of staff involved with the Supplies module, and the underlying causes of that frustration, are well known. The situation has now become intolerable. Consequently, the decision Has been taken to withdraw the module from all units and centres on the 1st April, 1996.</p> <p>From that date, the system will be operated centrally at Headquarters; and units and centres will revert to local stock systems and send all invoices for payment to Headquarters for processing centrally.</p> <p>Attached to this letter is a short paper prepared by the Finance Director on procedures to be adopted.</p> <p>Meanwhile, I should like to convey my sincere thanks to all staff involved in operating the Supplies System, not only for their time but, particularly for their unselfish endurance in trying to make this system work.”</p>

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Copies of Presentations on the NCS system

Also in the files of the unit were copies of presentations which were given to management staff about the new System. These presentations appear to have been given by a number of professionals, from the HQ office, from the System Supplier and from Cooper Lybrand Deloitte.

There is a timetable of implementation in the pack and this was as follows:

- General Ledger Dec 1991
- Accounts Payable Jan 1992
- Accounts receivable Jan 1992
- Sales order processing Jan 1992
- Personnel Feb 1992
- Project costing June 1992
- Contract management June 1992
- Purchase orders Sept. 1992
- Stock control Sept 1992
- Other applications Dates within 1992 to follow design study.

NB: Access is subject to network connections being installed at the time.

This set of presentations seems to have been given prior to Dec. 1991.

The presentations look (from what appear to be copies of the overheads used) most professional.

The content of these presentations appear to set out a 'perfect' implementation method!

Documentary information on other changes taking place in the organisation.

Date	Content	Source
Dec. 1994	Report: Service IT Strategies - Adaptations for Grouping	Internal confidential paper
4/2/95	Business implications of grouping in the far South West. This paper covers: purpose, vision, risks of grouping, values, aims, critical success factors, financial analysis, management, organisation business functions, information needs, priorities for implementation of information systems in the Group and implementation options for a Group System.	Internal confidential paper
28/4/95	<p>Grouping</p> <p>Letter from Director of HQ saying that the Board had decided on the composition of the 'Groups'. This plan also showed that some of the units would be closed. It was labelled 'planned withdrawal'. This was planned for 4 units. The South West Group contained the most 'units' being eight in number whilst the average was 5. The South West Group was also the most geographically spread being from Truro to Hereford. It was difficult to see a rational reason for the difference in the South West Grouping.</p> <p>Interestingly one of the criteria of grouping was that there should be a maximum travelling time between units of 2 hours. This was one of the reasons they gave for not forming a single London Group. However, they did not then apply this to the South West Group whose time to travel from Truro to Hereford, especially in holiday periods would far exceed 2 hours.</p>	Document
Aug. 1995	<p>Group Unit Systems Implementation Issues</p> <p>Paper written to discuss and consider the experience of the pioneer Groups in modifying current IT arrangements to better support Group business, and to consider the implications for the remaining Groups. The paper considers only the issue of a technical support system not administrative management support.(that is not a management information system.)</p>	Internal confidential paper

3. THE VIEW OF THE HEAD OF THE IT DEPARTMENT

Background to the system as related by the Head of the IT Department (identified in interview as IT Head) and one professional (identified as Consultant 1). This interview was carried out in January, 1995 and lasted one and a half hours. The Head of IT is based in the head office of the organisation.

The Head of IT joined the service in December 1991 after the NCS Management Information System (MIS) had been ordered.

We began with a discussion about the fact that the organisation is not NHS. It is funded separately. Thus Consultant 1 said when the NHS in general had an increase of 7% on their budget their Agency had a reduction of 10% (Actually, I am not sure if these figures are correct or if Consultant 1 was exaggerating to make the point). The IT Head made the point that the Agency staff cannot seem to understand that they are not NHS. And the researcher gave the example that when telephoned they always assure callers that they are NHS.

The IT Head wanted to emphasise the independent nature of the units who operate presently at the sole discretion of their individual Director. To date they have all had their own management systems and technical recording systems (computerised or otherwise). Although the systems vary from just one PC which only registers incoming details to quite sophisticated systems which will give out useful management information for contracting purposes.

The IT Head said that to illustrate the independent nature he would give an example of what happened in one unit. This unit had a head Technical Professional who was very computer literate and he began to design a system for his unit. When this was well under way and it would appear at the point of 'no turning back' he left the service. He set up his own computer/consultancy business and the laboratory was in such a difficult position because when he left all expertise had gone, that they had to employ his firm to finish the system design and implementation.

The IT Head (who has a PhD) has had a very wide experience in business settings. He appeared to take a wide view of implementation process. He was knowledgeable on methodologies related to IT implementation.

He said that at the beginning of the eighties new design systems methodologies were taking on. These were seen to be superior to the old methods which were purely technical and took no account of users. He has a wide experience of these systems. When he joined 'the organisation' in 1991 he found that the staff there had no experience or knowledge of the new methodologies and even worse seemed to know little of the traditional design methods either. They, therefore, had very low expectations of a design system or of what they would receive.

He said that when he started there he had to begin to change the attitudes of the people who were working for him. The programmers etc. And also others not in his department. (He said that the problem is that when people call in computer professionals they expect them to earn their money by sitting at a terminal. They cannot understand that to design and install a management IT system the programmers/designers need to know about the jobs, the

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processes, and what is wanted from the system. He said that if the computer specialist is not sitting at a computer people think they are not 'getting their money's worth'.)

The actual department was not open to ideas. He said there was 'lip service' to any new ideas. Even at the top management level. (That is Director of the Organisation.) He said the culture was wrong. He said that business culture was Anarchic (meaning I think disorganised). They were re-active rather than pro-active. They had no IT strategy. It did not seem to get onto their agenda. He gave an example that the Director (of the whole organisation) was having a meeting with the Minister (planned ahead) but on the morning of the meeting he had a call to put together a presentation for lunchtime for the minister on what the new IT system (the being examined) had accomplished so far.

There followed a discussion about management in the NHS and the fact that many doctors and consultants were not used to management issues or concerns. Consultant 1 said that in the past doctors, even consultants, were only responsible for their own doctors and not nurses or budgets etc. Consultant 1, however, also said that in his case in Organisation X his job had always included management concerns.

When the IT Head joined Organisation X he had 25 staff. (Now 28-30) There seemed to be no control of the staff who were just phoned up by a user, whose problem they would solve, with no time sheets, no records etc. He decided that it would be better to have teams of technical staff who would be responsible for specific users. This would mean that the users would have a chance to get to know the technical staff they dealt with and vice versa. He said that the strength of this is that the technical staff would gain some illumination on how the users think and operate. He said he wanted and had started to take this as far as getting job swaps organised between Technical Professionals and computer technical support staff. Because this would give real insight and knowledge of the jobs people do.

However, he had only two staff who were support for the 40+ units over the country. These two staff were the ones with longest service who know the most about the units. Because there are only two of them, once again, they can only be re-active and not pro-active.

There was a discussion about the fact that units were now expected to be run as a business and this was a new and difficult concept for some staff to grasp. The IT Head said he was at an exercise on Unit Performance Indicators (interestingly this did not include any Unit Staff - and Consultant 1 said why wasn't he there?!) and he had talked about the customers of the organisation. Some people present would not use the word customer and said they did not deal with customers. He commented that this appeared to be beneath them!

The IT Head said that there was a strategic policy from the top that the individual unit systems should link with each other. He saw this as presenting difficulties because they are individually run.

He also said that the strategy was that units should link in with the different trusts and hospitals and GPs if possible but then these are not now under the same 'umbrella'. Especially if this Agency is not strictly NHS. It could, in theory, easily be privatised. (As this service has been in other countries.)

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The IT Head said that they are now going through the first stage of change. He said that there has been a sudden realisation that they do need IT for management information. Also that they need to have a corporate identity.

He said there had been no foresight, however, after further reflection he said "butwell someone did have some foresight..... because they commissioned the new system but unfortunately the system was designed to a price and not purely for a function."

He said that no one had any idea or could believe that staff and user consequences would ensue from installing a computer system.

The IT Head said the whole project was huge and they were well out of their depth and level of expertise. He said when he joined Organisation X it was 3 months into design and already 2 months behind.

He asked for the Supplier plans, but no plans were produced, he was not sure whether there had ever been any plans, but he could not get hold of any. He demanded that they stop until he saw the plans and was shown a technical design for the system. He was alarmed when he saw this contained two major flaws. He went to the Supplier and they denied the flaws but after another expert was brought in they admitted the flaws and re-designed the technical system.

At this time the major subcontractors for the job went bankrupt. He said the Supplier were liable but it was still a problem.

At this point he said he felt inclined to scrap the system and start again with a new contractor. This he was told was politically unacceptable. He said so we now live with the consequences. It has cost the Supplier millions and millions of pounds and has been a problem to them but they have carried on as a face saving exercise, they could not afford the bad publicity.

Thus, this Supplier company had made a great loss on its dealings with Organisation X.

Discussion on user involvement

The IT Director said that user involvement was a problem because even users often don't want to be involved. Additionally, those at the top want to commission a system and not be involved until the system is installed and working! They do not understand the concept of designing the system to suit users.

The researcher asked about the user group which someone had mentioned.

The IT Head said that Head office had set this up. He had not initiated this and just been told about it when it had been formed. He was asked how they had decided who was on the group and he said as far as he could see they chose senior Technical Professionals who were known to be in favour of the system (and would be no problem). When asked would it not be better to ask those who were not in favour so that they could be 'won over'. He said he was sure that they (users who were not in favour) would not have accepted anyway, because then they would also have been seen as responsible for any faults that may arise. Many people just did not want anything to do with the system.

He said that the units should have been involved in the design initially but as far as he could ascertain (and Consultant 1) they were never involved at any design stage. (As Consultant 1 is extremely interested in computing and goes out of his way to be involved in new systems where possible, it would appear to confirm that no involvement of users was undertaken.)

But now they are finding that the system does not give enough information for Directors of the Units for management purposes.

In fact there was another part of the software that was to be for Management purposes particularly, but at the initial stage the Supplier said they could not give a fixed price quote for this because it was impossible to tell beforehand how much it would cost to design. They needed to do an initial piece of work (paid by the organisation) in order to see the size of the problem. The organisation would not let them do this so it was left. Later the organisation asked them to quote for the management system and they refused and wanted nothing to do with it. The IT Head said this is almost unheard of. Not to quote at all, that is. Normally, if people do not want a job they would still quote but at some really ridiculously high price so that they are priced out of the market. (One can only assume that they were tired of dealing with this organisation and did not want to face any risk at all of further losses!!)

The IT Head said that 'The System' is a very ambitious system and has its good points. It is technically successful in some modules, like purchase orders.

He said that when it gets to the individual units, although it is one system, it will seem like an individual system to that particular unit.

The IT Head did point out that the change in hierarchy to the newly to be formed divisions (consisting of 3-5 units grouped under a Director and so forming another management layer) will possibly give another technical problem.

This new system might also mean that unit staff have to fill in time sheets. Something which has not been done before. The Head of IT and the Consultant 1 said this should be interesting as staff will not be happy. There was then some discussion about core time with Consultant 1.

Interview with IT Head in April 1997 - not taped but notes taken during the interview and written up afterwards.

Deciding on the opening questions for this interview was difficult. The interviewer was concerned not to antagonise the Head of IT, or compromise him, because the system had been withdrawn from the units. The approach used was to ask if, although the system was not being used in the units, whether those using it in head office were finding it useful.

The IT Head said that the system was not a success by any measure but possibly it was not wholly failure. It did not meet business objectives.

The IT Head thought that the only objective way to evaluate a system was to construct a business case. Then evaluate if benefit was obtained from the system,. Were the objectives

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fulfilled? Though of course some benefits were non quantifiable. However, too much was made of that aspect and the only way to evaluate was to use quantifiable objectives. (He thought that was sometimes an excuse for muddle headed thinking. People were sometimes too lazy to make proper measures.)

He said that here had to be a post implementation review. Asking are the objectives met? Did it save the money it promised? Did it generate new business?

He said that although some objectives succeed and some do not there must be objective criteria to measure the system against.

However, he argued that there were difficulties to this approach in the NHS because in the NHS:

1. You can't 'make' more money.
2. You can't 'lose' staff.
3. Efficiency, what is that, how will it be measured?

His contention was that if a business case has to be made in the NHS you cannot justify new systems! (This is an interesting point.)

He said that certainly for a finance system you should have the criteria. That is the only rational basis. The business case.

His next point was that the biggest problem in system development is understanding users expectations of the system. He pointed out that there were 'Factions' - working to different objectives. He also said that people avoid conflict if they can. Few people actually court conflict. (This might explain why sometimes problems are not confronted in the NHS.)

He said that people sometimes do a cost benefit analysis but it is often not tight enough. Spurious. They don't think in business terms in the NHS. However, in business - people see a gap and expect to achieve one of the following;

1. Cut in costs (of production or administration)
2. To avoid loss
3. To increase revenue.

This is not the case in the NHS. Some systems (in the Organisation) are there to support doctors.

He went on to say that for this system (under study) it can produce information that was never gathered or used before. This information can be used to rationalise the service. There are many who don't want to do that. No two groups have the same agenda. And it is virtually impossible to get them to have the same agenda!

He remarked "You can never win, though you can sometimes avoid losing."

He said "There is very rarely a hero in IT! If everything is going smoothly then it is not mentioned. If something is delayed or goes wrong the IT person is useless, inefficient etc etc."

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But he thought that most 'services' suffer the same difficulty. (Like personnel departments.)

The interviewer asked 'Well did you do a cost benefit analysis of your system?'

He said no that was never possible. They had to instigate legal proceedings against their system supplier and at the moment they were in the middle of an out of court settlement.

He was asked about a replacement system.

He said that they now want to outsource any replacement. He went into great detail and spoke at some length on the inadvisability of outsourcing. He said that in the NHS a number of major contracts had been rescinded. In his view outsourcing only provided cheaper system when the firms used paid such low wages they were slave labour. He said this had happened to cleaning and catering in the NHS.

The IT Head's view was that what was often forgotten was the issue of responsibility. Outsourcing might mean that the 'risk' could be shared. But it did not share the responsibility. So if the supplier 'screws up' we are still responsible in the end, not them. Everyone tries to get out of this responsibility. But the patient can suffer in the end.

Also often such contracts start cheap, but the money has to be made by the supplier and they often increase the charges later or they insert astronomical charges for any changes that the customer wants or needs. This means that in the end they are not a cheap option, or safe option.

He said he did not like auditors but in a conversation with the Government auditors they said that they thought outsourcing was a bad idea and was the first move of a panicking management.

He was asked again about a system replacement.

He then introduced the topic of '**A Prior Options Review**' that had been carried out. He said he didn't know where the name for this came from "because it was an exercise in determining whether they can privatise you. They ask questions like 'Do you need to exist? What could be done instead? Who could do it? etc.'"

"They decided at the end of this to leave the service alone!" He said because there were too many people against it being privatised.

However, they (the government) said that the support services should be market tested. Meaning IT services, personnel function etc. He said 'They'll get you one way or another!'

The director said 'they' appeal to greed and fear. He mentioned the Healthcare 97 debate on the success of PSI in the NHS. He said there were some very angry people there complaining about what was being done in the NHS.

He was asked whether he thought that technical problems were the main reason for the 'failure' of the system.

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“Technical problems are 50% but the ‘killer is the people problems’. The technical side can be fixed. But there are political problems.”

He also said “One trouble is that projects are costed with Zero Contingency Plans and so the first time they come up against a problem they are bust!”

“If you study project management no project ever comes in on time and in budget.”

The researcher said “But if you look at management text the political situation is not mentioned and nor is the fact that projects just always have ‘problems’.”

This opened up a long criticism of management texts. “Well management text is full of jargon, gives misleading information and is vacuous.”

He felt that management gurus have given such a lot of bad advice with no real knowledge behind them. “They come up with words like ‘downsizing’ and ruin peoples lives. Then they change their minds but it is already too late”.

Interspersed in the above there was some comment on the political nature of implementation of systems and ownership of knowledge.

4. DATA ANALYSIS FOLLOWING THE MIT90S MODEL

Analysis of the data from interviews with professionals, technical staff, administrative staff and the office managers, that is staff who would be affected by the NCS system. Two trainers from head office were also interviewed. A number of staff from 5 units were interviewed. A more informal liaison was built up with the staff in the main unit studied.

The original data which consisted of taped interviews was transcribed and analysed and sorted into categories which fit into the MIT90s Framework. The data is then used to 'reveal the story' of the implementation.

4.1 Strategy

- Vision - mission statement
- Active leadership - motivation of staff
- Commitment at top level CEO of resources to change process

The strategy was made by management at head office to purchase and install a centralised management information system with terminals in all the individual units. There appears to have been no consultation on the need for the system and it was a 'top-down' implementation.

The Head of IT was not on the top management board where strategy was formed.

The strategy was, however, government led. Many such system were introduced to NHS organisations resulting from the Resource Management Initiative. There appears to have been no real commitment to the need for such a system from within the organisation at either top management level, or at middle management level (local directors).

The Head of the IT department did say that the strategy for IT had been to join all the units by way of a computer system. This was a move from the autonomous nature of the units in the past to a more centralised organisation.

A short attitude questionnaire was sent out in one of the units and one of the statements was "The organisation has a clearly defined plan for the future." 20% agreed or strongly agreed with this statement, 30% were neutral and 47% disagreed or strongly disagreed. This would indicate that if head office have a vision, it is not reaching the staff at local unit level.

The questionnaire also contained the statement "Management in head office usually make good decisions." This was agreed with by 13%, neither agreed or disagreed with by 40% and disagreed or strongly disagreed with by 47%. This would indicate that staff were not confident in management at head office and motivation of staff was not taking place.

It was apparent from the data that there had been a lack of commitment at top level of the resources needed first to purchase a system capable of meeting requirements and secondly to implement the system. If there was a vision or mission statement in head office the vision was not reaching the individual units.

4.2 Structure

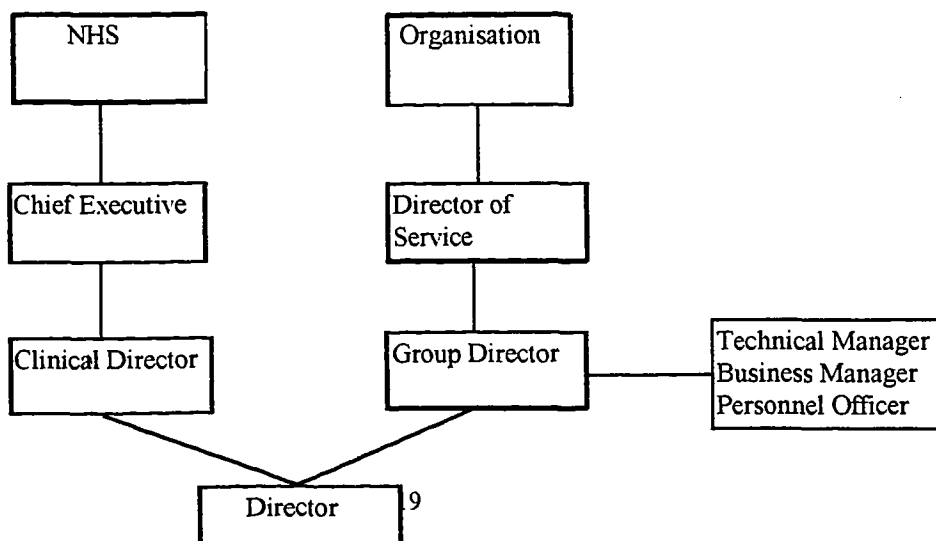
- Organic/flexible or formal hierarchy/power?
- What is the strength of informal power?
- Centralisation/de-centralisation?

The organisation could not be seen as organic or flexible. There was a formal hierarchical structure with a director and board in the head office and directors in each of the units. Although power theoretically stemmed from the director in head office, the local directors and consultants held informal power in relation to local decisions.

The organisation had a de centralised structure but the new computer system appeared to be a conscious effort to change this and work towards more centralisation of power. Head office in the main ran separately from the units. It did co-ordinate some of the data produced by the units and also sent out their orders and payments to outside suppliers (of the stock they needed to produce their work). However, in many ways the units operated autonomously with decisions made by the local director of each unit together with advice from the consultant level doctors in each unit. The directors were themselves medical consultants.

Each unit planned its work in its own way, with a variety of work practices taking place. It would appear there was also a difference in the measurable work output from the different units.

A structural change which was also going on when the computer system was being implemented was the grouping of the units. Individual previously fairly autonomous units were being formed into groups with the addition of a group director. This grouping added another management layer which is at odds with the current general management ideas about the flattening of organisations. One interviewee said that he guessed that the new post would take over much of the administrative work from the present individual directors, who would then be available to do more hands on 'professional' work. This could lead to the units being seen as overstaffed and 'what better way to reduce costs than to reduce the number of consultants in each unit?' This professional thought that if the new changes meant a reduction in staff at HQ this would be a good thing, but that it probably would not be the case, there were more likely to be reductions in the number of consultants in each unit.



4.3 Management - Role, style and process

- Management assumptions about people - Are employees trusted members of the organisation, allowed to think for themselves? Or cogs in a machine?
- Are management moving towards a learning organisation?
- Is there top management vision and active leadership to motivate their staff?
- Is there a System Champion?

Management of the individual units was under the direction of the individual directors. However, in the units there was not a 'management' ethos. When, at the beginning of the study, one of the consultants was asked about who managed the unit, he was quite astonished at the question. He said they did not really have managers. He thought one other unit had a 'business manager' but they had not. He commented that the one unit who had a business manager had found that the idea was not well received.

In another interview one of the consultants gave great emphasis to the fact that though he was not 'director' in the units the directors and consultants were on the same level and he inferred that consultants were definitely not 'managed' by the directors. The higher level technical staff also did not think of themselves as being managed.

During the study, a change to grouping of units under a group director occurred. A number of the staff commented that the extra management layer was probably being inserted in the organisation to try to exert more control from head office. There was a perception that if instead of having 40+ directors (who theoretically should be involved in central decisionmaking) they had 10 or 12 group directors then central management would be made easier. The group director was also given a team of technical manager, business manager, and personnel officer.

Although higher level staff did not think of themselves as managed, and did not seem to 'think' of management issues at all, their attitude towards their staff was extremely autocratic. Incidents observed in the units led to the conclusion that the higher level staff did not try to motivate staff in any way, and if there were opportunities to make the work of lower level staff more interesting by varying their tasks, it did not occur to professionals that it might be in everyone's interests to do this. The directors and consultants were used to their word being 'law' and they did not appear to consider ideas of consultation with, or motivation of, lower level staff. Their treatment of staff was insensitive.

The technical staff were managed by their chief officer but the title of this level was not management, and these staff had no management training. They definitely did not see their work as relating to 'management' but as relating to technical expertise.

The office staff were supervised by a manager but this post also acted as secretarial and administrative officer for the director of the unit. This level of staff in all the units were feeling overworked and stretched to their limit.

One of the office managers commented on the fact that the staff she managed had too much work to do. She ended up helping them sometimes when staff were off sick but said this is not a good thing as she had too much to do. She said they had a lot of part time staff and there was a limited amount of people who could be asked to do extra work. She said they were working on a shoestring all the time and this was very stressful. She also made the

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comment that it was not efficient use of resources to have her doing data input on her salary. She made the point that it was very difficult to get any leave. Firstly because there were not enough staff to manage when someone had leave and secondly because one felt guilty at 'leaving the sinking ship'. Thus if people did extra hours to cover for sick leave, they then had difficulty in taking the time due to them. There were no 'slack' periods. One member of staff who had worked for the organisation for 20 years said that at one time there had been 'less busy' periods, but this never happened now.

