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Explaining the Responses of Front Line Managers to the Adoption of Electronic Rostering in a Mental Health Trust

David G Jobson

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ABSTRACT

This research examines how front line managers (FLMs) in a NHS Mental Health Trust responded when Electronic Rostering technology was introduced into their wards, with intentions of improving efficiency, transparency, fairness, skill matching, and safety, and potentially increasing control from above.

The study applied a theoretical framework developed from previous research to investigate relationships between the organisational context and FLMs' characteristics, change management processes and technology efficacy, and analyse their impact upon FLMs' responses to E-Rostering adoption and consequent outcomes. The research questions focused upon the influences of organisational background and the change management process.

The research strategy was an in-depth case study with data collection through semi-structured interviews with managers at ward, service/general, project and senior levels, observation of meetings and training, examination of system records and Trust documents. The theoretical framework was used to design interview guides to help researcher and subjects investigate perceptions of salient factors and FLMs' responses, and help structure analysis. Cross referencing of data supported reliability and validity of interpretations.

The FLMs were ward managers perceiving themselves as professional clinical leaders and operational managers, running wards semi-autonomously. Control of deployment was vital to their authority. They showed power to resist pressures to adopt technology which threatened their control and to resist changes not congruent with their priorities. They negotiated with the project team and adapted practices to produce locally acceptable rosters.

Although electronic staff records helped administration, automatic rostering was not efficacious. Rosters needed considerable manual adjustment, meaning ward managers recovered control of deployment and maintained local customs.

The study confirms the importance of organisational structure and culture and of political and change management processes, in explaining responses to IT innovation.

Change leaders should investigate operational practices, unit cultures and contexts to prepare for technology adoption because these factors will strongly influence FLMs' responses.

GLOSSARY

DoH – Department of Health

DoN – Director of Nursing

DSDP – Director of Service Development and Performance

DWP – Department of Work and Pensions

E-R – Electronic Rostering

FLM – Front Line Manager

MH – Mental Health

MHN – Mental Health Nurse

NHS – National Health Service

NRB – Nurse Rostering Board

OCB – Organisational Citizenship Behaviour

PM – Project Leader/Manager

PoP – Perceptions of Politics

PT – Project Team

SenM – Senior Manager

SM – Service Manager/General Manager

WM – Ward Manager

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CHAPTER ONE: INTRODUCTION

Preface

The author has engineering, industrial general management, software development, IT Director and management consultancy backgrounds and a strong interest in the human side of technology innovations. In business life this was sometimes cut short by time pressures, organisational politics or displaced by commercial priorities. Therefore the author was motivated to investigate peoples' responses to technology adoption through doctoral research to contribute to knowledge on influential contextual and human factors.

This introductory chapter has four sections: first, context for the research and problem under examination are discussed; second, the objectives of the study, research aim and research questions; third, how the research was undertaken; fourth, the organisation and structure of the thesis is explained.

1.1 Context of the thesis and the problem under examination

The effective deployment of nursing staff is a challenge. On the supply side there are nurse shortages, staff duty preferences, complex logistics and financial constraints. More and older patients increase demand on services and difficulty in safely matching skills and patient needs. NHS services are expanding, particularly in mental health, as linkages between physical and mental health are recognized and quality improvements are expected by the public and politicians (Office of National Statistics, 2010). Better staff deployment can improve quality and quantity of health care and influences the motivation, recruitment and retention of nurses (Wright et al., 2006). "The pay bill accounts for 65-70 per cent of total pay in acute or mental health trusts" (HSJS, April, 2010, p.2). Controlling nursing staff costs and productivity are instrumental in operational strategies. Very small changes in NHS deployment efficiency equate to hundreds of millions of pounds per annum.

Trusts meet requirements beyond available permanent staff by using external agency resources. Though regarded expensive it is a widespread national practice. The agency staff may be between permanent contracts or prefer this casual way of working. It pays relatively well and may have tax advantages for the self-employed.