Office managers thought that there were high expectations of clerical workers. Also the managers thought that a lot was expected of them for the salary they received. One said "I have worked as hard as I've ever worked. Its constant pressure and you come away exhausted every day. It's a knife edge - because of the work load."

In one unit there actually appeared to the researcher to be a high level of sick leave being taken. There was no access to the files but one consultant actually left and took early retirement linked to ill health of a stress related nature. One consultant was said to be very near a nervous breakdown and had taken 2 weeks sick leave before his annual leave of 3 weeks. Staff mentioned that this person's wife threatened to leave him as she did not see him enough, they said she said this 'half jokingly'. One of the staff said he had been 'near to tears' on several occasions. Another consultant actually did have a marriage breakdown and took rather a lot of sick leave. The researcher also often found that when the office manager was telephoned there were numerous occasions when she was 'off sick'.

It was mentioned that there was not much satisfaction in the managerial/administrative work in the units. For example if a report was typed it always came back with some comment on it. It was never just right. "So you never feel valued. You can't relax at all. All the consultants are very individualistic and there is no team spirit to pull the 'team' together." A number of staff mentioned the lack of team spirit in their units.

There was no named person in any of the units with responsibility for implementing the new computer system. The letters from head office relating to the new system were from the Head of IT in some instances and from the Finance Director in others. These letters were addressed to the directors of the units.

A short questionnaire about a number of issues was sent out to the members of staff in one of the units. One of the statements used was "I am confident that our managers have the ability to lead us successfully through the next decade." 23% agreed or strongly agreed with this statement, 43% neither agreed or disagreed and 34% disagreed or strongly disagreed.

An additional statement was "Management in head office usually make good decisions." Only 13% agreed with this statement, 40% neither agreed nor disagreed and 47% disagreed or strongly disagreed. This shows a negative opinion of the decisions made in head office.

4.4 Technology

- Will the new system fulfil the objectives set?
- What are the benefits envisaged from the company's point of view?
- Will the new system allow the department to function better?
- How was the system developed ?
 - a) Off the shelf package.
 - b) Purpose built - in-house or external.

The new system was to be a management information system. However, there were no specific objectives set for the system and no prior cost benefit analysis. Although the benefits expected were not available 'on paper' members of staff perceived that the system was part of a plan to centralise control of the autonomous units.

Those who were to use the system did not think that the system would lead to the better functioning of units, although it would give head office faster and possibly more dependable access to information about the individual units.

The system was designed and purpose built by an external supplier who (as is the norm) sub contracted part of the work out to smaller firms. The main subcontractor went bankrupt shortly after the system went into 'production' and this caused problems.

According to the Head of IT the system was flawed from the moment it was designed. Some of its flaws were corrected but he reported that if he could have cancelled the order in the first few weeks that he joined the organisation he would have done so. He was not, however, allowed to do this.

One of the trainers (a permanent member of the IT team, who was a technician but who was undertaking training for the NCS system) said that 300 to 400 problems had been ironed out on the 'Suppliers Module' in the last 12-18 months. (This module has not been released to full use yet.)

He said that the original design of the system was flawed and the contract should have been cancelled with the supplier. The original specification for the software radically changed and was continuing to evolve. He thought that the system had not been specified properly from the specific user departments who needed the system.

His opinion was "It has been an uphill struggle to get where we are now." Which he did not think was very far.

The trainer said he had taken the supplier to two sites to show them the slow speed of the system in the local sites and he said the supplier representatives went 'very quiet'.

Another trainer said that the system had had a bad press - some of it deserved. But "It has the functionality and can do what is needed. The bugs have been ironed out. People will get used to it."

Staff were concerned that the technology meant that work was being duplicated. It was not making life any simpler.

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After the training and when staff started to attempt to use the system there was talk about the inadequacy of the system in that it did not supply the data that the hospital wanted. One of the professionals said that he had mentioned this to one of the top directors of the organisation when he visited the unit. He had said "Well, what do they need that for? They don't really need it. Just don't give it to them." From the professionals point of view this was all very well but he had in the back of his mind the fact that he is competing with the private 'units' that have sprung up in private hospitals and if he does not supply the information that the 'customer' wants, they may 'buy' from other sources if and when the opportunity arises. In the present business climate this could herald the closure of his unit and loss of his job.

The new system is based on 'Word Perfect' which is no longer considered user friendly and is not generally liked in the organisation.

One of the technical staff in the units said "It's diabolical, what I have seen so far seems so cumbersome. Messages appear at different places on the screen, I could never get out of the system. One time you have to press enter to get out, another time the space bar, another the escape button. There seems no logic, Its in no way intuitive. It's behind the times."

The interviewer said but it does work? And his reply was "Yes, but at what cost?" He said that when he was at the training session at head office the Head of Finance came in at the end of the day to answer questions and "Basically things became very heated. In actual fact what he said was "You are going to have to make it work." The respondent went on to say "But they are the ones getting the benefit. There is no thought of extra help for us. People will be slow at first and there is no help to get over that initial problem period. I think it is out of date before it goes in. The question time at HQ got very heated, unfortunately, I had to leave to catch my train so I missed a lot of the discussion". He had heard that the Senior Technical professionals were very critical of the system.

During a Group Meeting there was a discussion of the System and it was agreed that it was dreadfully time consuming. "I know it's in its first stage..but.....it's now created half a dozen new jobs. You can cheat a bit. But if the Auditors come in....."

There was some comment about one of the top management "having his neck on the block" for the new system. So it has to work.

One unit out of the five contacted, contained staff who although they thought the system meant a lot of extra work, thought it was user friendly and thought they system might make life easier on the stock control side. But they said they would still need hard copies of everything for the auditors and in case the system crashed.

4.5 Individuals and Roles

Individuals and roles

- Maximum feasible consultation /participation by users/ stakeholders
- Motivation
- Attitude to technology and change
- Training
- Task

Consultation

There had been no general consultation about the new computer system. Professionals and other staff all said that they had not at any time been consulted about the new system in any way. The professional who had a great interest in IT and appeared to have a wide network of colleagues across the organisation said that in asking around at group and head office meetings he had spoken to no one who had been consulted or knew anyone who had been consulted. All the directors interviewed were also unaware of any consultation taking place.

Motivation

There was little motivation towards using the new system. There was no system champion. Head office had not persuaded, or tried to persuade, local directors of the need for the new system. Local directors, were uninterested in the system, they did not think that it was to their advantage and, therefore, they did not attempt to motivate their local staff towards using the system.

Attitude to technology and change

One professional said that the new system would only affect management staff but previously when he had discussed the idea of technical staff typing anything into a computer, this had been firmly vetoed by the senior technical person. He had said the staff were technicians and not typists or clerks. However, the system *would* be used by the more senior technical personnel and so this might be a contributory factor towards dislike of the system. Using a keyboard might be viewed as an unwelcome additional task by some of the senior technical personnel.

Four of the five directors of the units did not themselves use a computer. They had staff to input and extract any information they might require and envisaged that this would not change. There was a view from lower level staff that to have the director using a keyboard was not a good way of utilising his time.

The office manager in one of the units was interviewed before the system was in place and thought that their present system was not good and any new system must be better. She said that the invoices they pass on to HQ for payment are not prioritised in any way and that HQ staffing levels were erratic and bills were not always paid on time which could cause problems. She said "if the new system allows us to do something about this it will be marvellous." She felt the same about supplies which she said could take a while to come through. She mentioned ordering letter heads in July and waiting until January until they came through.

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She also mentioned that reports were amended locally and sent to HQ but they then did not amend the reports and she had to write a number of times to get this done. She said a number of time, 'I don't know about a new system - but it must be better.'

Director, consultant and technical level staff were suspicious that staff cuts might be an objective of the system. The head technical professional in all of the units mentioned fears of job loss in the units.

Attitudes to technology and to change need to be seen in context, as the new computer system was seen to bring a higher level of work, possible a loss of power, and loss of jobs, the attitude to the change to a new system was fairly negative by professional and technical staff.

Training

Training for the new computer system was not perceived to have been handled well by those who were involved.

Local Training - Observation of the process

Two trainers from HQ came to the units to give on site training in March, 1995. The researcher sat in on this training. Five of the staff were to be trained on this NCS system. The trainer gave people their passwords and tried to log them on the system but their passwords would not work. There was a break whilst he contacted HQ to get this rectified. Meanwhile he used his password.

The system would be live from 8.00 am to 17.30 each day, 9.30 am on Mondays. The director immediately said this was not convenient as he got most of this type of work done after 5.00 p.m. There were constant interruptions during the training session for the senior technical person, this cannot have been easy for him and interrupted the concentration of those involved.

The training session showed that the system user interface was not 'user friendly'. An overlay of the computer keys was needed to show the functions of the keys. There were many exclamations from all members of staff on how unfriendly the system was. The keys needed to be learnt, nothing was intuitive. Some are not on any screen menu but must be found in the manual.

After a short time, perhaps 20 minutes, the system suddenly with no warning logged out. Apparently it does this sometimes for no reason. Staff thought this amusing. When discussing the password needed to get back into the system the trainer made a joke about the password saying "Don't put it on a sticky note attached to the computer." The Director said dryly "I don't think there is any danger of anyone wanting to use this system voluntarily!"

The trainer advised that one should not run the 'ledger' command unless one had one and a half hours to spare. Once it is started it cannot be stopped!

The screen was black and the basic type colour was green with rather a high content of orange. This was not easy to read. Most people commented and the trainer said that

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possibly the colours could be changed but he did not volunteer to do this and did not seem very sure about it.

Instructions and 'menus' did not appear in the same place on the screen as they do in a package such as 'Word'. This meant that one does not automatically immediately see what one needs to see, but 'looks' for it.

During the training the director said that he knew nothing before the demonstration and he had a very positive attitude towards computers and had kept an open mind about the new system but now that he had seen it demonstrated he thought it would make his life more difficult not easier.

The senior technical person said that he was sure it would increase his workload and not decrease it as he had been told.

The director said "If you had shown me this system 15 years ago I would have been impressed, but in 1995 it makes me depressed."

Another professional said that the system would increase the transactions and entries into the system and increase work levels. There were many comments on the slowness of the system. The trainer said that this had been taken up with the supplier.

Personnel Function on the System - The senior technical professional had until now kept a pegboard and index card system of holiday leave and sick leave which he kept up to date each week. He said this took him 2 or 3 minutes per week. The trainer said well all that will have to go on the computer every week and the senior technical professional said "Well, x (office manager) can do that, I certainly will not, it will take ages." This means that a weekly input of data would be added to Xs job when she has already said she is overstretched and cannot do more.

System Manuals - The trainer kept referring to the manuals, which everyone said they had not seen. He said they were handed out two years ago. They had been lost or mislaid in the five units.

Training in HQ

This was not considered to be long enough by any of those involved (from the units). However, they had not enjoyed the training. One of the professionals said "x(manager) and y (professional) had a week's agony, but z(Director) only had to suffer one day."

The two people who had gone on a weeks training said they had come back and looked at what was to go onto the system and were sure that instead of saving time it was going to mean an extra half days work per week. This was probably to be done mainly by the office manager who said she did not know how she would fit this in. She reported that she only took a lunch hour 'as and when she could' and that she already worked over sometimes but did not get paid for this extra work.

The manager had actually only done 2 days of the training (not 5 as the professional had said.) She had attended the course on Thursday and Friday, but said that Thursday was of

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no use because it really hinged on her having been there on Tuesday and Wednesday, which she had missed. However, Friday was useful for the personnel module training.

She said that if she were expected to start using the system for stock control etc. she just could not, as she still did not have a clue how to use the system.

Some of the units actually have a storeman and this was mentioned but this particular manager said that she was not sure what was to happen in their office, but that if the work was to come to the secretaries she would be disgusted. Those units who had a storeman did not seem to think he would be able to use the system.

One office manager was asked what the attitude seemed to be when she went on the training course. She paused for a time and said "It sounds awful, but you got the impression that everybody just wanted to get back home again."

She said that the system was absolutely appalling. "I find some of it totally obscure, the way it describes some things on the menus and you can go in and out of menus trying to find which key to hit. I don't know what's going on to be honest with you but I think they have bought a white elephant. That's my impression. I find it absolutely...well.... sad.....because there was scope to do so much. Compared with what I've seen in the private sector (insurance) this is absolutely appalling."

The system had been going to incorporate E Mail but this had not been mentioned.

One office manager said that for the Friday session she was the only one there from the unit and all the other units had 2 people there, but she had been told no-one else could be spared. She thought it would have been better with 2 so that if one forgot something the other might remember. You needed some support. "To make it work, that's just very daunting...I'm just totally depressed."

It was reported that on the training course participants felt they had to "scribble bits down" as the manual wasn't explicit.

On being asked what the personnel module might give that they did not already have the answer was nothing.

One unit's Senior Technical Professional said "I can understand all that and I can do all that on NCS. But to be honest it wasn't much to do with the course, I had taken the trouble to learn it all before I went on the course. I actually got one of them down here from head office before I went on the course, to give me a hand with the basic training in it, because I knew what the course was going to be like. I've been on these System x courses before and they are.....I knew,.. they are,.... I won't say they are useless, they are extremely um, there's a lot crammed in to a very short period of time and therefore I knew that when I came away with a lot more people in the room....I'm not that computer literate anyway, the chances were I was going to come away without a lot of knowledge. I was going to land myself back here with someone saying get the budgets out you know. So I thought, right I'll get someone down here from head office. So I wheeled and dealt and said I want a days personal training before I go on the course so that's what I got. So I understood it before I went on the course. I knew what I was doing on the planning side."

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He went on to say "Unfortunately the two girls who went on the ordering side, they learnt what they were taught, but having come back to the unit they found it hard to put into practice. I have tried to pick it up, and help them learn as well, but I am finding it hard. I am trying to learn it almost third hand. It's got to the point where they have almost wiped their hands of it because they can't get it to work. I'm left now on my own, and I didn't have any training to start with so ... laughter.... I'm a bit frayed with it all. And the personnel side as I say, the two girls who did that they got nowhere. Though to be fair one of the girls hasn't had the time to have a go yet."

Another senior technician's view of the training was that he thought that the training at HQ was not adequate to be able to expect them to return to the unit and be able to use the system immediately. "They send us back with the manual and expect us to use it next week. Crazy with the training given." "I think it is by accountants for accountants. It will help HQ but not here. It will mean we spend more time doing the work." He considered that they already had too much work and said that there had been an audit team from HQ to check on how they managed their high output of work with less staff than other units.

Supplementary Training Day January 1996

This training day took place in the local office and was the result of a letter from HQ Finance department which gave an ultimatum that the system must be in use by 31st March 1996. This training day was for the senior technical professional, 2 of his staff, the office manager and one of her staff. The office manager was off sick. The person who should have come from the office could not come because she was needed 'on duty' as she was the only secretary there that day. No-one seemed concerned at this and no-one made any effort to find a replacement for her so that she could have the training, to pass on to her boss.

The secretary said "x is off sick for a week, I should be having system training but no-one is here to cover for me. X (another member of staff) left at Christmas and she hasn't been replaced. They haven't even advertised. I thought they should have a temporary person in. It gets worse here."

One of the clerks said "x (the manager) is off again, I don't know she doesn't seem a very well person." (Inferring she had a lot of sick leave.)

One of the professionals came into the office and said. "This reflects the attitude of HQ - they expect us to do the implementation with no extra staff. Then we have people off sick. Well, its doomed to start with."

At the start of this training day the Senior Technical Professional said "I had all that training and I still don't know how to switch it on. You can write that down." (Researcher was taking notes.)

Before the day started it was found that the memory upgrade which was meant to have been done on the system had not been done. Further, no-one knew where the discs were to do this!

No-one has really been designated as responsible for the system in the local unit. The Senior technical professional had other paperwork relating to the system but not the necessary discs. He said they could have been picked up by anyone.

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In the general conversation about the system before training, many negative comments were made.

When the training started a 'live' order was made. First there was a very long search to find the code for what they wanted to order. The catalogue with the code numbers was not in any sort of alphabetical order! This meant that a search for the product to be ordered was of a random nature! This was very time consuming and frustrating as it was a rather large book of codes.

The trainer made a note that the book should be changed!

Then a 'wrong' code was put in, (not on purpose) and the machine took ages trying to match it and in the end the trainer phone HQ to tell them to abort that search process as it could not be cancelled or aborted locally.

One person at this training session said he had been to the very first training in HQ but the system was now completely different from then.

One person asked where the computers would be sited as it would not be convenient to have to come into the senior technical professionals office every time to use it. Another terminal was needed. The training carried on until 3.10 p.m.

The trainer said that the system was being used in one of the other units in this group. But this was not confirmed by the research.

The senior technical professional said he did not want to see how the personnel part worked as he was not going to use it and if the manager could not work out how to do it when she got back she could go to the other unit to learn how to use it.

Near to the end of the day the senior technical professional suddenly said "Its not too bad really is it?" which was a really amazing turnabout considering his attitude at the beginning of the day.

One of his staff who did most of the keyboard work and who would probably be the one using the system for stock entry, got on very well with the system and made no adverse comments. (Though this could be because he was with his 'boss'. Who it should be said 'would not suffer fools gladly'.)

The other member of the technical staff seemed quite neutral to the system and said his main worry was the difficulty of finding code numbers in the (difficult to read) catalogue.

The senior professional who had arranged for the study to be carried out, kept well out of the way and did not come near the training or the trainer. He just made some adverse comments on the system first thing in the morning.

Case 1
Task

- Change in tasks/job content
- Will the new system help them to do their work?
- Will the new system make the task easier?
- Will the new system make the task faster?
- Will the new system make the task more enjoyable?
- Will the new system make the task more interesting?

Various members of staff were asked if the new system would improve the efficiency of the unit. There was a consensus of thought that this would not be the case, in fact the opposite would probably be true.

Ordering was done manually and the new system might mean that record keeping would be more accurate but it appeared that this would take more time.

The stock control was seen to be a benefit to HQ but not to the local units. "We just look in the stock room once per month at the moment and see what we need to order. There will be a more documented system which might be useful to management, but not to us. Not compared with the extra effort that will need to be put in."

In this unit there was no storekeeper and on being asked whether a storekeeper could take on such work they laughed and said "No, you need someone senior to do it, you couldn't let anyone loose on the system."

There was still no decision about how the system would be used or who exactly would use it. "We still have to get together and decide that."

In August 1995, in another unit which had a storekeeper it was said he was not sent on the training, though he would probably use the system. When asked why he did not go the answer was "There may be a reason for not sending him, I don't know, it may be political." (Apparently they have 2 storemen and one is very awkward). This unit also did not send the secretary, who they thought would use the system. They said they were too short staffed to spare her. They had not got their passwords or tried the system yet.

They had not thought out how or by whom the system would be used. They seemed to think if they ignored it, it would go away.

The new system, if used as it seemed to have been envisaged, would change the job content of the directors who were meant to extract management information themselves. They did not view this positively, and were quite happy with their present system. They did not think the system would help them do their work. It certainly would not make their task easier or faster or enjoyable.

Lower level staff who would be involved in data input could only see negative results from using the system although some in one unit initially hoped that the system would be an improvement for them.

4.6 Culture (Values, beliefs, attitudes, norms)

- Is the present culture one which will allow innovations to occur?

63% of personnel in one of the units agreed or strongly agreed that they were proud to be a member of the organisation, 27% were neutral and 7% disagreed. 93% of staff in this unit said their job gave them satisfaction. 70% said they actually enjoyed their work.

However, only 33% agreed that there was a good spirit in the organisation, 27% were neutral and 40% disagreed or strongly disagreed. When given the statement "This organisation looks after its employees." 23% agreed, 40% were neutral and 36% disagreed or strongly disagreed.

Although a high percentage were proud to be a member of the organisation and found satisfaction in their job and actually enjoyed their work, few people thought there was a good spirit in the organisation or thought the organisation looked after its employees.

A number of employees who would be using the new system were suspicious of the motives for the introduction of new system.

There were changes in the organisation such as grouping of the units and this was making the staff anxious. There were also rumours about privatisation of the whole organisation and fears that if this was carried out jobs would be in jeopardy.

The working conditions and surroundings in the unit were not of very high standards. Staff were pleased to work in the NHS but were not happy about the changes taking place.

One of the directors said there had been a long history of computer disasters in their organisation.

There was a culture of mistrust in the organisation and in the foyer of one of the units one of the leaflets left out for the public was seen by the researcher to have been altered in red ink. The alterations related to the fact that units were closing and less money being spent on the service.

4.7 Power

“About 95 percent of information-technology application issues involve power and organisation, not technology. Since these issues are largely political, start to work through them now because they’re on the ‘critical path’ for implementation.” Tom Peters (Quoted In Fallon 1995:5)

The NCS had the capacity to alter the balance of power in the organisation. The centralised MIS would allow greater control by the head office over the previously autonomous units. Individual directors and consultants and their staff would be more open to having their work costed and compared. There were informal discussions of the fact that under the new grouping of units, some units might be closed, or less consultants might be needed.

Although this was not mentioned, the unit director post might also be jeopardised by the grouping exercise. All of these changes could be made easier by the efficient working of the new computer system.

Many of the comments made by the Head of IT in the interview beginning on page 13 can be related to power.

CASE STUDY TWO (STRATEGY)

Data Analysis related to a new Laboratory Information System (LIMS)

This information system was to be implemented in one unit of a multi site organisation. During the planning stage, the organisation inserted another management layer. Instead of the individual units each with its own director there was to be a change to groups of units with one director in charge of four or five units. This complicated the planning of the system as there were then ideas that perhaps the units in each group should all use the same computer system.

1. Background

The idea of studying the acquisition and implementation of a new computer system for the unit was discussed and agreed in October, 1994. The system was seen as being urgently needed and purchase of a system was at this time seen as imminent (by the consultant in the case study organisation).

Interviews were held with the main consultant concerned with planning and procurement over the period October, 1994 to May, 1997. Various plans were drawn up, but the system was still not procured at the end of the available study time period.

Because the system implementation was seen as imminent, and the study was to be a before, during and after longitudinal study, 'before' interviews were held with the clerical and administrative staff who would use the system. Interviews were not, at this time, held with the technical staff, who might or might not be involved with using the system. In the event, as the system implementation remained only in the planning stage, the majority of interviews about the system were with the consultant and concerned with keeping up to date with planning developments.

Strategy

- Vision - mission statement
- Active leadership - motivation of staff
- Commitment at top level CEO of resources to change process

The unit was part of a larger organisation dealt with in Case 1. The vision or mission statement of the organisation had not reached the units. There was no active leadership or motivation of staff and commitment of resources to the units for a new system was lacking.

Strategy and planning for the new system in the local unit

Issues and questions:

- Who would choose the LIMS system?
- Would users be consulted?
- Who are considered to be the main users? The laboratory staff, the data input staff, or the laboratory managers? Did the laboratory staff or data input staff have the breadth of knowledge to be usefully consulted?

The lead consultant in the procurement of the new system did not seem to have thought about any of the above questions. This was in spite of the fact that he was not happy with his experience of a 'top down' implementation of the NCS in his organisation and thought that it (the NCS system) would have been better designed with user input and consultation.

He did not start by looking at the work process, or at the tasks to be done, or who would do them. This appeared to be an omission on his part because the different laboratories had different work processes and different levels of staff carried out different processes. In his unit the data input was done mainly by clerical staff in a separate office. In some units data input was done by technical staff on the work 'benches'.

The senior Technical Professional said that there was no point in looking at new systems until the budget was fully approved, which might happen, or not. He said it was extremely time consuming to go around the country looking at systems, (wasting his own personal time also!) when the budget might not be approved. He said the days were gone when you could get systems designed for you, people (suppliers) did not want to undertake that now without prior payment. He said there were a number of systems that could be used, but that none were ideal. All would need some alteration.

Between October, 1994 and July, 1995 meetings were held with the consultant leading the procurement in order to keep up to date with developments. During this time the consultant consistently spoke as if the purchase of the system would be 'next week' and research could begin.

However, by July 1995, further discussions with the professional who was leading the planning of the system showed that the unit staff still do not know much about a new system being procured. The grouping issue had complicated matters and there was to be an IT meeting of 4 (out of 7) of the 'Group' in August, 1995. This professional, however, was already talking about the use of a particular system. One that a number of the units use and they might get 'cheap'. However, they had not officially looked at systems yet.

The professional thought that some units in the Group use computers very little for their work and so there would be radical changes in these units. He talked about access to the other units for the academic study.

Case 2

He felt that he was faced with the task of making a computer strategy, but he was already confined and limited in the decisions he could make by the systems already in place in:

- a) other units
- b) the hospital
- c) central HQ

He did not mention budgetary constraints at this time. After one of the meetings the researcher had with this professional, he was telephoned to ask how he was going to find out what each unit had already, in the way of computers/software. (In view of the prospective meeting which was to discuss future strategy of the group.) He had not thought of this! And said he thought they might send round a questionnaire later. The meeting on the 21st, would not, therefore, have this information to inform the discussion!

August 1995 Group Meeting re new system

Only 4 of the groups (out of 7) were represented, with the professional from Case 1 leading the proceedings.

Those present did not actually seem to want all of the groups present at the meetings. Taking the view that the less people involved the easier to agree and get things done. One person said "I'm not one to be too democratic, you never get things done that way."

The convenor of the meeting who was there at the beginning and for 5 minutes at the end emphasised the business needs but did not say what they were. He said the likely scenarios were not known. So these had to be imagined and planned for. He made it clear that a quick and unanimous decision was needed. Money was available this year but if they missed it, there might not be any other money available later!

There was a discussion that the first principle should be that a new system should be user friendly. Someone said there are no user friendly systems. Another said "Well, it is better if people like using it." (You might think that with their current experience of not wanting to use a system they see as 'unfriendly' they would be putting user friendliness as a priority!)

A discussion followed about the need to link any new system in with their Trusts.

They then talked about meeting business objectives of the group. But as they needed to know the business objectives this was not easy. They had to be 'predicted'.

Those present at this meeting talked about having to learn to live with the System NCS (studied separately) but made comments on how awful it was.

There was much discussion of the need for standardisation of work practice and of the computer system.

But, then there was a change of direction to "Well we don't absolutely have to all use the same system."

A discussion about E Mail between units was held and thoughts were voiced that this should be acted on as it would show action (by this group) and consolidate the group. (This was perceived as a fairly easy task to carry out, one which would have a high likely success rate, and one which would show that they had achieved something useful.)

The group thought that they needed information to feed the NCS system (which they thought they would have to use) but the Professional 1 said "System NCS was designed at HQ for HQ and does not fulfil our needs. We may **have** to do ordering on the System but we can do our other work on the new system.

At the end of the meeting there was talk of a paper setting out the options but after a short discussion they decided NOT to send the paper to the groups not present at this meeting. They justified this by saying this was a report by a team to Management and then Management could go out and consult the other units, then make the decisions.

During September, October and November 1995 meetings were held with the consultant about the proposed system. He drew up a projected plan for a new system but then in November, 1995 a meeting at head office was held about future IT planning.

Details of this meeting were given by the consultant in a taped interview.

November 1995. - Meeting at Head Office.

There was a discussion of the standardisation of terminology so that the group could all use one system and send information between units. It was reported that Units could not agree about this.

At the last meeting head office said there was capital available for a new system. The message had changed. Now there was no capital.

The meeting was supposed to discuss what all the groups had achieved but this was not discussed and the professional said he thought other groups had not achieved anything towards group IT.

The professional said "The meeting focused around what system we are all going to **have** to take. They did not think of going in and seeing what people do.... in their work and start from that end. Seeing what information people need. There was no discussion of what the business requirements were or implications of grouping. I was very disappointed with the meeting."

The professional continued that "We had a document from the IT Director to discuss in the afternoon. However, he was not there and the person who took over had his own agenda and completely ignored the written agenda and went by what he wanted to impose upon us basically."

It would appear that there are two IT 'camps' in head office. The IT director is more flexible and open to discussion of what the individual units might want, but there was another IT person who was linked with the finance department, and he is promoting the use of a system that is already used by a large number of the units scattered around the country.

Use of this system would be a very 'cheap' option initially and would enable all the units to be using the same system so that results could be standardised. This would have great advantage for head office.

Professional 1 argued that use of this system across the organisation would be a mistake because it might not suit all the units and additionally it was already 15 years old and there were much better systems on the market now.

This meeting ended with no decisions made and in the opinion of the professional with units still wishing to make their own choices about new systems.

The next interview with the professional was dominated by the choice of new computer system for the group.

He said that the laboratories are having to manage change and IT within a rapidly changing environment.

He drew a picture of the possible scenarios - over which individual labs have little control.

- Single laboratories
- Group of Laboratories
- Merger with local NHS Trust
- Privatisation of laboratories

All have different implications for information management.

The professional said he was aware that one does not choose a system just for today. Plans for future work must be made but there are the above imponderables.

So when deciding the potential use of the system, who knows?

He mused that possibly we need to go more on the American lines. Record total costs and generate bills to customers.

The professional thought that Head Office would favour their choosing the 'Telepath System' About 20 laboratories already use this system and it is cheap and has proved 'fairly adequate'. They think if this system is used they can use the software they already have.

The professional keeps trying to discuss their requirements with head office but no-one UNDERSTANDS. They are not computer wise at all. Their level of knowledge is dangerously low.

“The IT Director is very knowledgeable but he is wading through treacle up there. He has too few staff to be able to make any impact. He is busy struggling with the NCS implementation.”

The professional said that he was trying to put together an alternative strategy for his group “that will at least enable us to keep running and circumvent pressure that might come from outside (wry smile) to take a system we don’t want.”

He commented that “Though you might know what you are supposed to do, when you ask for money to do it and are told there isn’t the money, you have to go for the cheapest option, and all the theory goes out of the window.....And that seems to be the reality of itand its not an easy thing to accept so you then have to start saying well how can I take short cuts.”

“You know the difficulty is, if it turns out we are likely to be sold a dummy and given the Telepath system, then I need to have put into motion defence mechanisms that can be switched on instantly that opinion is expressed, so that we can protect our own interests at this end. And I have defence mechanisms, we are working on them at the moment, so I’m actually putting more priority at the moment on the defence mechanisms.

Meetings were held with the professional during 1996. During this time the option of using the same computer system as that used by other laboratories in his Trust hospital was explored.

Meetings were continued to keep ‘up to date’ with the situation. At each meeting a new computer system was seen to be imminently possible (at which time the implementation process was to be studied.)

The last meeting with the professional was on the 16th April, 1997. He said “What I’ve tried to do last year was to identify ways of circumventing the financial constraints and we were hoping that the Trust would agree to buying the licence fees and then selling a service to us, but the Trust solicitor says they can’t take that risk. They say that they are assuming risk. I am going to go back to the solicitor to find out exactly what the problems are and what they say that, because it’s still, in my mind, a viable option. But if that can’t happen we will have to go out to European tender, not

necessarily European Journal, but we might end up with something other than Apex then, because you have to take whatever fulfils your requirements at the cheapest price.

“So.....but the point is it’s all still very much up in the air but it will take at least another year to get a system in. So in the interim either the Microlab or the contingency system will be used.”

The professional had written a programme himself and said it was much faster than the system they were using and so they might change to that in the interim. (Although he said that the operators found it much faster to use, when the office manager was interviewed on the same day, she said the system had not yet been tried out.)

Structure

- Organic/flexible or formal hierarchy/power
- Informal power
- Centralisation/de-centralisation

The structure of the organisation could not be seen as organic or flexible. During the study period an extra management layer was added to the organisation. The new structure grouped together a number of units and inserted a ‘Group Director’ over them. This effectively ‘demoted’ the present directors, as previously they would theoretically have been involved in meetings of the whole group, would have received direct information etc. But now meetings would involve only the group directors and information would go to them to be cascaded down if necessary.

Although power theoretically stemmed from the director in head office, the directors and consultants held informal power in relation to local decisions but the new grouping might have some effect on this.

Technology

- Will the new system fulfil the objectives set?
- What are the benefits envisaged from the company’s point of view?
- Will the new system allow the department to function better?
- How was the system developed ?
 - a) Off the shelf package.
 - b) Purpose built - in-house or external.

The proposed new system did not have objectives set for it. The lead professional spent some time not knowing whether he was to purchase a system to join the units in his group or one for the use of his unit only. His main objective seemed to be to avoid having the Telepath system (a 15 year old system used in 20 of the other units) ‘forced’ upon him. There was no cost benefit analysis during the period of study. Nor was there reference to one being carried out.

At no time was there a discussion of the benefits envisaged for the organisation, other than the fact that the system in use in the main unit studied was perceived to be obsolete and in danger of ‘crashing’ at any moment.

It was thought that a new system would allow the department to function better but as there was never an inspection of any particular system during the study this was an assumption. The study ended with the professional deciding that he would try to arrange for use of the APEX system as this was used by other laboratories in the local hospital.

This choice was not made on any rational inspection of what the market offered, with a list of necessary criteria for purchase. It was made because (capital) finance for a system was perceived as too nebulous after a wait of two years and seven months and therefore the professional was trying other options to obtain a new system.

The new system proposed would, therefore, be an off the shelf package, and one which at the beginning of the study the professional had rejected out of hand as not suitable for his unit.

Management - Role and Style

- Management assumptions about people - Are employees trusted members of the organisation, allowed to think for themselves? Or cogs in a machine?
- Are management moving towards a learning organisation?
- Is there top management vision and active leadership to motivate their staff?
- Is there a 'Product' Champion?
- Human Resource Policy - partnership with Line Management (McKersie & Walton 1991: 245)

Management role and style are covered in case 1 but an additional point to be made with regard to this second proposed implementation is that the professional leading the procurement and implementation did not seem to have learnt any lessons from his experience of the failing and then failed NCS system. He did not consult with his staff about a new system although he criticised the NCS implementation for failing to do this.

In this implementation the professional leading the procurement could be seen as the 'System Champion'.

During the procurement time of the proposed system there was added confusion because professionals were not sure about details of how the management of time would work in the future. There had been talk of transferring staff from one unit to another to cope with fluctuating work levels because they do not know from day to day what work will come into the unit. The interviewer commented that if the workload is only known day to day, then transfer of staff between labs could only be done 'in hindsight'. Or on that morning, and this might prove to be inefficient anyway.

If on the other hand they were to plan work out and send certain work to certain units, and so knew ahead that the transfer would take place, did this need the help of a computer?

The professional said that care needed to be taken not to use the computer just because it was there. Perhaps the computer could be used to cost all jobs accurately.

At the present time costs were not charged to individual jobs. The professional questioned the value of doing this. He said that contracts are worked out in a very complicated way at the moment.

Individuals and Roles

- Maximum feasible participation by users/ stakeholders
- Motivation
- Change in jobs
- Change in number of people employed (job losses?)
- Change in level of knowledge needed
- Change in Skills
- Attitudes to technology
- Attitudes to change
- Training

There was no participation or consultation of users of the proposed system. When it had been thought that there would be an imposed demand for a group wide system there had been a group meeting of 4 of the 7 groups (2 persons from each group) but even at that meeting there had been a decision to exclude 3 of the other groups.

Motivation in the main unit being studied was low because of perceptions of cut-backs in the organisation and the fear of job losses.

Interviews and questionnaires were used to find out the attitude of the data input personnel to the idea of a new system. They were all very positive as they found their present system so frustratingly slow and prone to 'crash' for days at a time, which meant they had to work extra hours, which they had difficulty in ever claiming because of the high workload in the unit and their sense of loyalty.

The Senior Technical Professional was asked about barriers to implementation of a new system and it was put to him that as the data input staff seemed very pleased and hopeful about a new system at least the 'resistance of staff' barrier was likely to be missing.

He said "Well they don't know what they are in for yet and there is no point in troubling them beforehand." It was mentioned that the staff were looking forward to a more streamlined and efficient package and it was mentioned that they hated doing corrections because it took so long to go into the 'three page section' and get out again. He said enigmatically "Well, I don't expect the new system will work any differently to that. They don't know what they are in for." This Technical Professional was concerned with the information that would be available in a new system but seemed to have no concern whatsoever with any data input difficulties or user interface problems.

There were ideas but no concrete plans for a new system to allow for the laboratory staff to input a timesheet of their work. The technical professional thought this would cause real trouble but he and the consultant did not seem to discuss this fully, or make any plans about it, either whether to plan on doing this, or avoid it.

When asked about consultation in relation to the new laboratory system the professional said 'But if you ask the user how they would prefer to do their job, what is the 'best way' you might get different ideas from different people, different levels (i.e. lab technicians, data input clerks, management), different laboratories. If there is a group of labs then work will need to be standardised.

In many cases people do not have the breadth and depth of knowledge to contribute adequately to making a choice of systems. They need to know what is possible to make such choices. The whole issue of user consultation is extremely complex."

It is true that consultation can just be a cosmetic exercise, with only a minute 'tinkering' at the final stage of system design and how this can be overcome needs to be addressed. But in this case the complexity was used as an excuse to avoid any attempt at consultation.

Power

"About 95 percent of information-technology application issues involve power and organisation, not technology. Since these issues are largely political, start to work through them now because they're on the 'critical path' for implementation." Tom Peters (Quoted In Fallon 1995:5)

There seemed to have been past plans from head office to have all laboratories using a standard LIMS. These were never realised. During this study there were plans by head office to at least standardise the units in each group so that they used the same LIMS but this was not popular and after some time there seemed to be once more an agreement that individual laboratories could 'go their own way'.

The professional leading the procurement did not want to have a system imposed upon him from head office. He was working extremely hard to avoid this at all costs.

There seem to be issues of power implicated in this rejection of standardised systems across the organisation. The individual unit studied seemed to want to remain autonomous at all costs.

At a micro level, in a discussion about what would be needed on the new system the issue of time sheets came up. The professional said this would be a culture shock for personnel. But could be useful for day to day management of staff between units.

If time sheets were used then this would exert more obvious control over the technical staff which would not be welcome.

Culture

This has been dealt with in case 1

External pressure/environment

Government led policy to imitate the market had led to different data sets need to be produced for different people. Doctors, Organisation head office, The Trusts. This involves re-categorising data. One of the professionals commented "All because someone sits in an office and thinks 'It would be nice to know x.'"

The professional said 'Does this make it easier to manage the unit or organisation?' It seemed to this professional that people are beginning to collect more and more useless information in all walks of life, just because it is possible to collect this information and store it on computer. But usually it is not used. He thought that it seemed to be escalating over Europe.

There were other changes happening in the organisation and these are explained briefly below.

Data analysis on the Grouping of the units which is impinging on the IT strategy.

April 1995.

Professionals were still not sure of the number of laboratories to be in the new groups. A job description for the new 'Group Director' post was supposed to have been circulated but had not arrived. One professional said he did not know how they could generate a job description when they did not even know the number of laboratories to be in one group. He said the number of laboratories to be managed would obviously affect the workload of the Director, and the time spent travelling to distant units.

Grouping could have meant re-structuring into independent franchises under the main organisation umbrella but it did not seem to be going this way. It was speculated that HQ thought the larger the group the better as there would be less people then on their Management Board, and it was preferable to them to have less at their meetings. It was thought that HQ think this will make it easier for them to retain control.

Also, funding for the Group Director layer has to be found. If the groups consist of 4 units then funding would be more difficult than if the group consists of say 6 units. However, the geographical distance between the units is a problem. One professional said it is difficult to create a 'vision' for a group which takes in units from Truro to Hereford.

There were also concerns from the Trusts who felt that they would have less 'say' with distant directors in charge. Trusts might then be more likely to put work out to tender. The professional suggested that they would be unlikely to get a contract from their Trust in this case as they could be undercut pricewise because they have three consultants in one unit. The consultants are useful to the Trust for queries from Trust Consultants and for queries from GPs but that service is not costed into the equation. Although there is a cost benefit to the 'Local Population' to cost this out to the 'customers' who use it would probably mean that they would cease to use it.

Privately run units doing similar work to theirs do not carry the expense of consultants at all but only do the minimum tests required. This then poses a threat to the 'Organisation' in total.

Some units have said they do not want 'distant' directors. Trusts think that the units are already too separate from them and do not want any moves or changes.

At the moment (April 1995) there is no idea of the IMPACT of grouping.

The professional thought the larger the group the less corporate identity and harder to carry out the managerial role.

The group director visited the units in August, 1995 to give his ideas about how the groups would work. One of the staff said that apparently whilst he was there he 'unofficially' advised one of the seniors to advise his staff not to take on any long term debts. Inferring that job security was in danger.

The unit technical staff were certainly worried about redundancies. The secretarial and clerical staff were not concerned and did not seem to think they were affected.

One respondent said that everything is very insular in this organisation. Instead of being in a position where you can talk to one another...you are usually so much under pressure that you just don't talk to each other.

Reasons for Grouping

Technical Professional (Sept. 1995) "The idea is to save money. One hopes that with that will come efficiency. The downside of saving money in my view is that efficiency does not change but a loss of quality occurs. We have to make things more efficient, we have to look at things like units sharing work, and taking the view that a group is one big unit. Whereas before we were very introvert and protective about what we did, we didn't want Plymouth to know about this, or others to know about that, but now the borders have opened up, and we have to look and see who will do what most efficiently.

This technical professional was asked whether he thought the grouping might lead to less staff. He said "It's got to. There is just no doubt. The only way the saving can be achieved is through loss of staff. I mean staff counts for over 75% of costs and to that end jobs will go. They have to go. The interviewer said "So, we are sitting here saying that the work will take more time (with the new NCS system) but saying you will have to do it with less people? He replied "Without doubt. But we are talking about administration here, with increase in time rather than the technical which should become more efficient."

August 1995 Reaction to Grouping

When talking about the possibility of sending out an organisational diagnosis questionnaire to staff the managers in the units were not entirely against the idea but

thought that 'this might not be the right time'. All of the units (management) said that everyone was fairly unhappy at the moment. One HMLSO said "Quite frankly, I don't know if I will have my job soon. We just don't know what is going on. With talks of rationalisation it could be any of us. They could decide to have one (his rank) over three units. One cannot guess." Another senior person said that they had a talk by the new Group Director who gave a nice 'all work together' sort of talk but then off the record at the end said to the manager "It would be better if your staff didn't take on any new long term financial commitments." The senior person said "So what can you think?"

November 1995

One of the professionals said that there were thoughts that grouping would have minimal impact on individual units. "I think quite a few of the groups don't see it as being much more than a cosmetic exercise, that may change from April when the budget holder is the group director. Our group director has said he doesn't really want to maintain tight financial control and he'll devolve the unit budgets to them."

The director of one of the units was on a committee for standardisation of units work practice and terminology. This committee had been meeting for 2 years so far and did not seem to be making any progress. However, the standardisation was seen as essential for the groups to work together.

The director said "Consultation is holding up progress. Large meetings of unit members are not productive, people don't like to voice their opinions. Some recommended methods will not be popular. Cost is a major problem. Standardisation may make some things more complex or costly. Its difficult to get everyone to agree on standard practices lots of people think the way they do things now is fine, so why should they change, particularly if it is going to cost more or take longer."

CASE 3 (THEATRES)

Operating Theatre Patient Information System Implementation

This short case study involved interviews with the IT Manager (5 interviews), his deputy manager (1 interview), one consultant (1 interview), two nurses (2 interviews) and interview with the supplier of the system (one interview). The IT Manager was interviewed on separate occasions between February 1996 and March 1997.

The data is analysed following the elements of the MIT90s Model but using extra data headings to deal with the aspects of : success of the system, money, politics and power, barriers to implementation perceived by those interviewed.

BACKGROUND

The IT manager was employed in 1989 to put in a theatre information system. He was employed on a 6 month contract which was renewed for two years, after which he complained and was put on a permanent contract. He had formerly been a charge nurse in the organisation.

The system had been chosen before he was employed on the project. He was not given an office, and said he had to "go and find a corner somewhere". He was provided with three PCs but had been promised 16. The software was on three and a half inch discs but he only had a five and a quarter inch disc drive. The volume of data was 35 megabytes and his hard disc was 32 megabytes. He was supposed to employ clerks to input data but said if he did that and they worked during the day on the computers, what was he supposed to do? He said he managed by working in the mornings, in the evenings and at night. He felt that throughout the project there had been no support by management at all.

He also said that since 1989 they had been paying maintenance on one piece of software(related to the system), which they had never been able to use properly because they had not got the PCs in place. He said "Paying maintenance, every single year, is that crazy? The bar coding module we have had, we have been paying maintenance on that and haven't been able to use it because there were no PCs in place. If that happens in every Trust in the land, look at the money we are throwing away."

When the interviewee was first contacted in February 1996 he expected to be on 'real time' data input by April, 1996. That is, data to be inputted by nurses and doctors in situ instead of by clerical staff after the event. Contact was kept with him but real time input had not been accomplished by May, 1997 when data collection ceased.

STRATEGY

This system was being implemented into operating theatres in a large hospital. The strategy for the whole organisation, like many hospitals, appears according to those interviewed to have been, in the past, more a paper exercise than a reality.

The system had been in the process of implementation for 8 years and the strategy of 8 years ago was not known by those interviewed. However, the present system was seen to be part

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of the overall IT strategy. The aims of the new system were known and according to the IT manager these were:

- To save on time related to paperwork.
- Better organisation of work.
- Collection of data for Government statistics.
- To allow more efficient planning of staff time.

There was a perception that there was a burden of paperwork and it was not possible to keep up with the demands of the Government and information related to new contracting needs without using a computer information system.

The need for the information was originally perceived by the theatre manager who needed the above information.

The IT manager said “They are also trying to run alongside that (patient information)the inventory system and bring that on line. Because they want to do costing down to patient level. Patient/surgeon level, so they know what each surgeon is spending and so that each surgeon knows what they are spending. The reason for this is illustrated by the fact that we have a Professor who uses a certain kind of mesh for hernia repair, he insists that he uses it, and it can be quite expensive, but we need to know how expensive it is not just in terms of doing the surgery but in terms of do patients go home and not need to come back again and so what is the break down like? So you could say using that mesh is good if patients don’t come back.”

The consultant who was interviewed thought that one of the problems with IT implementation was the fact that the IT Director was not represented at board level. He said this goes against all published wisdom. He said “How can he input into strategy if he is not present at top level meetings?”

A theatre nurse interviewed about the system did not know about the strategy or reasons for the computer system. She said “They have never told us why we had to have a computer system.”