Relying upon temporary resources can distort deployment with less attractive shifts and duties avoided by reluctant or favoured permanent staff. Previous research found one third of acute in-patient mental health wards in London were staffed at night entirely by agency staff, inflating costs and potentially affecting care quality (Gournay et al., 1998). Mental health nurse numbers have increased (DoH, 2006a) but reliance on agency staff is ongoing and affects continuity of patient and staff relationships, which may fragment under high levels of temporary staff (Sainsbury Centre for Mental Health, 1998, 2005). Furthermore high usage of temporary staff puts pressure upon the supervising permanent staff. The quality of work life for mental health nurses is always under review reflecting these deployment issues and staff shortages (SNMAC, 1999a, 1999b). Clinicians are said to prefer permanent staff and therefore their deployment should be optimized (RCN, 2009).

More efficient ways of creating rosters may better use staff, meet predicted demand more accurately, enable flexible working, reduce stress and save money (Brennan et al., 2006; Wray et al., 2006; Wright et al., 2006; Silvestro and Silvestro, 2008). Certainty and fairness in rostering are important and flexible working assists staff retention. NHS central policy now favours electronic rostering technologies because of these potential benefits, recognizing nursing costs may be half the operating budgets in NHS trusts (NHS Employers, 2007). Therefore Trusts are under external pressure to adopt as well as internal pressures for better productivity and quality.

Better staff deployment underpins the attraction of replacing historic manual rostering practices by electronic rostering software (NHS Employers, 2007: Silvestro and Silvestro, 2008). The technology promises beneficial logistics but outcomes are influenced by the responses of people affected by technology and process changes. Technology adoption may be obstructed by technology acceptance issues (Davis, 1989; Davis, 1993; Davis et al., 1989; Delone and McClean, 1992; Amoaka-Gyampah and Salam, 2004; Holden and Karsh, 2009) and human resistance to organisational and process changes arising with technology changes (Trist, 1981; Giddens, 1984; Orlikowski and Robey, 1991; Brosius and Weimann, 1996; Venkatesh and Davis, 2000; Venkatesh et al., 2003; Smollan et al., 2010)

Established software suppliers have developed computer driven rostering solutions which match staff capability and availability with work demands, deploy clinical staff according to rules and policies and promise benefits (Silvestro and Silvestro, 2008). Although Electronic Rostering technology is well established in the private sector and now promoted by the NHS (NHS Employers, 2007), successful implementation depends upon change management processes and behavioural responses of affected individuals, particularly front line managers (FLMs). As the main users their adoption in practice influences outcomes. NHS information technology adoptions have been patchy with human factors pointed out as influential (Truss, 2003; Robert et al., 2009). Furthermore, the NHS presents many organisational structures, cultures and different services and contexts and this complexity has been strongly indicated as an explanatory factor for less than optimal innovation outcomes (Rousseau and Fried, 2001).

The problem under examination is the introduction of E-Rostering technology and accompanying new policies and processes in a Mental Health Trust and understanding how factors in this particular context have influenced the human responses and outcomes. The

adoption of E-Rostering technology was managed by a central project team, working through each WM, implementing software on groups of wards in timed phases.

1.2 Objectives of the thesis

The purpose of this thesis is to contribute to knowledge and practice which furthers success in the adoption of electronic rostering (E-Rostering) technology. Front line managers (FLMs) have a critical role in implementing operational and HR strategies (Purcell and Hutchinson, 2007). Previous research shows human and contextual factors primarily decide the success of technological innovations (Trist, 1981; Markus and Robey, 1988; Robey et al., 2002; Smollan, 2006). Therefore FLMs and human and contextual factors are important in the theoretical research framework and the study of practice. In the subject organisation, a large mental health Trust, historically ward managers (WMs) deployed their staff autonomously using manual rostering techniques. Now they are required to deploy using innovative E-Rostering technology under new roster cycle and duty request policies. This major change for managers and staff is an opportunity for research.