STRUCTURE

The hospital had a formal and hierarchical structure. The system was cutting across clinical boundaries and affecting those specialisms who used the hospital operating theatres. It, therefore, affected many clinical directors who would have to get their information from the IT manager or the director of theatres. The theatre nurse interviewed said that there were discussions about the theatres splitting into their specialities, and instead of a director of theatres each speciality would have its own theatre and, therefore, she assumed, its own computer system. A move to more autonomous units.

The IT manager who was inputting the new computer system into the hospital theatres was originally answerable to the IT department. After two or three years it was decided that this was not the most suitable structure and so he was transferred back to theatre management and made responsible to the director of theatres. However, he said “I still have a dotted line to the director of information.”

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He then said that there was to be another change and he is going to be responsible to the director of support services.

TECHNOLOGY

The system was called ORSOS and was a package which was tried and tested in the United States of America where it is used to run whole hospital systems.

It was not 'windows' based and therefore, was perhaps not as 'user friendly' as it might have been. It was initially used as a 'batch input' system with clerical staff inputting the data from hand completed forms. However, it was moving towards the aim of being a 'real time' system. This would involve the input of data by the clinical and nursing staff in the theatre.

If the clinical staff wanted information from the system they had to ask the IT manager to extract this for them, but he was working towards a 'much more user friendly package for them to use' so that they could extract their own information without asking him.

The ORSOS system is an 'open system' but the PAS system in use in the hospital was an old system and as was the norm (in the past when it was purchased), was a closed system. This meant that the system suppliers of the PAS system demand money for other systems to connect to their system. Additionally, the PACS system has approximately 17 different layers, and because of this a patient enquiry could take 12 seconds per enquiry, so the hospital PAS system needed updating for use with the ORSOS system.

The IT manager said that there were still not enough computer terminals in all the places they were needed like the recovery rooms.

The consultant thought that one difficulty was with suppliers not supplying on time and not keeping up with technology once they had your contract. He said this had happened in the ORSOS case. He based his view on the fact that ORSOS was still DOS based when Windows was so much more user friendly. (The IT manager said they were going to change to Windows as the supplier could change the system.)

The consultant said another relevant point was that the computer maintenance contract was run by a private company and this was put out to tender each year resulting in four different companies in a short time. He said "How can they work like this? People are kept on but they are paid by different firms and it is not good for moral."

The theatre nurses said that there would not be enough computers to use the system properly. Nurses could not leave their patients to go away and use a computer for example if they were looking after a patient in a recovery room. It would be dangerous to do so and they just would not do it.

MANAGEMENT

Who is managing the change? Do you see yourself as a manager of change?

In answer to this question the IT manager said "This is like a different religion. We are trying to introduce a different religion to the theatre staff. That's why the next 12 months are going to be the most difficult of my career. The most challenging. We have come an awful

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long way in bringing change to the theatre department, in terms of its understanding of information and its need for information and we have had to work particularly hard on the medical staff. They have been the most resistant to change.....Anaesthetists seemed to accept the change most readily, but more recently they have changed and seem to be going backwards. They only want us to capture three pieces of information about their practice, 'Is it a local?, Is it a general? Or was there no anaesthetic at all?' That really is very backwards, when we have a much more sophisticated way of moving forward, and you are not making use of it. I am going to add more complexity to it anyway, it will be there, and I will try to come at them from behind and push them into using it. And of course always in doing these things, the art is to provide them with something that they can't do without. Of course you have to get the information in there in the first place. Well, I can do that through the theatre staff, and having trapped it I can try and provide some really useful information, especially to their business manager, who will then go 'wow, I didn't know that.'

The IT manager was asked if he could see any reason why the anaesthetists are not so interested now

He said "Well, I think their priorities lie in a slightly different area. They may also feel threatened. There are certainly medical staff who have felt threatened by the information that we hold. We could if we wanted to, but we don't, and I am very careful not to..... compare one surgeons against another. In terms of the times they take to do the same procedures. The techniques they employ, and so on. I have always encouraged them to take the information for themselves and make their own judgements on it as a profession rather than allowing managers to make some statement about their professional skills. And I think that's quite right that's the way it should be but they have also got to be shown to be doing something about it, because if they don't, certainly management will take it on board, and say right....."

The IT manager was asked if anyone else was managing the change and he said no, he had virtually sole responsibility (except for his assistant) because he knew how the theatres worked. He also said that his bosses had in the past not been aware of how the system will introduce change. "I am having to say 'this is how it will change' and I think much of the change is driven by us, in this department."

"But the management of change almost takes place unseen. In as much as I am here, I am putting in the ORSOS system, I have got my project plan for the next 12 months to initiate the change that is going to happen but the word change doesn't appear here, I don't want to use the word change in many ways because the staff will say 'Oh blimey'"

The HISS management of change from the IMG (Information Management Group) was mentioned and the IT manager said "Well, yes, people like this will talk about management of change, but when you come into a department like this, if you start using the words change, you get a defensive curtain go up. Basically, what you have to do is to talk to the people within the area you are moving into, yes you are going to bring in change, and things are going to happen, but in some ways you don't actually con them but you don't tell them."

The IT manager was also asked if there had been enough higher management support of change. He replied "No, almost certainly. I have been left to my own devices to implement a project, without being given the right resources, despite the fact that they were identified by management, they were listed, recorded, the system was procured on the back of the

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requirements of the hospital. But when it came to it, the resources were not there. Um, I wasn't even employed on a proper basis I had a 6 month contract, which repeated for 2 years until I got stropopy. Even, today, as an example, 2 of my clerks are on a 12 month contract and there is a threat that they won't be re-employed, which has, as is known by management, a catastrophic effect on the project. And yet no-body has actually said to me its OK or has even said we must have those clerks, they said to me yesterday, what would be the effect on the project, I am still being asked that question."

"Hum, so I would tend to say that higher management doesn't actually understand, or has supported this particular project particularly well. Now having said that I must qualify by saying I have got the money, but I have had to really sell the project, I've had to say 'it is something this organisation can't do without - and prove it."

"So that is where we came from and I think I can quite safely say I was not very well supported by management at all. I didn't even have an office to work from, I had to go and find a corner somewhere. Then, it wasn't until I stood up and said, I have had enough of this, we need somewhere 'proper' what are you going to do about it? That actually, they did find me a little room. And that was it and even now this is my third office, and each time its two and a half to three thousand pounds to move because of all the wires etc. So there you go a lot of wasted money as well."

"I suppose I can understand it, because if I were in their position (top management), and someone were asking me for a quarter of a million to put a project in properly, would I want to say, shouldn't we be sure it actually works, going on past Wessex mistakes. Do I want to throw all this money at it, or should I throw a little and see what happens."

In a later interview the IT manager was again asked about change and asked if he would say he was the 'system champion'. He said "Well, yes, I had to sell the whole thing and find champions at the various levels where I wasn't able to represent myself. So therē was a huge learning curve, and that was where my clinical skills, professional skills came in, because being a charge nurse in theatres I knew how the system worked, came in, but what was new to me was working with managers. People, high up managers, they were not Chief Executives but they were general managers and directors and that was a different ball game for me."

The IT manager was then asked "But shouldn't they, the managers, not have needed to be brought on board, shouldn't they have been the ones who wanted the system?"

His view on this was interesting, he said "Well, if you look at the social life of these people, the social life of consultants, who are people making the system work, and the social life of chief executives and so on, they all mingle together. They may be separate entities in their own right, but they mingle at that level, and I was not at that level. I was a nursing grade and even though I was top grade I wasn't in that echelon up there. So I was going through business managers, and assistant business managers, nursing officers as they were at that time. It was through that period of change, when things were coming onto more of a business footing, through business managers through directors through finance people, through IT departments, computer departments, that I made most of my relationships. I mean most of my time, half of my day was simply making my way to different departments and talking to different people. Some contact was to deal with complaints that were coming about the system or different parts of the system. I always felt it was very important for me

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He had no management training and did not know about implementation models or organisational models. He said that the ideas coming out from the IMG were not being used by the Trust.

The consultant was not involved in the management of the ORSOS system (he was a potential user) but he did discuss management in the hospital and said that he thought that managers and professionals were in different 'domains' and had different goals. He argued that people were in one 'camp' or the other and if they tried to bridge the two camps they became outcasts from both.

INDIVIDUALS AND ROLES

Did users want a computer system?

When the IT manager was asked this question he said that this was not a useful question because there are so many perspectives. He said that senior staff and managers and sisters were 'brought on board' and were enthusiastic, but "nurses are not computer operators" so there was a fine balance to strike.

The intended 'users' were still not using the system after an 8 year implementation process, the 'users' of the system were at the moment the input clerks.

The users of information out of the system were mainly the managers who needed the information for contracting and planning purposes.

The consultant said he thought ORSOS was a 'reasonable' system but did not give him the data he required. He said it was not specific enough for his purposes. He said that he did not think that people asked consultants their views on new systems.

The theatre nurses did not want a computer system and thought that they managed quite well with the forms they used. They said they did not know why they were having a computer system and no one had told them why.

Work Issues

The system would change the users job as they would be using a computer to record information about their work, instead of paper based forms, however, this had not yet happened.

The amount of information being recorded had increased as before the data was kept in a big leather bound theatre register. Although this register did contain information the IT manager said that searching through it one could only easily find information by date. This could be very expensive to do as someone would have to sit there and go through it. This information had been entered mostly by the nursing staff.

The information to be entered on the computer will eventually be done by the theatre staff which would probably be ODA staff (Operating department assistant) and ODP staff (operating department practitioners).

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The theatre nurses said that computers had “suddenly appeared in the corner of the operating theatres on trolleys”. They had been surprised to see them there and no-one had been trained yet. No one had said anything about them and they had sat there for three or four months unused. Eventually, one of the theatre sisters had said “There isn’t enough room in my theatre for that computer” and had wheeled it out into the corridor where it remained.

The theatre nurses said that there had also been the problem of cleaning the theatre. This was stripped down and thoroughly cleaned every night by the porters but no-one knew what to do about the computer. They said it sat there and got dusty and splashed with blood and “how do you clean it?” They thought it was not practical to have it there in the theatre which was supposed to be sterile. They were not sure how the problem had been resolved.

One of the theatre nurses said that nurses would probably be expected to use it in the theatre as doctors certainly would not. However, she said “But we will not do that as there will not be enough time. I can see the system collapsing. I have a feeling that the computer system will be abandoned.”

She said at the moment the information is on a form which goes with the patient but is filled in by different staff at different points in the process.

1. Patient reception - This is filled in on the ward when the patient is collected. Information like the time collected and if they are late.
2. Theatre reception - Anaesthetic paperwork filled in
3. Theatre nurses - items used such as sutures etc.
4. Recovery Room - more details to insert.

She thought that because there were different staff in different locations and awful lot of computers would be needed. She said there are not enough in the recovery rooms and what would happen would be that staff would probably fill in the information on a scrap of paper and then put it in a computer later. Which might mean missing information. She also said that not all patients go to recovery, but still have ORSOS forms.

The idea of consultants using the system was probed and she said that the IT manager had tried to persuade the consultants to fill in their part of the forms in use, like the code number of the operation done, but she said he had persuaded only about two or three surgeons to do that. She said “So they certainly won’t fill that information in on a computer.” She also said “If they do fill in it is easier for everyone as the consultant knows the code number of the operation he is performing but it is more difficult for the data input staff to find this afterwards. At the moment the nurses fill in the part meant for the consultants.”

Reduction in staff

The IT manager said that the unions had not been consulted about the new theatre system.

In the ORSOS literature figures of 15% reduction in staff are mentioned as a saving as a justification for the use of the system. When the IT manager was asked about this he said “That is for a system that is fully implemented, we haven’t got a system fully implemented.

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Butif we are to go into that scenario...I do expect a reduction in the number of hours that are necessary for certain tasks. Such as stock keeping. That is a very onerous task the nurses don't like doing, and the hours that are put into that across the theatres, probably add up to one full time equivalent. And that could probably be saved, but like many things, because of the way we are putting in the system, very slowly and because the savings are spread over such a lot of peopleto actually be able to say...to pluck out one person.....and we have yet to prove that putting in the inventory stock control system is going to save time, and therefore free up peoples time. I have actually made the comment (in an internal report) that if there is a reduction of time staff spend on orders, they can spend their time better elsewhere. Where you have staffing levels so, so tight...that when one person goes out sick it can throw the whole thing into disarray, I think it is quite difficult to show a 15% saving."

He went on to say that if a saving was to be made it would be on their stock levels. He said that they had two or three months stock on a shelf but they should not really keep more than a month's stock. And in fact for expensive items like implants it should be a couple of weeks and so they should be able to reduce the amount of money tied up in stock. The cost of keeping stock on the shelf should be transferred to the supplying company.

Training

Training for the new system was going to be in the theatres with the IT expert sitting in on real time data entry so that users would have experience of the system but the comfort of expert supervision until they were comfortable in using the system.

There will be on screen help, a telephone helpline and a help desk in the computer department.

The theatre nurses said there had been no training yet and no information about training.

Resistance to change

The IT manager had to fight for the old theatre registers to be abandoned. There was resistance to him taking the registers away and he took a unilateral decision to do so in July 1993. He said this was traumatic. "The balloon went up." He said the medical staff were so cross, though he said they did not usually fill them in. The nursing staff were pleased to see them go.

He said he was hauled in front of the BMA and other groups. The IT director was with him but he had to defend the action. He explained the reasons for withdrawing the registers to the BMA and had to firmly stand his ground. It was not a pleasant experience and he felt he had risked his job but that the system could not move forward with the registers still in place.

The IT manager felt that nurses did not like using a keyboard and resisted new systems. However, he also said that they do not like duplication of effort and as they had previously written patient information on 7 different documents this might persuade them to use the system.

The nurses attitude to the new system is dealt with in the section on work issues but was resistant to the change which was viewed as impractical because of lack of time to use the

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computer and because they could not see the reason or need to change the present system. The reasons for the change had not been explained.

Consultation about the new system

There did not appear to have been consultation about the ORSOS theatre system, but as it was initially acquired seven years previously information was difficult to access. The consultant could not remember about consultation taking place but related his experience of the new hospital PAS system which was currently being designed and implemented. He said that although they had a very good IT department "They are consulting widely but they will not take any notice of what we the consultants want. They start with what they want from the system instead of starting at the grass roots."

CULTURE

The element of culture is difficult to research. Data collected on other elements gives clues to the culture present in the organisation.

The IT manager actually said that culture was difficult to change and saw the dislike of nurses for using computers as part of their culture.

The resistance to the withdrawal of the theatre register might also be viewed as constituting a change to the medical culture and the theatre tradition. The traditional large leather-bound register could be viewed as symbolic. The importance and centrality of the surgeons work reflected by the expensive leather bound volumes in which it was recorded. The withdrawal of such a practice and its replacement with computers might thus be seen as symbolically 'cheapening' the process.

A theatre nurse said "Nurses don't like computers, if I had wanted to play with computers I would have gone into IT like my sister. She earns a fortune. But I wanted to nurse." The same nurse, however, said that she had volunteered to do ordering of sutures on another computer system EROS. This computer was in the theatre reception and although she had no training whatsoever, and had no computer at home, she had learnt how to use this from other nurses (she said there had been no training available). She did not seem to mind using this system, could see the reason for using it, and found it easy to use.

POLITICS & POWER

The IT manager was shown the MIT90s diagram and asked if he thought there was anything missing from it. He said that he thought that politics was missing and he said "Politics is probably the biggest single individual influence upon everything. And it probably wants to sit in the middle. It's probably where it all starts. It's the political will, its the need for more information." The IT manager seemed to mean 'party politics' rather than power politics in the hospital.

The IT manager thought that there was a lot of political involvement and said "It's one of those things that is being politically driven rather than the need of the service. I mean you have to say at the end of the day a piece of paper is OK. I mean if it works why break it, but when you have a theatre it is so complex."

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The IT manager was asked about Yates (1995) and his inferences of consultants not wanting systems which can compare them. The researcher said "Well, one could have some sympathy with them on this."

The IT manager, however, said "I don't have any sympathy with them at all, the information is there and they choose to turn a blind eye to it, and they do that because as doctors they can keep this to themselves and if a surgeon isn't quite as good as someone else then internally they might be seen by the 'three wise men' and told to pull their socks up but the rest of the world is no wiser and has no idea of what is going on."

"But here you are playing with peoples lives and I think people have a right to know if there is a particular problem. I don't believe in league tables because there has always got to be someone at the top and always at the bottom, but what I do think you have a right to know is, where you are in terms of the top people. I don't think the bottom half need to be told where they are, I think you should know you are in the top ten percent or in the bottom ten percent. There's another way of doing it because its so destructive as a school for example if you are a pupil of the bottom school. You have been told this is so. It is so destructive to the pupil. And their health both mentally and otherwise..... that I don't think that's necessarily good. The same with surgeons."

The interviewer said that it might be in the interests of some surgeons to block new systems.

In reply the IT manager said "Well, the next phase is.....they are looking at all the inventory and how it is used. How a surgeon is using instrumentation, how surgery is being carried out. Why? Because they are about to carry out comparisons. They are about to say you Mr X do this operation and it costs that amount, but you do the same operation and it costs THAT amount. Now this is what surgeons are not going to like, this is what they have always been against and it is going to be a very difficult time."

The interviewer said that it seemed strange that the system had taken 7 years when it would appear that if the right resources were in place he could have very much speeded up the process.

The IT manger said "It is very odd isn't it. I think there was definitely some medico um... somebody had influence and didn't want it. And persuaded....."

The interviewer also said if certain people do not want the system is 'not putting in funds' resistance?

The IT Manager said, "Well, it is, because standing still is almost maximum resistance, nothing is moving in any direction."

He went on to say that "You certainly need someone managing a system who has good interpersonal skills. Who can find their way through this."

The system supplier said that in relation to going into organisations "You have to be wise to what is going on, not only politically but be aware of games, and there are sites where a lot of games are played and you have to be aware of it. I have had sites where I have had to really sort certain people out. But I have to be careful. You have to be wise to what they

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get up to because they are experts and they can alter little codes here or there, personalities come in here.”

The consultant was asked about his views of IT and did he think he was being measured by the government. He said he did not think that professionals were against IT and he did not think that he was personally being measured by government. He thought they were only interested in the ‘big’ picture, the aggregate numbers. He thought his hospital only wanted to see the theatre kept full and were not interested in what he did whilst there, were not interested in the number of operations carried out.

The consultant on being asked about politics and power saw this only in relation to the idea that government were driving policy through.

The IT manager was told that the consultant had said he did not think his work output would be measured and to this the IT manager said “Yes, well you go and talk to someone called (name), he is the director of the surgical directorate. One of the things we did for him, he asked to look at a breakdown of a session of surgical time which is generally in three and a half hour slots. 9-12.30 and 2-5.30. And in that time produce a pie chart of how the time is broken down in terms of actual surgery. anaesthetics, and time lost because there was no patient there. From that macro level, that’s what they are interested in they want to know the pattern across the specialities. Then they will take that down and down to surgery level. There’s Mr. Brown, Mr. Roger and so on and look at their pie charts, they should all roughly be the same and that shows consistency, but if you have neuro surgery or thoracic surgery they will be different but that’s OK you would compare like with like, and that is going to happen. They are going to compare surgeons. Either they do it themselves which is what they are supposed to do in their morbidity mortality meetings (decide, well this kind of anaesthetic has caused problems for example) or it will be done for them.”

“There is no doubt, absolutely no doubt whatsoever, if you are going to manage a hospital you need to know costs. And after all they do it in their private practices, without any problem at all, they know how much they spend. If they are told by BUPA or whoever, Nuffield hierarchy, that what they are doing is expensive and ‘you don’t do it anymore’ they don’t do it. Its as simple as that, or they tell the patient if you want me to do that it will cost you X amount of money.”

One of the theatre nurses was asked whether she thought it was against the interests of the surgeons to have the computer system installed. This was something she had not thought about. When she was told about the Yates (1995) research into waiting lists and the fact that in general consultants average number of operations is 4.5 per week she said some of their surgeons did less and that she could see that some might not want their practices to be more open to scrutiny. She said that certainly a few surgeons did very few operations in the hospital but had their registrars carry out the operations while they were over in the ‘Golden Nugget’ working (her name for the private hospital over the road). She was used to this practice and had never really thought about it. When the researcher said “But they are paid full time by the NHS.” She smiled and said “Well, if they can get away with it, why not?”

The theatre nurses certainly did not see the system as one which would affect them by measuring, costing or comparing their work. She considered that the nurses were so overworked, it could only be of benefit if people knew how much work they were doing.

MONEY

The IT manager said that the system was under resourced from the beginning, but eventually he managed to fight for enough funding to complete the system. He said "So many times we came close to the system falling over. There just wasn't the resources there. I was constantly wanting resources. There was just nothing I could do to improve what I was trying to do."

He thought that the Government had provided enough money to implement new systems in general but that it had gone to the Health Authorities and it had not been ring fenced and so must have been spent on other things.

In relation to funding he also said that he had shown that the ORSOS system was successful. Shown that it works, providing the resources are there but he said there are still sites in England who "say it is a load of rubbish".

The system supplier said that he knew of cases where the system (ORSOS) was thought to be unusable and the ORSOS technician had gone in there and set it up on his computer, whereupon it worked perfectly. The problem was that the system was not set up correctly. On being asked who set it up like this the organisation accused the supplier. The supplier said "But why should we set it up wrongly, we want you to be happy with it."

The system supplier said "Its incredible the amount of people who have to manage these systems with no support. You give them thousands and thousands of pounds worth of kit and then say get on with it. Really weird. And its not just one or two hospitals its up and down the country. Australia is a good example, its just the same. Now in France or Germany where they use ORSOS systems, it is quite different. The approach is quite different and Scandinavia and Denmark, they have enormous sites, 80 theatre sites and they take the system and within 3 months its up running and working. Incredible. No problem. The States is another good example, where they put the resources, they take the system put the money in and there it is."

The interviewer asked the IT manager "But is it that they put the money, in or is it to do with people like consultants who just don't want it? Resisting it, and even some managers not wanting it."

The IT managers view on this was "I think the Government has used the argument the biggest spenders are medical staff so get them managing so they understand where the money is going and I do believe that to be a big mistake. The medical staff have got tremendous power because everything you do you have to persuade someone on the medical side that it is the right thing to do. Now I know that the medical staff have self interests. If they are anaesthetists they are interested in that branch and they will manipulate things to their own ends. And you wouldn't expect them really to do anything different and they are not really interested in the overall picture, if the hospital has a 1 million pound overspend. They are not really worried about it at all. Because they say 'Well what is going to happen next year then? Will the Government shut it down? Of course not. They can't afford to shut it down.' A crazy set of circumstances."

"I don't believe in this other thing. Once you are a manager in a do it yourself store you can manage another type of store. I don't believe that is the case. There is a learning curve

involved. I don't think medical staff make good managers at all. I think they are the weakest link in the whole thing."

Another point made by the IT manager was that he was so "divorced from the person holding the money". He said he could understand that if the IT department was part of the finance department this might improve this difficulty, however, he still felt that IT specialists were needed in the organisation.

The consultant commented on the lack of adequate funds for new IT systems.

BARRIERS TO IMPLEMENTATION

On being asked what he thought were the barriers to implementation the IT manager said without hesitation "Lack of resources, simple, the money was just not in place, to purchase what was needed, networks etc. You can't throw money at things, I know that. But its a simple fact, if you want a computer system that needs a network you need to purchase that. If there is no basic kit you cannot implement a system."

The system supplier said it is difficult to get people to match the resources to their expectations. He talked about other sites and said (place name) is a classic, you have a part-time person who is about to retire so wants a quiet time, which is not the ideal for implementation of a theatre system. She does it part-time, she is working in theatre and has responsibility to various teams, you cannot put a system in under those circumstances. The Audit commission has said the same, there are problem sites where they just don't put in the resources."

SUCCESS OF THE SYSTEM

On being asked whether overall the system was a success the IT manager said "Oh, it is. There is no doubt it is. For the last 12 months it has been used for contracting purposes, solely. No other system has been used. It has been used for inter directorate recharging which becomes a reality as at April 1st this year (1997). It has been used solely for this. It has been used in so many ways, too many to mention really, it is recognised as THE most accurate system in the hospital. There is no other system as accurate. There is tremendous resistance in the (he named a satellite site) which I have never been able to break, this is mainly because I have got all the other guys interested and on board but these guys just want to sit around there and my philosophy was that they would come to me. And they did in the end. They wanted to see it so....."

The interviewer asked who was now inputting the data (March 1997) and was told it was still collected on forms and put in by clerks.

The interviewer said "But you told me your dream was to get touch screens so that the clinical staff would input information?"

The IT manager then went into an explanation of the fact that he had put in a network throughout the daycare units and the theatres but this had taken over 12 months to complete. He said "That was a major.....farce.... getting access to theatres to do this. You can't just walk into a theatre and hammer a hole in the wall. There are so many ramifications. Also we had the problem that the contract changed from one company to another and so sub

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contractors didn't know who they were sub contracting to and it went on and on. So it was a long time before the network got sorted out and then the PCs put in. They are now on the point of real time data entry."

When asked "Would the users say the system was successful?" the IT manager said "Who are the users? The idea of the system is for the Theatre staff. And they are not benefiting from the system in all that it can do for them. The nurses and manager. That's because the PCs are in theatre, but they don't put it in (data) or take it out. They understand what it will do but it's just getting it into position where they use it."

The consultant who was a 'potential' user thought the system was 'reasonable' but did not give him the data he required.

The theatre nurses did not think that the system would be a success because they felt that it was impractical to expect nurses to be using computers in the theatre when there was little time and all their concentration should be on the patient. They thought the idea of nurses or doctors using the computer at the point of their actions was ill conceived. They could see nothing wrong with carrying on with the present system which would involve use of the new system, but the input would be by data input clerks using the manually filled in forms.

CASE STUDY 4 (COMMUNITY)

This case study has been written up in the form of the 'views' of a number of the different stakeholder groups.

BACKGROUND

This case study involved the process of developing and implementing a patient based information system for a mental health service, and the rest of a Community Trust.. Care for the mentally ill had recently been devolved from centralised institutions into predominantly community based health care with smaller more specialised units for the more acute long term mentally ill.

The need was identified for a patient-based, real time information system and it was thought that this would form an essential element for effective management and for a safe and efficient service. It would centre on clinical activity and be shared by all professionals in the mental health service and enable staff to monitor care in both the hospital and community settings.

The information relating to this case study has been gained from a number of sources: from published papers on the implementation (names withheld for confidentiality reasons), from access to evaluation documents, from interviews with the information director (8 interviews), the evaluator (5 interviews), a systems manager (1 interview, 2 long telephone calls), clinical directors (3 interviews), personnel director (1 interview), nurses (3 interviews) and the CEO (2 interviews).

The case study was to be a longitudinal and in depth study and was to involve some work in evaluation of the system. However, for political reasons the length and depth of study did not fulfil initial plans. In spite of this the case study did yield some rich data and a number of one hour (taped) interviews with key personnel.

The initial idea of including this case study was that from initial 'outside' observation the case was thought to present the opportunity to study a 'successful' implementation to be used as a comparison with the initial case study accessed. The initial interviews with the Information Director gave this impression of success. Published papers reported success.

The information system was to be used by the following different staff groups.

Table A1

Professional staff using the information system

Consultant Psychiatrists	Occupational Therapists	Community Psychiatric Nurses
Medical Secretaries	Physiotherapists	Hospital Social Workers
Ward Staff (especially nurses)	Psychologists	
	Behaviour Therapists	

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The Information Director wrote in a published paper about the fact that some members amongst the above groups “were self-motivated to define their own concepts.” The Director reported that their ideas were modified to be compatible with the whole service but the gathering of their ideas was necessary “not only to ensure that the system would meet the requirements of those staff who were to use it but also, of equal importance, that staff felt a sense of ownership and were therefore committed to the introduction of such a system.”

The Information Director also wrote “The Authority felt it important both to ratify the ideas and to enable an uninhibited form of discussion by bringing in an external consultant.” The consultant was described as joining the programme to “provide an independent, objective view of progress in the development process and to validate key decision.”

This involvement of an external consultant in itself seems an unusual step in design and implementation.

THE INFORMATION SYSTEM - BRIEF DETAILS

Table A2

Components of the Information System

<u>Patient Information</u>	<u>Needs Assessment</u>	<u>Operational Facilities</u>
Patient Registration	Care Planning	Waiting Lists
Patient Referral	Patient Needs Assessment	Appointments
Patient Episode	Patient Goal	Standard Letters
Ward Stays	External Service Assessment	
Mental Health Act	Emergency Management	<u>Information Retrieval</u>
Patient Contact		Standard Reports
		Statistical Scans

Although the system was a means of planning care, recording care and allowing professionals to immediately see care plans and whether patients had received previous treatment the system was also to be used to assess outcomes of treatment.

The new system coincided with changes in working practice, changes towards multi-disciplinary teamwork and care planning. The Information Director wrote “In addition to service changes, the introduction of the information system represented change in working practice and was viewed by many as unnerving.” However, the need to support staff through the changes was recognised.

Education and training was highlighted as an important aspect of implementation and to this end the importance of a systems manager for the project was recognised. This person would have an in depth knowledge of the whole system and could co-ordinate the level of training required for the rest of the staff. The idea was that the various professional groups would learn those elements of the system relevant to their work.

In addition a decision was made to have certain staff involved from within the service in the training programme. They would be identified as ‘Key Trainers’ each representing a different care area, e.g. Community Psychiatric Nurse, Ward Nurse etc. These Key Trainers would need to be released from their normal duties to enable them to take part in training.

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They could be kept up to date with developments in the system and pass this on to relevant staff in their group.

A published paper discussed the need for information feedback and mentioned the circulation of a monthly newsletter. This newsletter was said to provide an overview of project development including information about visiting external professionals. It was also said to provide guidance on specific issues concerning the system. (No-one interviewed in the study had seen this newsletter.)

The siting of terminals across the organisation was discussed with staff to ensure it was relevant to their daily work patterns.

THE INFORMATION DIRECTOR'S VIEW (compilation of information from all interviews)

Interviews with the Information Director of the study corresponded with the published paper on implementation methods. The Director talked about the need to manage carefully and move from theory to practice, picking up important issues. The point was made that they must not "impinge on professional practice".

There was a vision that information can support patient care and if this is done then professionals will input 'good' data. The mistakes that had been made in the past were that the data had been seen as 'just number crunching'.

The Director said that they had tried to make a system that was useful to the professionals. "We went to them and said 'How do you work on a day to day basis?' then we built the system around this." This had been accomplished by numerous workshops held with professionals.

The Director said that they had done an audit on record keeping. The idea that patients have that professionals share information about patients was wrong. Each professional kept separate records in filing cabinets. They rarely talked or shared information between themselves. Some did do multi-disciplinary work but there was a high level of 'tribalism'. The Trust had closed their large in-patient hospital and the staff were now dispersed to different sites and so communication was seen as a key issue. One of the support solutions was seen as a single patient record. The idea of this at the time was a revolution. There was no integrated system in the whole country. They wanted to have not only in-patient care but community care on the system as well.

They came up against the barrier of confidentiality. No professional wanted to share information. However, the Director said that this had now changed. They went out with a 'blank piece of paper' asking how the professionals worked and what their core needs were. These were reasonably similar and they then found a software company to design the system. They had some problems with their hardware, and with late arrival of software but implemented the system in pilot sites. The Director commented that only after the system goes in do professionals come up with new ideas.

The system was to have an evaluation of the situation before, during and after. The Director said "We've tried to be responsive and supportive." The system was now used to 'full effect' by some users but there were patches where the system was "used to the minimum

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they could get away with.” On being asked why this was the Director was not sure. One theory was that “It goes back to professional ideas that they should not be using a keyboard.”

The Director said that the culture of the different services within the organisation was different and the main point for success was to treat all services differently. The idea was to try to support the service rather than coerce them into using a ‘central service’.

There had been difficulties in that the Mental Health Service did not want to share with General Health Care Services. The Mental Health Service were described as ‘very precious’ about their service. Information was available on a need to know basis. It had been difficult to get them to see that sharing patient information might be in the interests of the patient and the formal carers.

After a number of interviews with the Director which emphasised the positive aspect of the implementation, mention was made that “There have been some really bad times.” There was then perceived to be a need for an external ‘catalyst’ in their model for implementation. They repeatedly referred to the health service background of the ‘catalyst’ who was able to look at the situation from a “a bird’s eye view”.

The Information Director was asked about the Information Management Group and he said that he was not popular with them as he asked difficult questions.

When asked how they got through to people the Director said that they were opportunistic and there was a Board of 4 Clinical Directors but it was difficult as they have their own pressures. He said its just trying to sell our ideas “where and when”.

In spite of the fact that all the interviews with the Information Director and the access to internal evaluation reports showed positive outcomes from the implementation of the system there was a rather different picture from the limited interviews possible with other staff in the organisation.

The continued interviews with the Information Director were because the Director wanted work carried out on an evaluation of the system. In particular he wanted an evaluation methodology to be designed for their use. Access was therefore granted to the system evaluator who was already beginning evaluation of the pilot sites and access to the systems manager.

THE SYSTEM MANAGER’S VIEW

Although the evaluator was pleased to be involved in research and co-operated with the researcher there were difficulties with access to the systems manager or his staff. The system manager initially declined to be interviewed giving a number of ‘flimsy’ excuses, such as ‘I haven’t had permission’ when the meeting had been set up by the secretary of the Director of Information, and in their own offices. The manager attended what the researcher thought was to be an interview but spent three quarters of an hour explaining why the

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organisation should **not** be involved in research, and asking what kind of questions would be asked if there was an interview.

The very strange reactions of this member of staff gave the first suspicions that something was not quite 'as it seemed' in the organisation. This member of staff said he had been involved with the system since 1990. He went to great lengths to relate that the designing and installing of a system was not just technical and about hardware and software, but involved people and was socio-technical. He said that the human aspects were the most important and most time consuming and difficult to deal with.

He wanted to impress on the researcher that one could not go into the organisation with no prior knowledge of that particular implementation and know what questions to ask. He felt that sites were very individual and was adamant that implementation was so delicate a process that he would not let the researcher near any of his users. It could upset the delicate balance. The researcher felt that researching information system was like infiltrating into some very secret top security radar system rather than a NHS IT implementation process.

This staff member wanted to emphasise all the time, "What would the Trust be getting out of any research. Why was it being done?" He said that they were already evaluating their own system so why should they want an outsider involved. When the idea that an outside evaluation might be seen as impartial and objective was put forward, he said that he did not see that this was the case.

During the 45 minute 'non-interview' he did seem to 'thaw' a bit, but he was definitely most guarded and deliberately obstructive. The researcher was sure that this was not a 'personality clash' but that there was something going on which was unknown to the researcher.

In the more 'thawed' moments he said how difficult the clinical staff were to deal with and how he needed a sense of humour to deal with his job. He said that he and colleagues often said that they deal with all aspects of life, trials and tribulation. They get situations that can make you laugh and cry. He said he often thought he could write a very readable book. Others involved in IT would identify with it and it would be interesting for the layperson as well. Unfortunately, he would not tell any of the stories to the researcher!

THE HUMAN RESOURCE DIRECTOR'S VIEW

The Human Resource Director was asked whether that department was involved in the implementation of IT. The interviewee said "No we are not, we are currently being involved in the kind of strategic approach but in relation to the actual implementation we are not, and I think that is a deficit." The interviewee went on to say "In terms of information people coming and saying we are introducing a new system what do we have to do in advance, who do we involve? That bit is missing. To a degree that isn't a problem in itself, personnel do not belong to the personnel department. If the information people have all the skills and knowledge to do it, it wouldn't matter who did it. I think the issue is that it isn't being done comprehensively. That's the problem. And if they asked us what to do, we could give them say a 10 stage plan and name key people, and possible costs. But that bit is missing."

“I think we will be involved because I think some of the chickens are coming home to roost. I think, probably..... and its not a criticism of anyone, it is difficult for people in most specialities to think outside themselves. So you know what you have to do and think down your track, and it doesn't occur that you have to mesh people from a different track. You can think time after time of where things have gone wrong because one bit of the organisation has said that's how we have got to do it and completely ignore others. If you are not trained in picking up the human implications then you tend not to see them. I think that's probably the problem.”

The Human Resource Director was also asked about the new system being implemented and the attitude of users. She said she could not comment on the technical side but she said the message that would come back would probably be that the system was imposed, it doesn't take account of user's needs and 'the tail seems to be wagging the dog.'

“I think as well there's a tendency to (she went slowly and chose words carefully) if a skilled clinician doesn't understand the system very well or is having difficulty working it , it is sometimes difficult for people in IT to go out and say 'You are a highly intelligent person but you have a small problem here.' the tendency is to say 'For goodness sake you must be useless.' and you are talking about highly skilled clinicians in their own right, and of course its reached a bit of a block really. Because.... you tell a clinician they are useless because they don't understand an information system and what are they going to do? They will say 'I've got a busy job you play with the information system, I'll go back to my patients.' There's a bit of that I think.”

“And the issue about saying to the users this is why we have brought it in this is why we need it, what is your view, what is the reality of operating it, what are the extra pressures put on you, how does this fit in with the demands from your real live patients? That is the bit that hasn't been done very effectively. So the system is seen to be driving the healthcare system rather than the healthcare system driving the information system. I think that sums it up really, but we haven't been involved, which is interesting.”

The Personnel Department had only been involved in strategy at board level in the last year.

Regarding involvement of staff in new systems design and implementation the personnel director said it was difficult because “the users are employed to do a clinical job that they are good at and came into the service to do and if you don't involve them in the implementation they get 'fed up' but if you do involve them it goes on longer and takes them away from their fundamental work and you have this tension all the time.”

“This is an issue to be mentioned, and as far as I know there is no explicit recognition of time and resourcing needs. If you put it in the context of contracts for service, i.e. x amount of money for delivery of x patient care episodes, unless the person agreeing the contract is clear in saying 'and within that contract I will allow you x time for being on Prince consultation team' the clinician is saying 'but I have to deliver my contract and someone is saying but we have to have you here on the Prince team.' This causes problems. This is where the softer side of HR comes in, if I were a clinician and I am asked to be on a Prince Board, that is a small part of my work, important but minor. But if I am in the information department it could be 90% of my reason for living! You immediately have a clash. That's an issue. I think HR could almost be a translator between the two.”

“Involvement is also difficult because the sites are not static. The nurses are out and about.”

It was suggested to the Personnel Director that if they are involved at strategy level now, in the future they might be more involved in IT implementation, and perhaps consulted about the process. The Director said “I think we will, but it will also be because of the swelling voices saying ‘this wasn’t done right, that wasn’t done’. I think as well it’s about departments like information realising they can’t declare UDI. They can’t be an island, they have got to mesh in with other parts of the organisation.”

The organisation had a mission statement and vision written in the business plan and strategic objectives and they are cascaded right down through the organisation. However, the Personnel Director thought that what was not done very well was to translate them into practical terms. As they were in a state of change at the moment there was no staff handbook, or manager’s handbook but they did have Roadshows where the CEO visited the staff sites.

The Personnel Director thought that it was important to find out the opinions of staff about the new system but said “There is bound to be a clash because at the end of the day the systems are to feed management information to the Government.”

The Director said the government statistics on community nurse contact with a patient would be expected to say a visit to a patient to do a dressing takes x time and therefore district nurses can do x visits. However, difficulties arise because “The community nurse would say yes, but when I went in to see this little old lady she was dying of thirst, and she was lonely, and just five minutes contact was beneficial to her. The nurses then when being constrained about time, latch onto blaming the system, not the centre, for reducing budgets. They feel it to besurveillance, yes, I think they do. But you can turn it the other way, you might say that of the 100 people who dress a leg ulcer in five minutes compared with the 100 who take 15 minutes, actually the outcomes are better on the ones who take only 5 minutes. The information is needed to see which outcomes are better. Actually they might all die and we might as well not have bothered! But for the individual nurses, they might think, ‘They think I am lazy but I am busting a gut to get it all done and be nice to patients, and get the paperwork done.’”

“That might be where the biggest gap is in the implementation. Actually giving people time to say all these things, giving them time to talk them out.”

The Director also said “If you look at the clinical staff, they are amongst the most intelligent people in the country, we should be getting them on board, because if the consultants start to take it on board, it will filter right through the junior medical staff. It’s about starting in the right place.”

A CLINICAL DIRECTOR’S VIEW

This directorate were already using the system. All their patients were on the system. However, the Director said that the system was sold to them as a clinical tool but was used as a management weapon for contract monitoring. “Management can pull out all sorts of figures which actually reflect no reality.”

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There was concern that their department were allowed no dialogue with the software designer and supplier. "Our needs are filtered by the information department and they do not incorporate our ideas."

This Director said that no lessons had been learnt by the information department. There had been no work that she knew about on what benefits the system had given. "There was some type of evaluation study but it was so badly designed it was useless. You might as well tear it up. We did our own study and handed it in but no-one has come back to us on it or commented on it."

With regard to 'system champions' the clinical director said they had their own champion. She was seen to make the system work for them in the Trust. She is the Information Support Manager and Audit Manager. They had combined these 2 posts in their directorate and found this worked well.

The Director said his department was acting as a pilot site for E Mail before it was rolled out organisation wide. But said there seemed to be no plan or money to do this. There was no strategy for buying it. The directorates would have to fund it out of their present budgets and they found this difficult to do. The Director said they could possibly 'top slice' them.

An added complication was that they would need to be cabled for E Mail and for the network and this would be expensive and as they were thinking of moving buildings within a complex of buildings, until they decided on final plans for this they could spend money which might prove to be wasted money. So it was difficult to make decisions and go ahead with computer installations.

This Director said that if they needed computers they asked the Information Department and took their advice but there seemed to be piecemeal purchasing in the Trust and different departments buy different software and hardware which is not compatible. This showed their lack of strategy and planning.

This director said that (name) who was in the finance department was supposed to be going to write a strategy. The researcher said she thought there was a strategy. The Director said "There might be a bit of paper somewhere called a strategy bit it certainly isn't!"

When asked about the Information Department the Director gave the view that the Information Director and the 'Consultant' were 'so cerebral'. "Their ideas were not based on reality. They got together in the office and made plans but did not involve anyone else and were not in touch with reality. They did not consult about the system."

The researcher asked if the Information Director came out to the units at all and the Director said that he did but he did not consult them.

This Director was asked what he thought the Information Department could have done better. The reply was "Well, produce a proper strategy"(This was said most forcefully and definitely) "Clinical Directorates and other managers and directors such as the Human Resource Director should be involved. All those who run the show."

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When asked about actually using the new system the Director said that in Mental Health the secretaries do the data input, but in this department everyone used it. However “people minded doing it. People who are managed don’t like it. There are not enough terminals so they used to have to actually go into another building to use it. Now they just have to go into other rooms. They have to book time to use the system. They have to take great lists and piles of paper to input. Its very inconvenient. We have 13 terminals and if people were to have one each (main users) we would need 46.”

“We only have 10 of us with E Mail so out of 110 that is not good. I have E Mail but I am not networked with anyone other than the other 9 here. It would be so useful for writing business plans when we are all in different buildings. Those of us on it do use it in this way for our directorate business plan. It saves a lot of time and paper. We can make changes and mark them and E Mail it for the others to see. We are great fans of IT in this department.”

The Director was asked if they were ‘used to the system’ now. “We are used to it and we do use it but we still want a lot of changes to the system. We meet with the Information Department and tell them what we want and eventually they do make tiny changes but they are not really responsive to our needs.”

This director did not think that confidentiality should be such a ‘big issue’. Their system was not compatible with that in Mental Health so if a patient presented to them they would not know if they were registered already with Mental Health (and vice versa). There had been some questions about being able to identify violent patients for those who do home visits but this is not allowed. The director said there are criteria for confidentiality related to paperwork and “I don’t see why the same criteria cannot apply.”

THE EVALUATOR’S VIEW

The evaluator thought that the Information Director was trying to put into practice the ‘utopian’ implementation. However, the barriers which were present were the clinical directors who see the system as an extremely time consuming method of maintaining patient information.

The system was already in place in some directorates but there were problems. For example printing of care plans was not possible. The evaluator said “I mean this is getting better as the system is developed but it has fundamental problems that turn them against the system.” The researcher said “Technical Problems? And the Evaluator said yes.

The researcher asked whether the system was not wanted. The evaluator said “No, its not that they don’t want it, because I don’t think anybody devalues information, its not that they don’t want it - its just that they see it as an extremely time consuming method.”

When asked whether the evaluator thought it was a time consuming method the evaluator said yes it was. The researcher said “So, they are not being unreasonable?” The evaluator replied “No, they are not being unreasonable. And it also produces..... its a number crunching system, it doesn’t produce....I think what they would like is for information to be reproduced in a user friendly way that they can use it for their own managerial practices. Be it advising on care planning or reproducing information for the patients, in a patient friendly way, and it doesn’t. It doesn’t speak normal language. It speaks (name of system) language.

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And it doesn't speak information that they want the way they want it. It produces figures.....Which can be very useful."

The researcher suggested that if consultation had been carried out but there were still problems perhaps the process had failed, was this so and how had it happened.

The evaluator gave an example of the difficulty. "If you take an example of the community drug service. I worked with (name) looking at his needs for a system. Now, his needs for the system were too expensive. So then that comes back down to money. We worked out exactly what he needed and the bill came to £23,000. So he can't get what he needs so he will not use it."

The researcher suggested that this was not a large sum of money and the evaluator replied that as the project has already cost a quarter of a million pound and the Trust sees more and more money going into the project, "£23,000 seems an awful lot of money to the Trust."

The researcher said so that is another dimension to add to the model, the cost.

The evaluator then mentioned the fact that another dimension was patient confidentiality. She said "He would not want any of his patients to be identified. His clients - drug users to be identified. So we had a big battle. I mean, I left and the battle has never been solved. Because of the way he works and his very very strong..... feelings."

The researcher asked if the professional was being 'unreasonable'.

"No, I don't think you are unreasonable if you stick up for what you think is right. And in the wide picture he was not being unreasonable. I mean, If I put myself in the patient's shoes and I was a drug user, and....the community drugs service works to try and take on people. He is very much about counselling and advising, he is not about saying you must stop taking drugs. He is even about preventing women becoming prostitutes in order to buy drugs. He goes right back to a counselling service. If I was a patient I would not want anyone to know I was seeing (name) and being advised. Not even my doctor maybe. Because it is a very confidential service. In the same way if I had a mental health problem. I am a member of the Trust, do I want other members, colleagues to see that I am seeing a psychiatrist?"