The research aim of this case study is to explain the responses of FLMs in the selected mental health Trust to the implementation of E-Rostering technology and accompanying new policies and new practices. Previous research discussed in Chapter Three leads this study to consider the influences on FLMs' responses of organisational background factors and the characteristics of the FLMs and their wards (Drory and Romm, 1988; Silvestro and Silvestro, 2000, 2008; Clarke and Wilcockson, 2001; Truss, 2003; Curry and Proctor, 2004; Sheaff and Pilgrim, 2006; Smollan, 2006; Purcell and Hutchinson, 2007; Walter and Lopez, 2008; Smollan and Sayer, 2009); to consider the influences of the change management processes (Markus and Robey, 1998; Mourier and Smith, 2001; Bentley, 2003; Cameron and Green, 2004; Bradley, 2008; Battilana et al., 2010); to consider the efficacy of the adopted E-Rostering technology (Rogers, 1995; Orlikowksi, 2000; Bentley. 2003; Venkatesh et al.,

2003; Holden and Karsh, 2009); and to consider the influences of perceived outcomes (Argyris, 1977; Weiss et al., 1999; Paterson and Hartel, 2002; Bentley, 2003; Cameron and Green, 2004; Matheny and Smollan, 2005).

This study integrates these components into a theoretical research framework with components and factors indicating salient influences, illuminating possible relationships and explanations (see Chapter 3). This integrated framework helped direct the collection of data to answer the research questions and guided analysis of the findings.

Previous research shows human factors are most influential in the case organisation background and contexts and in the change management processes (see Chapter 3.1 and 3.2). Therefore these are the prime focus of the research questions to be answered to meet the research aim. Developed later from the literature and theoretical framework, the research questions are introduced here to assure early familiarity:

RQ1: How do the characteristics of the case organisation influence what the ward managers think of E-Rostering and how they respond to its adoption?

RQ2: How do the change management processes and practice influence what the ward managers think of E-Rostering and how they respond to its adoption?

Previous research indicates that FLMs will make cognitive evaluations of the technology adoption and organisational changes as well as having affective responses (Weiss and Cropanzano, 1996; Piderit, 2000; Smollan, 2006). These influence their behavioural responses. Implementation stimulates this cycle of change and responses which may continue in periods of transition.

This study collected perceptions of how ward managers and other key stakeholders think about the adoption of E-Rostering, how they felt and how they behaved. Their behaviour may

influence the outcomes recursively. The data is complex, holistic and collected to explore phenomena in organisational contexts (Marsick and Watkins, 2003; Walter and Lopez, 2008). This steers methods of investigation towards a case study research strategy with an explanatory objective and collection of qualitative data from affected subjects (Denzin and Lincoln, 2000; Silverman, 2006; Yin, 2009).

1.3 How the research was undertaken

This research is realist and concerned with phenomena, subjects' behaviours in social and organisational contexts and related meanings and interpretations. Participants produce accounts about "real" experiences at work, the arrival of E-Rostering and new policies. Collected data about perceptions has intrinsic validity because it is the participants' words. "The respondent actively composes meaning by way of situated assisted enquiry" (Holstein and Gubrium, 1995, p29). Interviews are ideal for this and were the primary method of data collection (Kvale, 2009).

This research employed the case study strategy because:

> "In general case studies are the preferred method when (a) "how" or "why" questions are being posed, (b) the investigator has little control over events, and (c) the focus is on contemporary phenomena within a real-life context" (Yin, 2009, p2).

The key research design elements are as follows. The purpose of the study is explanation with the possibility of generalization. The research strategy is case study with multiple methods, collecting primarily qualitative data. The investigation type is seeking causes and effects, contingencies and differences between subjects and subject groups. There is minimal manipulation of subjects and the researcher behaved reflexively, limiting interference. The study was contemporary with the phased implementation of E-Rostering. Four managerial groups are involved: senior managers; the corporate project team; service managers above groups of wards; and ward managers. The main research focus is the perceptions and responses of WMs.

Documentation about organisational background and E-Rostering plans was complemented by interviews with senior managers and change managers. The researcher observed participants in meetings, training and at work through attendance at the Trust over three years. Open coding of transcripts and analysis to seek relationships and explanations was an iterative process. Feedback was used to validate findings and regular meetings with informants to triangulate data and test interpretations. Analysis of findings paralleled data collection and helped interview guides focus upon research questions and salient factors.

1.4 The organisation of the thesis

This section explains the thesis organisation, content and purpose of each chapter to provide a guide for the reader.

Working from broad background down to specific situated contexts helped embed the researcher and inform him. Therefore Chapter 2 discusses the NHS general context, the mental health sector, NHS London and the selected Trust to provide a layered contextual background. The manual rostering of nursing staff is discussed to explore deployment practices before E-Rostering. The technology's origins, characteristics and attributed benefits are considered to explain its potential.