"But the whole idea of the system is that it is an integrated patient system. So, if I go and see chiropody, he can look my name up and see that I am also being seen next door for psychological problems. The theory is he needs to know this in case of a domiciliary visit, where he might be alone with a potentially aggressive patient. I mean, I can see both arguments."

The researcher suggested that this relates right back to planning level. These are all arguments which do not surface at the planning stage.

The evaluator said "Yes, I think that's where it goes back to user involvement, and at the planning stage everybody round a table brainstorming all the issues."

She was asked whether they did this and replied that it was before her time and she could only assume they did. However, the system had been implemented first in the mental health service, then it was studied how it could be expanded across the Trust to involve all the

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different services instead of just mental health. There was an issue about how mental health felt about sharing the system.

The evaluator then said that if one of the clinical directors said “we don’t want to use the system” they would not ‘have’ to. She said “But they need to...and they don’t say it because they need to record patient information somewhere. But (name - community drug service) said ‘if you don’t give me those screens I am not going to use the system’ so he has not used it but got someone else to devise a system all on its own that produces the information needed for contracts.”

This means that although there is a strategy to have one integrated system, in this organisation clinical directors could theoretically, (and has been done in the case of community drug service) choose not to be included.

The problem as viewed by the mental health service is that they were sold a system which is now being implemented into other units, which they seem only now to realise will allow access to dates, treatments and outcomes of mental health patients to other parts of the Trust. They are not happy about this but the whole reason for the integrated system was the sharing of patient information. Therefore to make some information confidential and unavailable to certain people is counter productive to the aims of the system. The evaluator said “That gets away from the original strategy, that we have an integrated patient record system. So the strategy in reality is not..... agreeing with the opinions of the individuals who have to use it. But the system is needed for the contract process. And then its all to the provision of information for the pound signs that come in at the end of the day. I mean the information it produces is how many patients have been seen, how many times, and therefore our contract for the next year must be x million pounds because we see as many patients as x and therefore we need this many health visitors etc. So its is fundamental to the Trusts financial process.”

The evaluator said that ‘learning disabilities’ were using the system and using it well. She went on to say “they produce useful figures, they have got a couple of very good people who do that for them.” When questioned further she said “There are some nurses who work with it, but it...personally I, you know, some people are very committed to it but its because they are generally interested in it. Other people aren’t because they see it as something which just takes time away from patients. Its like anything isn’t it, some people like it and some don’t, but the majority think it is very time consuming.”

The evaluator had done an evaluation with the rehabilitation team before using the system and after they had the system for 3 months. She said they had only just got the hang of it and were still using their previous system and checking the computer system with that every month. Their old ‘system’ was a sort of diary system on paper.

The evaluator said the professionals were very disappointed that the system did not produce the kind of information they wanted. “Because it is number crunching. “ She said that the problem was how it had been marketed to them. “I mean we did market it as a brilliant information giver. And it is, but it doesn’t...you have to download it into Excel and if you want to do pretty graphs you can, but that’s done through part of the finance department.”

The evaluator said that they had a very good trainer and training had gone well.

Case 4

The evaluator also spoke about the information department. She said that the information director and the systems manager were very precious about the system. She said “They are in quite a precarious position because there is a lot ofcriticism of the system and the way it is being implemented. Now I don’t know whether that has gone away, but certainly at the time I left the information directorate was on very thin ice. And losing the chief executive who was a staunch supporter of that system, I don’t know how that is going to affect the information department.”

The evaluator said that the old system used by much of the Trust was coming to the end of its licence and they did not want to renew that so were now steamrolling ahead to get the new system in and were transferring all patient records onto the new system. She did not know whether they had now sorted out confidentiality. She knew they had not sorted out the drug service. “So all this wonderful strategy and all the work that I was doing has gone by the wayside. The sort of ethos now is ‘right, got to get health visitors up and running, got to train them, got to get the information in there and then we will look at any problems. Instead of looking at the problems first. Which is a shame and I don’t think they are evaluating it, they haven’t got the time to go in and ask ‘before’ questions.”

The researcher asked “So the clinical directors are not arguing too much about not using the system?” to which the evaluator replied she did not know.

The researcher then asked about how the information could be used. The evaluator said “Well, certainly it has the capacity to paint a very clear picture of individual activities and as a clinical director I could be worried that.....that information could be used derogatively.

I would be actually.....I mean I would use the information to look at how the directorate is working and would be concerned if I saw there were great gaps.”

The evaluator was shown the organisational model and asked her opinion about the addition of politics. She said that she would actually have politics round the whole model, along with culture. She said although its not the whole picture it is part of the jigsaw.

She went on to say that she thought the whole process had actually been managed very badly because some extremely good work had been done. They had set good objectives but somehow they had not achieved their goal. “I don’t know what is happening in the middle and I think it is the management process. And cost, obviously. They are just not meeting their goal which is to successfully implement the system with everybody happy, and good information. Something is preventing that from happening. The management process or the organisational politics, all those things.”

The researcher asked what she thought the information director should have done to gain success. The evaluator said “You have to win them over, don’t you? The Information Director started from the bottom up approach which I think is a good approach but in my experience you can strive as much as you like but without commitment from the top then you can’t get anywhere. I think that’s what has happened. (Name) started from the staff perspective, what information do you want, benefits realisation, etc. But what he did not do was focus on the top and get commitment from the clinical directorate. He did not say to them what did they want. He said ‘this is what your staff want’. So if one were to start again the most important thing would be to get commitment from the Board first. Which he had with the chief executive but not with any of the clinical directors. It wasn’t just (name)

Case 4

fault, it was to do with the way the CEO managed the Board. If the clinical directors weren't convinced the director said 'you are having it', well, I mean, someone has to lose in that kind of argument. Well, at the end of the day (name of CEO) is the loser and the clinical directors are still here."

"It sound very simplistic, but that's the way I see it. And I would want to go in with a win win negotiation policy with the clinical directors. You know, I want to win, I want the system to work but I want you to win as well, I want it to work for you. So what are we going to do?"

The researcher said but if the system does not please the clinical directors you are at an impasse aren't you? The evaluator said you have to compromise. I think you have to sort it out at the beginning. So that the thing you role out has got commitment. What has happened in this case is that people have voiced concern and they have still been told they are going to have the system. So their attitude to the whole thing has been 'we've been told that, and we don't want it.'

The evaluator said that the system is there, in some units, but it is not running smoothly. She thought they should get used to the system in time. At this point she mentioned that some issues needed sorting out like printing out a care plan in a user friendly way. "They can press a button for the care plan but it does not come out in a user friendly format. But it's just a technical thing and they are looking at it now. One thing they need to do is share the care plan with patients, print in out and give a copy to the patient and get them to sign it. Its an agreement of how the package of care is going to progress. Well, if you handed the care plan to the patient at the moment they would look at it and think, 'what's all this?'"

So at the present time because of the new system the health visitors or others who deal with care plans have to do them twice. Once for the computer system and once for the patient. Hardly time saving, and raising questions about what kind of consultation took place and what, if any, questions about work procedures were initially asked when designing the system.

The evaluator was asked how long the system had taken to implement. The reply was that they used to do wonderful project plans on Excel, but they stopped putting in the dates while she was there because everything took much longer than anyone anticipated. (They had though one year and it is now in its fourth year of implementation.)

There had been other questions of cost. They could have migrated the records electronically but this would have cost too much and in the end they paid someone to come in and enter the data manually, this was presently being carried out. But the evaluator said she had recommended this 2 years ago and it was just being done.

On being asked if this could be considered a successful implementation the evaluator said she would say yes, BUT. "I mean it's hard for me to say its been successful, all these things along the way have....tarnished the success."

She was asked to look at the questionnaire list of barriers to implementation and she ticked the ones she thought were relevant to her case. They are listed below.

Resistance from staff

Case 4

Resistance from managers

Conflicting interests of different staff groups

Cost implications

Budget delays

Clinician queries about the system

Staff queries about confidentiality of the system

Staff viewing the system as a means of management control

THE NURSE/HEALTH VISITOR VIEW

The Information Director had promised future access to individuals but this was never achieved. Focus group meetings of users had also been promised, but also did not materialise. This was in spite of the approval of the research by the CEO and the Information Director. There were discussions and promises but no action. The CEO then left the organisation, followed by the Information Director and access ceased.

Three informal 'unofficial' interviews were gained with users of the system. These were carried out as a result of 'chance meetings' with three people who had used the system as permission had not been given by the Information Director or the Systems Director to approach individuals.

The Trust was described by one interviewee as "a strange place". She said she had been trained for the system but by the time she actually used the system she had forgotten how to use it. She claimed that there were "lots of technical problems!". She thought that the system was not reliable and would crash just when you wanted it. She highlighted the different priorities of the different staff groups. She said that administrators did not bother to update information but nurses need up to date information. She also said that people there did not want to use computers and said this was to do with culture.

A second interviewee said that the (name) project was supposed to be funded for two years but that funding had been withdrawn after one year. She said no-one talks about that and said that there must be some reason for that, inferring hidden difficulties.

She highlighted the fact that the system was used to time what professionals were doing. Whereas previously only the number of visits they did had been measured. She thought that the new system meant less control of her job. She could see no use for the information for professionals, only for managers.

She said she had minimal training on the system. She would have liked more but this was not available. She mentioned there being only one terminal to ten people and said that this caused real problems. Having to book time on the system.

She thought the system was a waste of her time. She said that what 'they' say will take 10-15 minutes actually takes 1-2 hours.

She described her training as 'abysmal' and computer access as 'abysmal'.

The third interviewee covered the same topics and had the same experience and opinion of the system. She, however, also mentioned the idea that use of a computer can be detrimental to the professional, patient relationship. If the professional uses the computer for notes when the patient is there, this can be seen as threatening, and also interferes with the rapport

between them. If notes are made as normal on paper and then transferred to the system later, this is duplicating the work.

THE NEW CHIEF EXECUTIVE OFFICER VIEW

The new chief executive officer was interviewed about the problems of implementing new information systems in general but was not questioned specifically about the one studied in his organisation because he had been in post for only two months. He had previously been CEO in another Trust organisation.

The CEO considered that there are unique problems in the NHS because it is so 'people' oriented and labour intensive. He thought that highly qualified and intelligent staff were bright enough to keep out any systems they did not want. He argued that the right approach was an organisational development (OD) approach. Corporate strategy which included OD strategy was, in his opinion, vital. He thought that generally people are resistant to change but that an organisational development strategy takes them forward.

This involved encouraging good working practice, which might involve a change in working practice, encouraging training to underpin this, and then IT to support the working practice.

One of the points which he also believed was very important to note was that NHS organisations are judged by different standards to other organisations. They could not afford to be seen to fail, otherwise there was a scandal like the Wessex case. There was careful scrutiny by the Public Accounts Committee of moneys spent and if any was perceived to have been 'wasted' on IT systems which did not work then the organisation would be open to criticism. He said that it was no wonder that some CEOs practice defence management.

When asked about the idea that there should be a director of information or of IT on the board, he said this was difficult because there were only 5 executive paid positions on the board. One was the CEO, one had to be a nurse, one a doctor, one was usually the finance director, and this left only one position vacant. This place was often taken by the human resource director. He thought that possibly ideally this position could be a rolling one, so that if a Trust was involved in moving the IT strategy forward the IT director might be co-opted for say two years, or if OD was the main concern then the human resource director might be there. The team could therefore be changed to suit priorities.

He was concerned that sometimes, in relation to IT, 'the tail was wagging the dog'. He thought that each department worked differently and any system needed tailoring to suit the different working processes. He made the point that people do not want a system that makes more work for them. He said that too few computer terminals could be a problem as busy professionals do not want to queue to use a system. He was quite keen on hand held computers for nurses and said that as district nurses probably cost £20,000 per year to employ, say £300 each for a computer which made their work easier, and saved them time would be a good investment.

His last Trust had been much more advanced in their use of IT.

He was asked about the post of information director and said that they were still deciding about the future structure of the organisation.

FINAL BACKGROUND INFORMATION

The Chief Executive Officer who was in place at the beginning of the research process was given a 'vote of no confidence' by the clinical directors and left the organisation.

The Information Director left suddenly and did not work any notice. The researcher phoned one day to speak to him and was told he had left. No reason was given. No reason was known by others spoken to in the organisation.

The IT department had split into two 'factions'. It had apparently been a very difficult place to work for some years. The Information Director and another person had been supposed to work together but could not get on and the department had split. Then one 'camp' moved into finance. A business manager who had worked in that department said how she had hated it. She said it was the worst two years of her life. There was so much back biting and nastiness. Two other managers left.

The systems manager who was left was said to have a 'ridiculously high workload'.

When asked who would replace the Information Director the researcher was told there would not be a replacement.

The department would probably be placed within the Finance Department.

OVERVIEW OF ACCESS PROBLEMS

The researcher had initially and subsequently been welcomed and invited by the Information Director to conduct research on the new system. However, it would appear that at the time internal 'politics' were taking place which led to the Information Director either resigning or being asked to resign. There had been criticisms of both the system, and the way it had been implemented by the Director. The Information Department appeared to have two definite 'camps' with opposing ideas. This would appear to be why if the researcher were welcomed by one 'camp' they would by definition then not be acceptable to the other. Power struggles appear to have been taking place which led to the CEO and the Information Director leaving the organisation.

An added complication was the employment of an outside 'consultant' who was an academic from a distant university. He had worked with the Information Director on the implementation plans and they had written and published papers together. The feeling was gained that this inclusion of the consultant, possibly led to feelings of 'exclusion' by the systems manager and other implementation staff. This probably also added to the mistrust and lack of co-operation shown to proposed university research.

DOCUMENTARY INFORMATION

118 page document labelled 'Identifying and Realising Benefits.'

Inspection of this document and the kind of questions that were asked of professionals shows that the information system could be seen to impinge on their previous professional autonomy. Measurements were made of all the activities they undertook each day. There was an interest in 'professional outcome measures'. This might be seen as threatening for many professionals who in the past would have specific but possibly unwritten goals for their patients.

55% of one of the teams questioned felt they did not know the effectiveness of their care in terms of professional outcomes. Of the 45% who stated they did know professional outcomes:

- 40% used 'obtaining stated Goals' as a measure of outcome.
- 10% used 'obtaining stated Aims' as an outcome measure.
- 40% used the resolution of the presenting problem.
- 10% used regular assessments of base lines.

Professional comments included in the report relating to this were:

"Goals can be set, however, the type of patients and their problems mean that many may experience a set back due to age factors, other existing conditions, further strokes or small interruptions of blood flow to the brain. Therefore, this is not a failed professional outcome."

"Some patients have different Goals and Aims to the professional, some patient aims may be unrealistic. However, to tell the patient that, may be of detriment to their emotional health in the early stages of treatment."

When asked about sharing computer care plans 83% of the reablement team stated that they did not think that having a shared electronic care plan would enhance patient care because they already share records.

43% of one unit and 60% of another unit had not used a computer before. Only 6% felt positive about using a computer. 43% stated that they had not come into a caring profession to work with computers. The majority of staff could see few future benefits if a computer system was installed.

The system was to serve such diverse professions as chiropodist, physiotherapist, speech therapist, occupational therapist. The Benefits realisation document found that each profession records care/treatment plans in different ways. The document said "Before an integrated care plan can be introduced it is imperative that each discipline's philosophy and approach to planning and recording care is considered to ensure that the professionals have ownership of the system they are using. A consensus is required if professionals are to fully understand the clinical input of another professional and be able to access the information required."

Case 4

This aspect has obviously proved more difficult to accomplish than was envisaged.

This document laid down expectations that professionals should be writing down aims of the treatment and specified times for these aims to be realised. This of course opens up a difficult area. It could be seen to be opening up an area where professionals could be measured by their own aims and then found wanting!

The manual documentation used by professionals did not require them to record any overall aim of the patient's treatment.

The manual records also did not require identification of the name of the professional recording the problem. The document recommended that "a more standardised approach to the recording of patient problems and the identification of the professionals who have identified the patient's problems is required if other professionals are to have access to patient's records and professional accountability is to be enhanced."

The document also reported that the majority of records did not show intervention plans, did not record the frequency of the intervention, did not show what skills were needed or the review dates. This was thought to be due to the lack of adequate standardised supporting documentation but the new computer system would remedy this. The issue of identifying the skills needed to perform interventions could be seen as threatening by professionals. If a case load has been full because a variety of treatments have been undertaken by the professional but management can then identify the number of treatments which could be done by a less skilled person, this could be part of the 'skill-mix' debate. The argument could be used that the professional should be concentrating on the higher skill work and delegate part of the work to less skilled staff.

The document listed a high number of benefits and disbenefits of the system. On reading this document, if one were a member of staff about to use the system, one might make the assessment that the disbenefits outweighed the benefits for staff. It was acknowledged that staff morale may reduce due to change in work practice. It was also acknowledged that "Information may be seen as threatening to staff particularly when linked to Individual Performance Reviews."

At the end of the report the writer had included a section on Reflections on the Process. One comment was "Identifying the beneficiaries and disbeneficiaries of system implementation ensures that the views of everyone within the organisation are considered including the service users, e.g., patients, and also service purchasers. This holistic approach of the organisation ensures that any conflict between a benefit and a disbenefit is highlighted and therefore can be managed."

In reading the lists of benefits and disbenefits of the new system it was concluded by the researcher that many of the benefits listed (unequivocally as benefits) could be thought of as disbenefits by those using the system.

The final conclusion by the researcher on assessing the document was that for the majority of those using the new system there appeared to be only disbenefits. For top management and Government Policy aims there were obvious benefits. If middle management are assessed on their workload, their staff levels and their 'tacit' knowledge, then the system might lead to disbenefits for them also.

Pre- Pilot Evaluation Reports on two of the units

Two other reports and questionnaires dealing with the pre evaluation of two of the units were also obtained. These, from the types of questions asked, appeared to be aimed at showing the lack of present information, and the lack of sharing of information between professionals.

The Operational Requirements of the System dated July 1993

This showed as a central objective the production of a care plan document.

APPENDIX 2

BENEFITS REVIEW: LESSONS LEARNED

From Ward, J. (1994) 'Information Systems - Delivering Business Value?' Keynote address at the 4th Annual BIT Conference, 9th November, 1994, Manchester Metropolitan University.

Table 1

BENEFITS REVIEWS: LESSONS LEARNED

1. A Benefits Management approach will give a clear definition of success, will raise the probability of success, and will help in fostering perceptions of success.
2. Without proper benefits identification and benefits realisation planning, it is less likely that benefits will be realised.
3. Without any benefits measurement and review, it will not be possible to determine if any benefits have actually been realised, or whether further benefits are available.
4. Focusing on manpower savings alone will not motivate a successful project. There has to be another type of benefit which is of relevance to those who will actually use the resulting system.
5. Identify the major stakeholders, and get them involved in the Benefits Management process.
6. Linking benefits explicitly to overall business objectives and departmental objectives will foster managerial commitment to successful implementation.
7. Linking benefits as closely as possible to the needs and wants of the users will raise the chances of success, since users will actually want to use the system.
8. A pilot study to measure and demonstrate the potential benefits, and to understand the required changes, will greatly enhance the chances of success in a full implementation.
9. Perceptions by all stakeholders of benefits actually being realised are vital to actual project success.
10. 'Tangible' benefits may not be the major success criteria, though they will be emphasised in a project proposal.

There is considerably more research and development work required to test, refine and perhaps extend the ideas to deal with the range of issues affecting success in IT Benefits Management. But already the sponsoring organisations have been able to use the ideas to create more real value from IS/IT investments and they are incorporating the 'good practice' check lists etc. into their management processes.

APPENDIX 3

QUESTIONNAIRES AND ACCOMPANYING LETTERS



Letter originally sent out in August, 1996

Information Services Director/Manager,
NHS Trust Hospital.

**University of Plymouth
Business School**

Drake Circus
Plymouth
Devon PL4 8AA
United Kingdom

Tel 01752 232800
Fax 01752 232853

Dear Sir/Madam,

Professor Peter Jones BSc MEd
Dean

My purpose in writing to you, as an IT Director or Manager, is to seek your help in enabling me to establish current acquisition and implementation practices and experiences within the National Health Service.

Information systems have been notoriously difficult to implement initially, but with the increasing experience gained in this new and growing field, implementation difficulties appear to be decreasing. However, there appears to be few studies which actually ask IT/IS managers or directors about their current work on acquisition and implementation of computer information systems.

I am very aware, from current and previous research which I have conducted in the NHS, of the many demands which are made of you, and I have therefore kept the questionnaire as short as possible. However, because the IT implementation process is so complicated, and affected by so many variables I feel that all aspects must be covered to give a true picture of the process. The questionnaire is, therefore, not as short as I would like, but I hope this will not deter you from kindly filling it in.

I assure you that your responses will be treated as being totally confidential and that the anonymity of both yourself and your hospital is guaranteed. However, if you would like a copy of the report which I will produce from the information gathered, please return the covering letter with your name and address, or insert your name at the end of the questionnaire.

I would thank you in advance for your help by completing the questionnaire and returning it to me in the enclosed reply envelope. By so doing, you will greatly facilitate my research into an area where the NHS has achieved many advances, the majority of which have remained largely uncodified and unnoticed.

Yours sincerely,

G. Lankshear BA(Hons), M.Sc.
Researcher and Lecturer.



THE QUEEN'S
ANNIVERSARY PRIZES
FOR HIGHER AND FURTHER EDUCATION

1994

10th October, 1996.

The IT/IS Director,
NHS Trust Hospital.

Dear Sir/Madam,

During August I sent out a questionnaire about the process of implementing new computer information systems. So far I have had a return rate of about 30%.

I was hoping for a higher response rate than the above and I am therefore sending out this reminder with another copy of the questionnaire in case the first has been lost or not reached you.

I know that your time is precious and the demands made on you are great, however, the problem of implementing information systems is of current concern and research interest and therefore I am hoping that you might consider filling in the questionnaire if you have not already done so.

There is a space at the end of the questionnaire for you to request a copy of the results when they are available, or, you may send a separate request for this if you prefer to preserve anonymity.

I am very interested in the barriers and the catalysts to implementation of systems and if you have any other comments to make about this I would be grateful to receive them.

Thanking you in anticipation.

Yours sincerely,

Gloria Lankshear.



Information Technology Questionnaire

Acquisition and Implementation of new Information Systems

Please feel confident that all information gathered from this questionnaire will remain confidential.

Please fill in the questionnaire based on information relating to your most recently completed computer information system implementation. A freepost envelope is enclosed for return of the questionnaire.

Although it will help the research to receive fairly speedy replies, if holidays or pressure of work delay your response, I would still appreciate return of the completed questionnaire.

If you require any information about the questionnaire or survey please contact:

G. Lankshear,
Plymouth Business School,
University of Plymouth,
Drake Circus,
Plymouth PL4 8AA.
Tel. 01752-232851

Questionnaire - IT Acquisition and Implementation

Please feel confident that all information gathered from this questionnaire will remain confidential.

Please fill in this questionnaire based on information relating to your most recently completed or 'nearly' completed computer information system implementation. That is, one that is already being used by staff. (Please do not choose to use either your 'best' or 'worst' implementation, although of course your most recent could be either of these!)

Section 1 - Aims of system

1. Why did the organisation introduce the new system? Please tick all that apply.

- | | | |
|----|--|--------------------------|
| 1 | To save time on paperwork | <input type="checkbox"/> |
| 2 | To save on labour costs | <input type="checkbox"/> |
| 3 | To improve control of resources | <input type="checkbox"/> |
| 4 | To enable better organisation of work | <input type="checkbox"/> |
| 5 | To collect data for Government statistics | <input type="checkbox"/> |
| 6 | To improve the quality of patient care | <input type="checkbox"/> |
| 7 | To allow more efficient planning of staff time | <input type="checkbox"/> |
| 8 | To improve quality of information for decision making | <input type="checkbox"/> |
| 9 | Because the old system was obsolete | <input type="checkbox"/> |
| 10 | To aid professional practice of clinical staff | <input type="checkbox"/> |

Other (Please specify).....

Section 2 - Choice of system and planning of implementation

2. Who decided a computer system was necessary? Please tick all that apply.

- | | | |
|---|--------------------------------------|--------------------------|
| 1 | Regional Health Authority | <input type="checkbox"/> |
| 2 | Department or ward managers? | <input type="checkbox"/> |
| 3 | Board level decision | <input type="checkbox"/> |
| 4 | Executive director level | <input type="checkbox"/> |
| 5 | Middle managers | <input type="checkbox"/> |
| 6 | Clinical staff? (Consultants & Drs.) | <input type="checkbox"/> |
| 7 | Clinical staff? (Nurses) | <input type="checkbox"/> |
| 8 | Clerical staff | <input type="checkbox"/> |
| 9 | Other | <input type="checkbox"/> |

If other, please specify

- | | | | |
|----|---|-------------------|--------------------------|
| 3. | Was the acquisition of this system part of the overall Trust IT strategy? | Yes | <input type="checkbox"/> |
| | | No | <input type="checkbox"/> |
| 4. | Was a cost benefit analysis carried out prior to system purchase? | Yes | <input type="checkbox"/> |
| | | No | <input type="checkbox"/> |
| 5. | Who actually made the choice between systems?
(Please give job title or team description.) | | |
| 6. | Was the amount of money available to purchase the new system considered by the IT/IS department to be adequate? | Yes | <input type="checkbox"/> |
| | | No | <input type="checkbox"/> |
| 7. | Is the new system | a package? | <input type="checkbox"/> |
| | | or purpose built? | <input type="checkbox"/> |
| 8. | If it is a package, was there a range of different packages available from which to make your final selection? | Yes | <input type="checkbox"/> |
| | | No | <input type="checkbox"/> |

Choice of system and planning of implementation (continued)

		Nurses	Clinicians	Managers	Clerical	Other
9.	Who will use the new system? Please tick all that apply. If 'other' chosen, please specify	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	Prior to purchase, were opinions of users sought?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	If users were involved, how were their opinions sought?					
	Use of Prince Methodology	<input type="checkbox"/>				Interviews held with potential users <input type="checkbox"/>
	Use of other Project Management Tool	<input type="checkbox"/>				Questionnaires to potential users <input type="checkbox"/>
	Use of steering groups	<input type="checkbox"/>				Group discussions with potential users <input type="checkbox"/>
	Involvement of unions	<input type="checkbox"/>				Involvement of staff associations <input type="checkbox"/>
	Other (Please specify)					
12.	Was there an opportunity to see the system in use elsewhere?				Yes	No
		For Managers			<input type="checkbox"/>	<input type="checkbox"/>
		For staff (potential operators)			<input type="checkbox"/>	<input type="checkbox"/>
		For IT staff			<input type="checkbox"/>	<input type="checkbox"/>
13.	What procurement process, if any, was used?					
14.	Was a named implementation methodology used in the project? (For example Prince)	Name				
		None Used				<input type="checkbox"/>
15.	Was the named implementation methodology helpful?	Yes <input type="checkbox"/>		No <input type="checkbox"/>		
16.	If you had a choice, would you use the same methodology again?	Yes <input type="checkbox"/>		No <input type="checkbox"/>		
17.	If you did not use a named methodology, would you use one 'next time'.	Yes <input type="checkbox"/>		No <input type="checkbox"/>		
18.	If you did not use a named methodology, how did you go about planning for implementation? (For example, common sense, other planning device etc.)					
19.	Has the personnel/ HRM department been involved in the planning or implementation of the system?				Yes	<input type="checkbox"/>
					No	<input type="checkbox"/>
20.	If yes, in what way were they involved?	Working with the system				<input type="checkbox"/>
		Planning change management				<input type="checkbox"/>
		Offering training				<input type="checkbox"/>
		Procuring training on request				<input type="checkbox"/>
		On steering groups				<input type="checkbox"/>
		Other				<input type="checkbox"/>
	If other, please specify					
21.	If no, do you think their involvement could be helpful?	Yes <input type="checkbox"/>		No <input type="checkbox"/>		
	Do you have any comments on the involvement of human resource/ personnel directors into IT strategy?					

Section 3 - Training Issues

- | | | |
|--|--|--|
| 22. Did users receive | individual training <input type="checkbox"/> | |
| | training in a group <input type="checkbox"/> | |
| 23. Was training organised by | IT Department. <input type="checkbox"/> | |
| | Personnel dept. <input type="checkbox"/> | |
| | System supplier <input type="checkbox"/> | |
| 24. Is there a telephone helpline? | Yes <input type="checkbox"/> | |
| | No <input type="checkbox"/> | |
| 25. Is there a full user manual available for users? | Yes <input type="checkbox"/> | |
| | No <input type="checkbox"/> | |
| 26. Is there a short/simple guide available? | Yes <input type="checkbox"/> | |
| | No <input type="checkbox"/> | |
| 27. Is there a help routine on-line within the package? | Yes <input type="checkbox"/> | |
| | No <input type="checkbox"/> | |
| 28. Can users have extra training on request? | Yes <input type="checkbox"/> | |
| | No <input type="checkbox"/> | |
| 29. Was there a gap of more than two weeks between training and first use of the new system for any users? | Yes <input type="checkbox"/> | |
| | No <input type="checkbox"/> | |
| 30. If yes, did this cause problems? | Yes <input type="checkbox"/> | |
| | No <input type="checkbox"/> | |

Section 4 - Management Issues

31. Who managed the change? (Please tick all that apply.)
- Main user IT Dept. Personnel Dept. External consultant No 'main' manager
- | | Yes | No | Don't Know |
|---|------------------------------|-----------------------------|--------------------------|
| 32. Is/was this role in addition to their 'normal' role? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 33. Has/was enough time allowed for them to carry out the necessary work? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 34. Has/did this increased their work load in comparison with previous workload? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 35. Has this had a negative effect on the time available for them to manage the change process? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 36. Would you say that there has been enough 'top level' support for the change process? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 37a. If no, what could have been done to provide more support? | | | |
| 37b. Would you say there was a 'system champion' who was involved in all phases of the process? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | |

Section 5 - Work Issues

38. Will the system change the nature of the 'main' user's job? Yes
No
39. If yes, in what way?
40. Who would you classify as the **main** user group?
41. Will the user have enhanced job skills resulting from use of the new system? Yes
No
42. Will the new system involve **EXTRA** work for any of the following:
Nurses Clinicians Managers Clerical Other
If 'other' chosen, please specify
43. If yes, what kind of extra work?
44. Will the new system involve **LESS** work for any of the following:
Nurses Clinicians Managers Clerical Other
45. If yes, is this likely to cause:-
redundancy? Yes No
reduced working hours? Yes No

Section 6 - Evaluation and user views of System

- | | <u>Have done</u> | <u>Will do</u> |
|---|---|-----------------------------|
| 46. Did you/will you be carrying out an evaluation process? | Yes <input type="checkbox"/> | <input type="checkbox"/> |
| | No <input type="checkbox"/> | <input type="checkbox"/> |
| 47. Did this/will this include collection of user views of the system? | Yes <input type="checkbox"/> | <input type="checkbox"/> |
| | No <input type="checkbox"/> | <input type="checkbox"/> |
| 48. Has/will a formal written report be produced? | Yes <input type="checkbox"/> | <input type="checkbox"/> |
| | No <input type="checkbox"/> | <input type="checkbox"/> |
| | Don't know <input type="checkbox"/> | <input type="checkbox"/> |
| 49. If users wish to change the system in any way, can this be done? (At the level of 'programmers' changing the system.) | Yes <input type="checkbox"/> | <input type="checkbox"/> |
| | No <input type="checkbox"/> | <input type="checkbox"/> |
| | Don't know <input type="checkbox"/> | <input type="checkbox"/> |
| 50. Before its introduction, in general, were more users in favour of having a new computer system than against? | Yes, in favour <input type="checkbox"/> | <input type="checkbox"/> |
| | No, against <input type="checkbox"/> | <input type="checkbox"/> |
| 51. In general which groups of users wanted the new computer system.
Nurses <input type="checkbox"/> Clinicians <input type="checkbox"/> Managers <input type="checkbox"/> Clerical <input type="checkbox"/> Other <input type="checkbox"/> None <input type="checkbox"/>
If 'other' chosen, please specify | | |
| 52. Was it difficult to gain acceptance (use) of the new system? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 53. Has acceptance (use) of the new system now been achieved? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 54. Can use of the system be seen by staff to result in immediate benefits to their work? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

Section 7 - Attitude Questions

Would you please also answer the following attitude questions before continuing to answer the questions about the acquisition and implementation process.

Please circle the appropriate number (where 1 = strongly agree through to 5 = strongly disagree with 3 being neutral) to describe your reactions to the following statements, and where appropriate, the practice followed in your organisation.

		Strongly agree		Neutral		Strongly disagree
55	The key factor in whether an information system is successful or not is the attitude of staff towards it.	1	2	3	4	5
56	Staff are reluctant to explore and make full use of new information systems.	1	2	3	4	5
57	Clinicians see their role as limited to care of patients and do not want to spend time managing information.	1	2	3	4	5
58	Users must be involved from the beginning of a project and included in the procurement process.	1	2	3	4	5
59	Staff perceive new information systems as a way of imposing management control of their work.	1	2	3	4	5
60	Using Prince methodology as an implementation method (where appropriate) leads to successful outcomes.	1	2	3	4	5
61	Staff are usually indifferent to the introduction of new information systems.	1	2	3	4	5
62	Senior managers (and boards) have a duty to be fully involved in the planning and staffing aspects of information management and IT.	1	2	3	4	5
63	This is normally the case in this Trust. (Refers to statement in 62 above.)	1	2	3	4	5
64	Resistance is a normal reaction to the implementation of new information systems.	1	2	3	4	5
65	Technical problems are one of the main areas of constraint when introducing new information systems.	1	2	3	4	5
66	Implementation of new systems is complicated by the fact that there are stakeholder groups with different interests.	1	2	3	4	5
67	In this Trust the full cost of procurement and implementation of information systems is recognised and adequate provision is made for them.	1	2	3	4	5
68	Staff are usually satisfied with the training offered on new information systems.	1	2	3	4	5
69	A 'system champion' who is involved in all phases of the process is an important factor for implementation success	1	2	3	4	5
70	Money used for IT is generally well spent.	1	2	3	4	5
71	Use of IT has improved patient care.	1	2	3	4	5

Section 8 - Technical and other aspects

72. How many personnel use the new system?.....
73. Do you consider the number of terminals is adequate? Yes No
74. Is there adequate processing power available to cope with demand at peak times. Yes No
75. What type of system (e.g. patient records, finance, MIS etc.)?
76. What is the name of the particular system?
77. Has the system caused changes in the structure of the organisation? (e.g. Levels in hierarchy, formality/informality etc.) Yes No
78. How many geographical sites are involved?

Section 9 - Introduction of change

79. How long has it taken to develop and implement the new system, from the start of the procurement to use of the system by staff?
80. Did the implementation process take longer than planned? Yes No
81. If yes, approximately how much longer did the process take?
82. Would you say **in general** the change progressed:
smoothly had its ups and downs was in general difficult
83. Do you consider that '**in general**', given that any implementation process will have some difficulties, the implementation was a success. Yes No
84. Please tick any of the following which caused delays or problems or constraints during the acquisition and implementation of your new system:-
- | | | | |
|----|--|--------------------------|----|
| 1 | Private Finance Initiative (PFI) | <input type="checkbox"/> | 1 |
| 2 | resistance from trade unions | <input type="checkbox"/> | 2 |
| 3 | unemployment issues | <input type="checkbox"/> | 3 |
| 4 | resistance from staff | <input type="checkbox"/> | 4 |
| 5 | resistance from managers | <input type="checkbox"/> | 5 |
| 6 | technical problems e.g. programming | <input type="checkbox"/> | 6 |
| 7 | conflicting interests of different staff groups | <input type="checkbox"/> | 7 |
| 8 | lack of training | <input type="checkbox"/> | 8 |
| 9 | training took longer than expected | <input type="checkbox"/> | 9 |
| 10 | staff not able to get to training sessions when booked | <input type="checkbox"/> | 10 |
| 11 | cost implications | <input type="checkbox"/> | 11 |
| 12 | lack of project funding | <input type="checkbox"/> | 12 |
| 13 | budget delays | <input type="checkbox"/> | 13 |
| 14 | difficulty in getting team together for project meetings | <input type="checkbox"/> | 14 |
| 15 | people (internal staff) not meeting deadlines | <input type="checkbox"/> | 15 |
| 16 | supplier not meeting deadlines | <input type="checkbox"/> | 16 |
| 17 | clinicians queries about system | <input type="checkbox"/> | 17 |
| 18 | staff queries about confidentiality of system | <input type="checkbox"/> | 18 |
| 19 | staff viewing system as a means of management control | <input type="checkbox"/> | 19 |
| 20 | other (please specify) | <input type="checkbox"/> | 20 |

Section 9 - Introduction of change (continued)

85. If in the future you were to introduce another new system what would you do differently?
(Please continue on a separate sheet if necessary.)

86. Have you sought any advice from the NHS Information Management Group (IMG)?

Yes
No

87. If your answer was yes, was their advice helpful?

Yes
No

88. Would you, in the future, seek their help?

Yes
No
Possibly

89. Were unions consulted about the new system?

Yes
No

90. If one takes an overview of the organisation, which of the elements listed below are likely to present barriers to implementation? (More than one may be chosen.)

- 1. Strategy of the organisation.
- 2. Structure of the organisation.
- 3. Technology.
- 4. People.
- 5. Management Process in the organisation
- 6. Culture in the organisation.
- 7. Politics within the organisation.
- 8. External socio-economic environment

Thank you for your help in filling out this questionnaire.

Would you also please tell us:-

What is your official title within the organisation?

What is the title of the person to whom you report?

How many personnel (a) in your organisation?.....(b) In the IT/IS dept.....

Are you based in:- An Acute Trust? Community Trust?

Who is responsible for major IT/IS implementations in your Trust?

If you are interested to hear the results of this survey please insert your name and organisation below.

If you would agree to be interviewed by telephone about aspects of IS/IT implementation please insert your name below. \

30th April, 1997

Dear

Re: Questionnaire on IT acquisition and implementation

During August, September and October 1996 a questionnaire was sent out to IT directors and IT managers in Trust organisations in eight Health Authority Regions, one to each Trust in the sample and 359 organisations in all. (The response rate was 51.5%.) You were kind enough to fill this in and requested a copy of the results.

I am sorry that the results have taken so long in returning to you, but this survey was part of a larger research project and collection of all the data was finished before the results could be entered onto computer and analysed. They have now been completed and I have pleasure in enclosing a copy of the questionnaire with the results (frequencies) entered where possible.

This research has resulted in a large amount of data and discussion and conclusions on all the results cannot be covered in a short report but I have enclosed a short paper of some of the initial key findings. Further analysis is in the process of being carried out.

I would like to thank you again for being kind enough to give your time to fill in the questionnaire and if you have any comments to make about the results or about implementation of new systems in general please write or telephone and your comments will be used in further research reports.

A number of research 'papers' will be produced on the basis of the above research and of supplementary research which included 'case study' organisations. If you would wish to receive copies of these please send your name and address and copies will be sent when they are ready. (There would be a nominal charge by the institution for these.) However, you have already received the data analysis (enclosed) from the survey, and the papers are concerned with interpreting the results.

Yours sincerely,

G.Lankshear.



Plymouth Business School

University of Plymouth
Drake Circus
Plymouth
Devon PL4 8AA
United Kingdom

Telephone: 01752 232800
Fax: 01752 232853

Mr D T King, BSc (Econ), MSc, FBIM
Dean

17th April, 1996.

The Personnel/Human
Resource Director,
NHS Trust.

Dear

The National Health Service has made great strides in recent years to improve the quality of the service which it offers patients. One of the ways this has been accomplished has been through the collection and collation of high quality data via computer information systems.

Information systems have been notoriously difficult to implement initially, but with the increasing experience gained in this new and growing field, implementation difficulties appear to be decreasing.

My purpose in writing to you, as a personnel/human resource director, is to seek your help in enabling me to establish current involvement of personnel/human resource departments in information technology strategy, implementation and training within the National Health Service.

I have deliberately sought to keep the questionnaire brief so that it will take but a few minutes of your time to complete, as I am aware of the many demands made upon you.

I assure you that your responses will be treated as being totally confidential and that the anonymity of both yourself and your hospital is guaranteed.

Lastly, I would like to thank you in advance for your help in completing the questionnaire and returning it to me in the enclosed reply paid envelope. By so doing, you will greatly facilitate my research in this area.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'G. Lankshear'.

G. Lankshear BA(Hons), M.Sc.
Researcher & Lecturer



THE QUEEN'S
ANNIVERSARY PRIZES
FOR HIGHER AND FURTHER EDUCATION

1994

**Plymouth Business School Questionnaire for
Personnel Directors
or Human Resource Directors**

Please tick the appropriate box

- 1a. Is your dept called: Human Resource Department?
or Personnel Department?
- 1b. How long have you been in your present post?
2. Do you see any difference between a 'personnel'
department and a 'human resource' department? Yes
No
3. If yes, what do you see as the difference?
.....
.....
4. How many staff is your department responsible for
within the organisation?
5. How many staff are there in your department?
6. Does your department deal with training of personnel? Yes
No
7. Does this include computer training? Yes
No
8. Does the organisation have an information
technology strategy? Yes
No
- 9a. Are you as Director involved in forming this strategy? Yes
No
- 9b. Are you involved in strategy at board level meetings? Yes
No
10. Is your department involved in the implementation of IT? Yes
No
11. Do you think that the department should be involved? Yes
No
12. Why?

13.	If your organisation has implemented a new IT system in the past 2 years, do you think the implementation was successful?	Yes No Partially	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
14.	Was there an evaluation of the system?	Yes No	<input type="checkbox"/> <input type="checkbox"/>
15.	If there was an evaluation, did this take account of user views of the system?	Yes No	<input type="checkbox"/> <input type="checkbox"/>
16.	Are the unions involved when new systems are proposed?	Yes No	<input type="checkbox"/> <input type="checkbox"/>
17.	Who deals with unions?	Your Department Line managers Other	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
18.	Has the organisation ever conducted an organisational diagnosis?	Yes No	<input type="checkbox"/> <input type="checkbox"/>
	If yes, when was this, and why?		
		
19.	Do you know what implementation methods your organisation uses for IT implementation?	Yes No	<input type="checkbox"/> <input type="checkbox"/>
20.	If yes, what method do they use?		
21.	Do you feel that human resource department/personnel involvement in IT implementation is, or would result in more successful outcomes?	Yes No Don't know	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
22.	Attached is a classification of management development approaches observed by Fonda (1986). Do you think that your organisation's approach to IT training for managers fits any of these categories?		
	If yes, please tick one of the choices.		
23.	Can you give a figure for the average no of days training per employee, per annum, in your organisation?	
Thank you for your help in filling in this questionnaire.			

Question 22.

Five-fold classification of management development approaches observed. (Fonda 1986)

1. 'Sink or swim'.

Managers are left to their own devices. No training assistance is given unless asked for.

2. 'Management training'

Managers are given formal 'top-up' courses to provide the knowledge and skills they will need to carry out new responsibilities resulting from IT.

3. 'Hands-on with support.'

Managers spend off-the-job time using IT equipment to develop work-related projects under trainer guidance.

4. 'Management education.'

A long term approach which integrates development programmes for general management competencies with management development for IT. This begins well in advance of technology decisions being taken.

5. 'Management culture.'

This is a long-term approach which may utilise aspects of all the above approaches. It takes a 'whole' organisation view and careers are closely related to training programmes in order to develop managerial track records in handling IT competently.

If you would be willing to be interviewed by telephone on the subject of human resource department involvement in information technology strategy and implementation would you please insert your name and organisation below. Thank you.



UNIVERSITY OF PLYMOUTH

BUSINESS SCHOOL

ORGANISATIONAL QUESTIONNAIRE

September, 1995

Ways of working and the general culture of the organisation are under continuous pressure and change in the present economic climate of the National Health Service.

The University of Plymouth, Business School are at present undertaking a research project about change and information technology in the NHS. In order to gain information about what it is like to work in the NHS (and peripheral organisations) at the present time, a questionnaire has been designed to cover a number of important aspects.

We would like to gain information from different professional viewpoints and would therefore like all staff to complete a questionnaire if possible. Most NHS staff are recognised to be under pressure of time but this questionnaire should take a maximum of ten minutes to complete.

The questionnaires are anonymous and so confidentiality is ensured. We would, however, like to know your official title in the organisation if possible. The completed questionnaires can be returned to the University in the post paid envelopes that are provided.

If you have any questions about the questionnaire or would like any further information on the research please contact:

Mrs. Gloria Lankshear,
Plymouth Business School,
University of Plymouth,
Drake Circus,
Plymouth, PL4 8AA.