Chapter 3 discusses theories and previous research relevant to technology adoption and responses of affected stakeholders, illuminating how people respond in cognitive, affective and behavioural ways when impacted by change events and what factors influence those responses. Organisational factors are discussed to explore the case background and contexts including the characteristics of FLMs. The chapter investigates previous research into change management processes and then examines the efficacy of technology, perceptions of its fitness for purpose. Then Chapter 3 looks at how perceptions of desired and actual outcomes from technology adoption may influence the responses of the FLMs. These thematic components from previous research are combined in a theoretical framework

drawing together the important concepts influencing technology adoptions. However it is the case organisation background and contexts, the starting points for change, and the change management processes and practice, the change events, which emerge as the two most salient themes and give rise to the research questions.

Chapter 4 explains the research questions developed from the literature review and theoretical framework and then explains research design and methods of investigation justifying practice from theory. The multiple methods covered include: observational activities; purposeful sampling; semi-structured interviews; data reliability and validity; and the reflexive behaviour of the researcher. The method of analysis of the substantial rich qualitative data is discussed thoroughly.

The fifth chapter explores the research data and findings using the theoretical framework to help structure the contents to guide the reader. Each thematic section focuses in turn upon factors as perceived by the interviewees in their own words triangulated with other data from observations, documents and system records. In Chapter 6 summaries of key findings, interpretations, meanings and analysis are discussed to address the research questions, drawing conclusions which answer them. Then the limitations and boundaries of the study are discussed to qualify the arguments for data reliability and validity already presented in Chapter 4. To meet the research aim the final section summarises the contributions to knowledge and practice found by this study.

Recommendations made in Chapter 7 include justified directions for future research and theory development. For business practice the recommended actions are designed to help a new adopter of E-Rostering prepare thoroughly, actions which the Trust and organisations struggling post E-Rostering may employ to increase the likelihood of successful re-implementation.

CHAPTER TWO: THE CASE CONTEXT: THE NHS and E-ROSTERING ADOPTION

2.1 Introduction

This chapter discusses the organisational context of this case as it was at the time of the study in four sections: NHS general context; mental health sector; NHS London; and the selected Trust. Then operational context is reviewed: first historical manual rostering of nurses; second electronic rostering software, its characteristics and perceived benefits, explaining its potential.

2.2 NHS General Context

The National Health Service employed 1.3 million people, growing from £35b in 1997 to £103b in 2009-10, doubling after inflation. In acute trusts nursing staff accounted for 65-70 per cent of total pay (HSJS, 2010, p.2). Therefore nursing costs and productivity are important in operational strategies. With expanding NHS services, increasing longevity (Office of National Statistics, 2010), and nurse shortages, the effective deployment of nursing staff was receiving significant attention. It was calculated that just a 1% saving of nursing staff releases over £60m per annum. Efficient nurse scheduling improves care quality, motivation, recruitment and retention, encouraging better deployment methods (Wright et al., 2006).

Thus, nurses are the majority resource and a focus of management's attempts to find efficiency and quality of care gains (DoH, 2002). The next section focuses on these aspects in Mental Health.

2.3 NHS Mental Health Services

Five million people of working age have mental health disorders (Black, 2008). A million people have a severe condition (Royal College of Psychiatrists, 2008). For example, one in four sick people on Merseyside had mental ill-health accounting for over 40% of sick note time which at 15 weeks averaged twice the figure for other health problems (Gabbay and Shiels, 2008). These frequencies of mental illness, detrimental effects upon work, links with social deprivation and longevity have expanded service demands nationally.

The Chief Nursing Officer's review (DoH, 2006b) showed patients and carers want mental health nurses (MHNs) to have positive human qualities. Nurses' familiarity with patients helps continuity of care, influencing staff deployment. The ratio of MHNs to in-patients with acute conditions is relatively high and care is needed "24/7". Stresses upon nurses, the continuity challenge, and allocation by gender and qualifications are important issues in deployment (Carson et al., 1995).