Tel: (01752) 232851

SECTION 1 The purpose of this section is to obtain your views on what it is like to work in your organisation.	Strongly agree					Not applicable
	Strongly agree	Agree	Neither agree/disagree	Disagree	Strongly Disagree	
	1	2	3	4	5	
1. I am proud to be a member of this organisation.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
2. The pressures and difficulties of my job do not allow me to take a pride in my work.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
3. It is easy in this organisation to admit to a mistake.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
4. People coming up with new ideas are given every encouragement.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
5. My manager is too busy to think about trying new ways of doing things.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
6. I enjoy my work.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
7. There is a good spirit in this organisation.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
8. Excessive rules and regulations get in the way of my doing a good job.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
9. This organisation looks after its employees.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
10. Everybody is committed to making 'things happen' and solving any problems that may occur.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
11. Everyone in the organisation is expected to think of a better way of doing their job.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
12. Cost cutting is the responsibility of everybody in the organisation.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
13. We have an effective suggestion scheme.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
14. There are a lot of things to be done that would improve my productivity.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
15. New ideas are welcome whatever the source.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
16. New ideas are recognised and rewarded.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
17. Top management encourage and support new ideas.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
18. All new ideas need approval before they can be progressed.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
19. New ideas are approved and progressed quickly.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
20. We are so busy dealing with short term problems that we do not have the time to tackle long term issues.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6

SECTION 2 The purpose of this section is to obtain your views on how the company keeps people informed about the business.		Strongly agree	Agree	Neither agree/disagree	Disagree	Strongly Disagree	Not applicable
		1	2	3	4	5	6
21.	I am confident that our managers have the ability to lead us successfully through the next decade.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
22.	The organisation has a clearly defined plan for the future.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
23.	Management keep employees fully informed on the actual versus planned performance.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
24.	I know who our most important 'customers' are.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
SECTION 3 The purpose of this section is to gain your views on how the organisation makes information available and reaches decision.		Strongly agree	Agree	Neither agree/disagree	Disagree	Strongly Disagree	Not applicable
		1	2	3	4	5	6
25.	We have a formal briefing system.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
26.	I do not receive enough information through this system.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
27.	Communication is one-way, downwards only.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
28.	It is almost impossible to talk to anyone senior other than my immediate supervisor.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
29.	This organisation listens to its employees.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
30.	If I give warning of a problem, management do not want to know.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
31.	Other departments are very helpful in providing us with information.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
32.	Our department is always happy to respond to requests and suggestions from other departments.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
33.	Our department is good at providing information to others elsewhere in the organisation.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
34.	The director visits my work area on a regular basis.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
35.	The presence of the director around the site assists two-way communications.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
36.	The presence of the directors around the site usually leads to problems being solved.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6

37. I have all the information I need to do my job.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
38. The information provided by others which I need for my job is accurate and appropriate.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
39. The information provided by others which I need for my job is rarely late in arriving.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
40. Senior management involve employees in making important decisions.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
41. All decisions are carefully explained to the employees.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
42. I am allowed to make decisions which affect the way I do my job.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
43. Other departments make decisions and do not bother to tell our department what they have done.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
44. My manager is always prepared to explain decisions which will affect my job.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
45. My manager does not always have the necessary information to explain the decisions.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
46. My manager usually makes good decisions.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
47. Management in head office usually make good decisions.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
53. Decision making is a slow process in this organisation.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
48. Decisions are made on the basis of careful consideration of available information.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
49. Information needed to reach a decision is usually available.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
SECTION 4 The purpose of this section is to obtain your views about the way you do your job.	Strongly agree	Agree	Neither agree/disagree	Disagree	Strongly Disagree	Not applicable
50. I have a job description or my job has been clearly explained to me.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
51. My job description contains nothing about thinking of better ways of doing my job.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
52. I am encouraged to think for myself.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
53. I fully understand what is expected of me.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
54. If I do not know how to do things my manager helps me to sort them out.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
55. I have all the skills to do my job.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
56. Training programmes are available to me.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6

<p>SECTION 4 (continued) The purpose of this section is to obtain your views about the way you do your job.</p>	Strongly agree	Agree	Neither agree/disagree	Disagree	Strongly Disagree	Not applicable
57. Training has helped me in my work.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
58. I would like to have more training.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
59. I would like to have more computer training.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
60. My job gives me satisfaction.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
61. My job gives me a chance to widen my experience.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
62. The organisation provides adequate resources for me to do my job.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
63. I have the opportunity to obtain more resources if I need them to do my job.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
64. We have no formal organisational structure.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
65. If I have a disagreement with my manager, there is a formal procedure for me to appeal to a higher level.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
66. The structure of the organisation stops me from changing things in our department.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
67. The structure of the organisation stops me changing the way I do my job.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
68. My manager lets me get on with my job without interfering.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
69. I have a clear idea about how well I perform because my manager discusses it with me.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
70. I know what the organisation handbook says.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
71. My manager has asked my views on a new computer system.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6

About you.

Your official title in the organisation.

If you prefer not to give this, please state whether you consider yourself to be managerial, supervisory, or other.

Site at which you work

Age

Male

Female

Please add any additional comments below:

APPENDIX 4

Answers to Questions 84 and 85 in the Information Technology Questionnaire on the Acquisition and Implementation of New Information Systems.

Answers to Question 84 on the main IT Acquisition Questionnaire - Delays, problems and constraints

- 3 Contract negotiation
- 4 It is a new system still being developed and it has taken longer to implement in certain areas - getting it right and data quality control
- 5 Under estimated completely particularly with data conversions.
- 6 System developed by a clinician in one hospital, who then left and system was then unsupported. ? sold to a software house but system written in SMART and therefore very technically limited - very old technology
- 7 Users saying 'its not like the old system!'
- 15 Procurement procedures
- 21 Over optimistic planning schedules
- 36 Scope of implementation growing as project progressed
- 45 Analysis of requirements
- 46 Procurement time, meeting times conflicting training programme
- 47 First POISE procurement - so learning new approach.
Conflicting priorities - most team members had to cope with existing work.
Greater amount of set-up work than originally anticipated.
- 50 Constraints from third parties
- 56 Interface with existing PAS system
- 57 Embedding system into department practices
Clarification of user requirements
Commitment of time by consultants, not just enthusiasm
- 58 Staffing issues particularly where there were managerial vacancies
- 61 Limited skills in IT department at the time
- 63 Development software did not work according to specification
- 64 Interface with HISS
- 65 Change of priorities
- 68 Original supplier went bust just before up and live.
- 69 IT supplier went bust
- 70 Lack of management time
No resistance but just too much work overall.

- 71 Insufficient understanding of how system works by procurers. Misconceptions.
- 75 Slow to appoint project manager
- 76 Poise
- 78 Delays caused by 'main implementers' diversion into other work.
- 80 Unforeseen expenses
- 81 Trust Management Changes
- 86 Insufficient control over the specification
- 93 Total lack of clarity and definition from NHSE
Political time table not based on reality
- 96 Shortly after procurement process commenced 2 trusts merged.
This delayed implementation by 6-8 months
- 102 Set-up of (very large) look-up tables
Installation of equipment in clinical areas
Poor quality training documentation supplied
- 105 Poor project management skills
- 110 Bad original specifications to be reviewed
Product development
- 125 Change in project management
- 136 Unrealistic deadlines arbitrarily set
- 142 Proposed Trust merger cropped up during procurement process
- 147 Outside organisation problems
- 150 Bankruptcy of supplier
Changing requirement in the procurement process
- 153 Internal process
- 158 Pharmacy department moved to new hospital during implementation
- 164 Poor planning on the part of the 'champion'
- 173 System perceived to be too slow/cumbersome
D. Of H. DSEN Requesting changes.
- 175 Unplanned leave and sickness
- 179 None, just the time element
- 181 Lack of IT expertise in Trust

Data on August Questionnaire

Question 85. If in the future you were to introduce another new system what would you do differently?

103 people commented. In first column s = successful implementation/ f = failed implementation (their assessment)

2S	Improve the appraisal of the supplier's product before order	Technical
	Tie down the supplier contractually better to timescales	
3F	Get the specification and contract right (i.e. correct) "up front"	Technical
4?	Produce a more detailed specification even though the one produced was already very detailed	Technical
5S	More thorough training needs assessment	Training
	act quickly on unfounded resistance from individuals	
6F	Use Prince & Poise methodologies	Management
	Ensure system was 'open'	Technical
	ensure system was a clinical tool	
	Have to go through PFI (reluctantly) -	
	not requirement when original system bought.	
7S	Get people to sign up to specifications	User Involvement
	make sure users are involved and 'own' the system	?? Change attitudes
	Create a positive attitude to change	
8s	Very little - fine tuning of the process used.	
11s	Ensure the lead user (Project Manager) was given more time to directly manage the project	More Time
12s	Nothing - Involvement of stakeholders/users critical from day one	User involvement
13s	Prince methodology fine up to a point - issues about actually planning and doing the implementation are the crux to making the system work or not.	Planning detail
15s	Impress upon users the need to budget for system management	Finance for
	Educate senior managers that the system needs to develop once installed - its not just a case of buying system xyz and that's the end of it. The business changes and new opportunities discovered which need further finance.	development
16s	You have to do it differently every time to suit specific conditions but I would try to anticipate some of the detailed outputs eg the look of prints	Technical

19S	I approach each new system in a manner appropriate to its purpose and its users. Applying fixed approaches and forcing 'model' implementation leads to complications.	Flexibility needed
20S	Ensure that Project Management is 'sponsored' within the Trust.	Gain support for system
21S 1	Not much	
22S	Ensure all right staff in place. Some were not competent in managing relationships.	Project staff need 'Social' skills
25S	Make it slightly more formal	Be more formal
27S	In the time frame usually available for these projects. little more. Ideally, a deeper review of how we do things, and how the system can support these processes should be undertaken.	More time. Analysis of what the system is supporting.
28S	Better testing prior to live running Stronger system champion	Technical System champion
30S	Commitment and ownership of users gained at outset of the need for information. System requirements should then be determined from this. NOT technology led. Management of project by user not information department.	Commitment of users. Management by users.
32S	Ensure guaranteed resources in place before implementation Ensure Stage Managers available 50% plus of their time.	Finance in place first Management time.
33S	Use a structured methodology	Use methodology
34F	Ensure capital and revenue funding is available for the life of the system	Ensure finance available.
36S	No. Would be nice to remove some of the public sector constraints such as PFI, poise, etc.	
38S	Ensure that infrastructure which was not a direct element of the project is adequate before starting procurement and if not include upgrade in projects	Infrastructure needs to be there first.
39S	Publicise the uses and benefits of the service	Sell the system
43S	Would strongly emphasise the need for funding to adequate training and project management, and obtain some budget commitment for these.	Budget for training + project management
44S	More investigation of system functionality before signing a contract - didn't do everything that was promised.	Technical

45s	This would depend on if the system was purchased or internally developed.	
47s	Make better use of the Quality Assurance Team and Project Manager from outside the Trust make sure he/she is fully involved in Trust culture etc.	Management
48s	Produce more detailed specification	Technical
	Exercise stronger project and organisational control	Management
	Set more realistic timetable.	Time
49s	Plan post project evaluation at the start	
52s	This is a vast topic which I would be happy to discuss over the phone	
54F	Monitor suppliers more closely to ensure they deliver on time. Be firmer with Academics and their requirements where projects cross boundaries from the NHS to Academia.	More control of supplier
55S	More preparation & education for those staff impacted by becoming 'users'	Involve users early
56	Not finished impl. Form closer working relationship with host Acute Trusts who's PAS System we use. (and the supplier) Get users involved at an earlier stage.	Involve users early
58S	Ownership of management for the affected department ie Directors not Departmental Managers.	Management
59S	Ensure better IT input at early stage of procurement. Not take things at 'face value' from supplier Plan internal resource requirements more rigorously Ensure sufficient staff hours for main project lead role	Technical Allow management time
60S	Little choice of products before. more choice now.	Technical
61S	Ensure more commitment from board	Top level support
62S	Identify all costs in advance , get management acceptance of costs ???commitment to ?	Identify all costs. Get acceptance of costs
63S	Choose a different supplier	Technical
64S	Use an interface engine/hub Use more resource at project initiation phase Define revenue implications more closely	Technical Identify all costs.

65s	Identified and justified by the user management. 'Wanted' project led by users.	User led project
66s	Project management tightened	Management
69s	Employ more technical staff	Technical
71s	Use Prince Properly	Management
72s	Be more specific on contractual remedies for delay. make 'Time of the essence.'	Time management
73s	Would insist all staff training time capitalised	Identify all costs
75s	We have set a process which we will use for all future procurements	
76s	No. Our main emphasis was participative and organisation development, with adequate resource. I believe this is appropriate.	
78s	Probably use subset of Prince. (Didn't use a methodology, said he would next time.)	Methodology
80s	Specify requirements clearer and document agreements	Technical requirements
81F	Be involved from earlier in the process (said by Head of IM&T)	IT dept input
83F	Choose a different supplier (filled in by Finance Director -- Trust Board chose system!)	Technical
84s	Train medical consultants individually.	Training
85s	Emphasis need for User Champion Emphasise benefits Management and OD Issues	Management User champion
86F	Separate specification from programming and design. Use experienced staff. Highlight the risk factors more closely first.	Technical Highlight Risks first
87S	Be less comprehensive in scope. Go for the top three quarter strategic needs only.	Keep project manageable
88s	Allow more time, ensure no hidden projects 'on the go' that could have knock on consequences for the new system.	More time.
92s	Select the supplier we eventually re organised the contract to.	Choice of supplier
93F	Move back into Industry	
99s	Allow more time for meetings to occur and tasks to be completed, given that internal staff still have their normal work to do.	More time

100	This person was still in process but said - Main problems are always money and human resources. 5% Man. cost reduction	Money and human resources.
105F	Use a different project manager.	Choice of personnel
109s	Greater senior management involvement and	Senior management involvement
	Second clinicians onto the project team.	Involve clinicians
110s	Confirm Trust strategies	Resource implications.
	Confirm Business Plan	Strong management
	Identify full resource implications	Management commitment
	Ensure management sign up and control	
111s	More project management	Management
	Tighter control over suppliers	Control supplier
112s	Not really: the main difficulties relate to insufficient funding	Funding
114	Still in process. More project planning prior to contract.	Planning
117s	Take more notice of external factors such as impact on external users and interfaces.	External factors
120s	Prefer longer time scale	More time
124s	Follow Prince methodology(He did not use it at all)	Methodology
	Establish user advisory groups	User involvement
	Find 'product champions'	System champion
	Adequate documentation	
125s	Attempt to obtain greater commitment at senior levels	Top commitment
	Plan funding for implementation	Funding
	Depending on project size. consider employing dedicated project staff (short term)	More project staff
126s	I have implemented several systems. The basic process is always the same, but the department /staff and needs are always different. Each project has its own difficulties.	
127s	Stronger project control	Management
	Deeper involvement of executive	Top support
128s	Increase the number of ?	
	Have a different more robust technical platform.	Technical
130s	Ensure suppliers (a) knew hospital workings better	Supplier problems
	b) Had proper project management internally	Management
	c) Was honest over problems and wasn't allowed to promise the earth to us.	
131s	This particular implementation would serve as a good model for similar sized projects.	

132s	Would look for a 'simpler' system - more flexible so that can maintain it in-house.	Technical
133F	Not commission a bespoke system	Technical Supplier
136s	Resist pressure to comply with silly time-scales; spend more time on some project planning issues - particularly pre-system specification. Spend more time with the users prior to implementation. The users did very well under the circumstances. A clinician was very helpful.	Time. User involvement
138s	Better planning before implementation. More consultation. More/adequate funding.	Planning Consultation Funding
139s	Ensure that more finance is available up front.	Funding
140s	Allow for more training and supplier consultancy	Training More consultancy
141s	Yes. Didn't actually procure the system myself but would say that main issues involve ownership of system and responsibility for implementing changes to ensure benefits. This is not the role of IT.	Ownership of system Change management
148s	If system involved many departments then project team would reflect that.	Involve users
149s	This was not a complete implementation. This was an enhancement to our existing system.	
152s	Choose a system with larger potential for development.	Technical
155s	Allow more time and address organisation change more thoroughly	More time Change management
156s	Be more generous with the time allocated for procurement and implementation.	More time
157s	Depends on the system and staff area	
162s	Have heavy involvement from seconded clinician/nurse.	Involvement of clinicians and nurses
163s	Allow more time during procurement to obtain management/budgetary approval	More time More money
164s	Project initiation document	Use Prince

	Business case	
	Formal procurement with competitive tendering	
	project plan for implementation (did not use prince)	
165	Not yet finished.	Time
	Top driven	Resources - people
	Sufficient resources - especially time & people	Organisation support
	Organisation support	
	Clear trust strategic direction	
166s	Negotiate a much more detailed contract with the supplier	Supplier/Technical
167s	Prince project management	
	Benefits plan	
	More project support	
169s	We are introducing a new system - more formal procurement practice & project control (using prince); better recognition by senior management of resource requirements before commencement of project eg dedicated project co-ordination. Recognition of role of IM&T department in setting procurement practice standards and senior management being prepared to expect these to be followed rigorously.	senior management support. Use Prince - properly Finance recognition
172s	Ensure better resourcing:	Finance
	Insist on realistic time-scales:	Time
	Carry out far more 'education' with the board and other senior managers	Senior management support
173s	Gain clinician commitment at outset.	Clinician support
176s	More stringent contracts with suppliers	Supplier
177s	If possible allow more time	More time
	Follow Prince more rigorously	Use Prince properly
180	Choose another supplier	Supplier
181	Arrange funding over 2 financial years	Funding over longer time
182	Specify our needs more thoroughly	Supplier problems
	Check delivery capability of supplier more carefully	
	Negotiate tougher penalty clauses	
183	Insist on IT input	
	Incorporate implementation plans/timetable in contract, in more detail.	Time plans
	Force suppliers to use PRINCE/POISE properly	Use Prince properly
	Get expert help on 'STEP'	
185	Involve users more in planning activities	Involve users Planning

APPENDIX 5

Details of access to cases studied.

a) Case Study 1

This was to be the main (and initially the only) case study. It was a longitudinal study of a management information system (MIS) implementation in a multi site NHS organisation. (In excess of 40 sites in different Trust organisations.)

Access to the organisation was agreed with a professional in one unit. This manager/professional was asked if permission had been granted from head office and he assured the researchers that it had. It was subsequently found that head office had not officially been asked for access although the director of IT/IS was aware of the study and said he had no objections but permission for access would have to be gained individually from all sites (by applying to the individual unit directors).

This presented dilemmas in that after considerable time had been spent in the original accessible unit, other units refused access because there was no directive from head office. The researcher was loath to 'rock the boat'. Was there a possibility of withdrawal of access to all units if head office refused access? In retrospect, the difficulty and length of time spent waiting for one manager to arrange 'approval' for the study from head office seems to suggest dilatory action from the researcher, however, when there are political 'niceties' to be adhered to within the organisation, the researcher is in no position to push too hard, for fear of no access at all. After 14 months of stalling by the original manager, approval was apparently gained from the group director for access to one group of sites. However, this approval was still by word of mouth only. Again the researcher was faced with problems of protocol.

An organisational diagnosis questionnaire was sent out in one unit, where approval was given by two managers. On receiving the questionnaires back the other more senior manager on the site had filled in a copy of the questionnaire asking that he be informed of the results. It was subsequently found out that the other managers had not informed him about the questionnaire. This alerted the researcher to a) the lack of communication between managers and b) the political sensitivity of questionnaires in the organisation. The senior manager said he knew nothing about the research being carried out, which was not entirely true as he had been involved in a meeting with the researcher at the beginning of the research and had also seen the researcher sitting in on one of the new system training sessions.

The study was continued using the 5 sub units of the larger organisation together with documentation sent from head office and information from the IT director of the organisation.

b) Case Study 2 (in Organisation 1 - Part of the above organisation.)

This case study was to examine the implementation of a system which would involve between one and five units of a larger organisation. Access was agreed with a manager who was also a professional in the NHS. This person agreed access without first liaising with his director. The director was interviewed as part of the research and made it clear he had not been consulted on access, but he did allow continued access.

Although the planned system had been perceived as a priority need for the organisation for some years and was under constant discussion during the two and a half years of the study it was not purchased. The system is still in the planning stage. A considerable amount of work was carried out in this organisation on pre-implementation interviews, an organisational diagnosis questionnaire which examined the culture of the organisation and interviews about the perceived need of the new system. This had been envisaged as an ideal case study which would have included all stages from planning and any cost benefit analysis to use of the system.

The research on this case was also included because it illustrates the lengthy and complex nature of the pre-acquisition stage.

c) Case Study 3

This was a study of a theatre system implementation in a large hospital

Initial access was gained through the system manager and he gave of his time freely and allowed access to the assistant IT manager and a number of nurses who would use the system and clerical workers who were using the system. However, little access was gained to the consultant surgeons who were one of the groups with an interest in the system. One surgeon only was interviewed.

d) Case Study 4

This was to be a study of an information system implementation into a multi-site NHS Trust organisation.

On one site after access was agreed for interview purposes, management were asked what they thought, in principle, of using an organisational diagnosis questionnaire. The managers approached were most interested, and even enthusiastic about the idea, and though the researcher suggested that this might be used on one unit, the managers thought it might be used across the organisation. The questionnaire was taken away for further discussion with colleagues.

Two weeks later, access to the site was very politely withdrawn, for all research, not just the questionnaire. No reasons or explanations were given other than the fact that staff would not have time to complete the lengthy questionnaires. (10 minutes) Although the organisation was contacted and assured that the questionnaire was not an integral part of the study, and the researcher would continue with the interviews as planned and agreed, management 'were evasive'. After a lapse of a few months the site was once again contacted, and once again management expressed interest in the study, and a wish to co-operate, but still would not allow actual interviews of staff. However, they would allow access to their own staff evaluations of the system and interviews with management.

Once again access difficulties precluded interviews with all of those concerned with the system implementation. However, the very many problem which appeared to be present in this organisation, and were glimpsed briefly, are all relevant to the overall picture of the feelings which appear to be present when information systems are about to be implemented.

THE LEVEL OF ACCESS TO THE FOUR CASE STUDIES

Below in list form are details of the access gained to the four case studies involving three separate organisations. (Two cases were within one organisation.)

Case 1 *This was to be the study of a management information system being implemented to a multi site NHS organisation (in excess of 40 sites).*
Initially, the directors of the study were promised access to the whole organisation.
Gained access to all personnel using the system in 5 sites.
Had 'open' access to one particular site and 'appointment for interview' access at other sites
Gained access to IT Director based in head office
Gained access to training sessions and interviewed trainers
Gained access to all relevant documents sent to the five sub units of the main organisation.

Did not have access to the CEO of the organisation or to board level decision makers. Information on this was at second hand from both the IT Director who had joined the organisation after the initial decision to purchase the system had been made and the initial person with whom access had been negotiated into the organisation.

Time in contact with the organisation collecting data

From - September, 1994

To - January, 1997 (when final write up of data was undertaken)

Although system 'officially' failed and was abandoned in

June 1996 continued informal contact with two informants in one site.

Case 2 *This was to be the study of an information system implementation from strategy level through to use of system by end users.*
This study did not take place in its entirety as it was envisaged in September, 1994 and planning began at this date but by the end of the time set for research (Sept. 1994 to approximately February 1997) the system had not progressed beyond the initial planning stage.
The system was to be an information system to be used in between one and five units.
The research carried out on this system involved interviews with the 'champion' of the system and attendance at strategy meetings in the organisation.
It also involved meetings, interviews and questionnaires to the proposed end users of the system.

- Case 3 *This case study was of the implementation of an information system into the operating theatres of a large NHS Trust hospital.*
This system had been in the process of implementation for 6-7 years before the researcher began examining the process. The case study therefore contains historical data for this period. This data was gained from interviews with the systems manager and deputy manager.
This case study consists of interviews over a time period from February 1996 to February 1997.
The system was therefore in its eighth year of implementation.
Access to two nurses who were to use the system was also gained.
Access to clerical staff was gained.
- Case 4 *This was to be the study of the implementation of a large information system in a multi site Trust organisation.*
The system had already been provisionally planned and was undergoing pre implementation evaluation at the time of first contact with the organisation.
Permission to do a case study was gained from the IS director who welcomed the research.
Approval of research by CEO gained but did not want to be involved.
Open access was gained to the person carrying out evaluation of the system.
Access by appointment was promised to the information director.
Access to historical documents relating to the system was promised.
Gained access by appointment to 3 of personnel using system.
Technical staff refused to be interviewed. The person in charge said they could see no point in spending their time on something which did not benefit the organisation. Other staff would not be interviewed without permission from this person even though the Director of their department had given permission. Their refusal seemed to be tied to internal politics. They were not happy that the IT Director had previously been involved with an academic researcher and published a number of papers on the system.
Time in contact with the organisation - September 1995 to January 1997.
(CEO was given vote of no confidence by clinical directors and left.
The IS Director left shortly afterwards, and a few months later the Human Resource Director left.)
The Evaluator moved to a completely different department and was not replaced.
Subsequently a number of the technical staff left the organisation.
Currently no director of information has been appointed and the department is to be incorporated in one of the clinical directorates but there is difficulty in deciding which one.)