The Mental Health Act (1983) and Children's National Service Frameworks have led to expanded volumes and types of services (see Churchill et al, 1999; DoH, 2001; DoH/DfES, 2004; DoH/CSIP, 2006). Since 2001/02 adult mental health real costs rose 58% to £6.3 billion in 2009/10 (DoH/NSIMH, 2010). Key staff increased between 1997 and 2007: consultant psychiatrists by 55% to 3800; clinical psychologists by 69% to 6800; mental health nurses by 24% to 48,400. Nevertheless, vacancies remained high at the time of this study (DoH, 2006a, 2006b). In response, new roles such as nurse prescribers, practitioners and consultants have developed from softer divisions of clinical labour (Buchan and Secombe, 2003; Appleby, 2007). These expansions, reforms and demand-side pressures bring rostering practices into important focus as logistical processes for assigning MHNs.

Reliance on temporary staff impacts on continuity and care quality (Sainsbury Centre for Mental Health, 2005). The Chief Nursing Officer's review of MH nursing recommended objectives for deployment decisions;

> " ...MHNs to principally work directly with service users with higher levels of need and support other workers in meeting less complex needs" (Department of Health, 2006a, P24) and "All MHNs will be able to form strong therapeutic relationships with service users and carers" (Department of Health, 2006a, P27).

MH trusts have higher bank and agency staff levels (Audit Commission, 2006). The Audit Commission benchmarked over 50 NHS trusts (Audit Commission, 2010a) concluding:

> "The NHS will be required to make significant savings in the next three years. This will mean doing things differently, as well as doing more with fewer resources. As the cost of doctors and nurses represents a significant proportion of NHS trusts' and foundation trusts' spending, these are areas where efficiency savings will need to be made.....Variations in nurse numbers, use of bank and agency nurses, and grade mix, suggest there is scope to improve productivity and reduce costs."

The question "How efficient is the adult mental health acute care pathway?" is prioritized (Audit Commission, 2010b).

Transferring health care from inpatient to Crisis Resolution and Home Treatment (CRHT) teams economically moves patients' locations (Audit Commission, 2007). Patients suitable for CRHT require less intervention. Remaining inpatients have higher average acuteness and require more nursing care, emphasizing the importance of the effectiveness of rosters. The Audit Commission noted that care relationships contribute to the distinctive nature of MH but that empirical studies of care quality versus staff deployment were limited (Audit Commission, 2010b).

The Chief Nursing Officer reports operational stress and demands for quality and care improvements (DoH, 2006a). Brennan et al., (2006) showed operational change was obstructed by: limited staffing; physical environment; shortage of beds; bed management;

hierarchical ambiguity; multidisciplinary issues and the over-demanding role of ward managers. These structural issues obstruct improvement in acute inpatient psychiatry, pointing to the cogent need for more effective staff deployment.

The largest strategic health authority in the UK was NHS London and contained the subject Trust. The next section discusses the contextual background provided by NHS London.

2.4 NHS London

The paper "*Commissioning a Patient-led NHS*" (DoH, 2005) challenged the NHS to improve commissioning of health services for local populations. At the time of the study NHS London was one of ten Strategic Health Authorities (SHAs) in England, established in July 2006. NHS London covered 32 London Boroughs with a rising population of 7.2 million through 31 primary care trusts, 21 acute trusts, three MH trusts and the London Ambulance Service.

Of Londoners 18% experience mental health problems, versus 16 percent nationally and prevalence is highest in the most deprived boroughs (NHS London, 2010). Mental ill health costs the capital £2.5 billion per annum in health and social care costs and £5.5 billion per annum in lost working hours (NHS London, 2010). Around 23% of MH patients in London have serious levels of mental illness compared to the 14% national average. Londoners detained under the Mental Health Act (1983) run 60.8 per 100,000 people compared to 36.1 per 100,000 nationally. Half of London boroughs are in the 30% most deprived boroughs in England with 24% of London boroughs in the 10% most deprived (DWP, 2010). MH services in London cost £213 per working head of adult population versus £193 nationally in 2009/10, putting pressure on staff deployment (DoH/NSIMH, 2010).

This chapter has moved from the NHS as a whole to Mental Health services, then into MH services in NHS London, the organisational home of the studied MH trust. The next section discusses the characteristics which justified its selection for this case study.

2.5 The Selected Mental Health Trust

The selected trust for this case study serves six London boroughs. The Trust had announced strategic E-Rostering adoption with timescales matching the researcher's availability. The Trust supported the research proposal and allowed the researcher full access to staff, systems and documents.

Population growth is forecast at 8% per annum in the Trust area from 1 million in 2009 to over 2 million by 2020. Significant inward migration means little population 'ageing' so future services will reflect today's acute adult needs (NHS London, 2010).

Of the Trust budget in 2008/09, 70% or £120 million was spent on staff. The Trust vacancy rate was 17% against sector average of 13%. Trust sickness was 5.6% against the NHS rate of 4.6%. The Trust employed 2500 people over 100 locations with 800 in nursing services. The Trust had 30 wards providing 400 beds with 24/7 staffing, with clinically demanding duties, including the 20 larger wards with greater staff rostering challenges particularly targeted for E-Rostering adoption (Selected MH Trust Business Case, 2007). A further 20 wards with 360 beds provided hostel, community and rehabilitation services but had much simpler deployment arrangements.

Borough PCT commissioners wanted the Trust to aspire to NHS London strategic priorities:

> "investing in the workforce and embracing a model that values high expertise at the front end of care pathways, differentiates skill mix in the core of services, is prepared to weed out poor performance, evaluates new ways of incentivizing innovation and rewarding productivity and is culturally competent" (NHS London, 2010).

Agency expenditure averaged 12% of Trust staff costs over three years before the E-Rostering business case was made, twice the MH NHS London average and not explained by maternity leave or changes in employee age bands, stable since 2006 with 30% of staff between 36-45 years and 30% between 46-55 years. The Board declared:

> "The Trust has identified a number of actions and areas it needs to monitor to ensure the appropriate and relevant use of agency staff. The introduction of electronic rostering will provide a trust -wide, transparent mechanism enabling enhanced clarity about shift patterns and agency and bank hours worked. It will also assist the Trust in identifying breaches of the Working Time Directive." (Internal Board Paper: Dec 08)

These policy priorities require control of front line staff through effective staff deployment (NHS Employers, 2007). Historical rostering of NHS ward staffs, factors that must be incorporated, problems faced by those responsible and general pressures to roster better are key features in the context of this research. Therefore the next section examines how the nurse rostering problem has presented in the NHS.

2.6 Rostering of Ward Staffs

The 'Nurse Rostering Problem' (NRP) is how to assign nursing staff to specific duties matching competences required with those of the nurses available (Cheang et al. 2003). Assignment is complicated by factors such as nurse skills and preferences, holidays and rest days, Trust policies, start times, particular shift arrangements and the Working Time Directive. Duties may be limited by contracts of employment. The gender of patients and staff must be matched for legal and medical reasons. Trust-wide rostering policies may be

supplanted at the local level by ward managers. Differing rostering techniques and solutions may proliferate.

Three main factors mediate in a rostering implementation: demand characteristics at the ward; desired corporate duty cycles and local cycles; and the preferences of the nurses, personal, contextual or contractual (Silvestro and Silvestro, 2000; 2008). These factors may compete during staff deployment and the compromises between factors and preferences are implicit in rosters in practice.

The presence of highly qualified staff affects significant decreases in aggression, absconding and self-harm by MH patients (Brennan et al., 2006). This incentivizes best use of qualified staff and rostering sympathetically to retain registered nurses (Wray et al., 2006). Certainty and fairness matter in rostering staff and flexible working assists retention (Mercer, 2011).

Historically rostering skills were accumulated through experience. A UK survey over 50 hospitals confirmed manual rostering was accomplished at three levels (Silvestro and Silvestro, 2000). The highest level is departmental: hospital needs come first; nurses are deployed on wards to suit, under departmental direction. The next level is team based: rosters are cooperative, assembled by a skilled team member; hospital requirements are balanced with individual needs; the WM signs off on rosters. The third approach is termed self rostering: individuals negotiate duties and shifts with colleagues with the WM as final arbiter. Silvestro and Silvestro (2000) found departmental rostering was the norm for larger wards (above 50 staff). Team and self rostering were prevalent in medium and small wards respectively. Small wards with less than 35 staff usually did self rostering coordinated by senior nurses supervised by WMs.

When Bailyn et al., (2005) launched self-scheduling some nurses put personal needs first making rosters sub-optimal. Unit cultures and behaviours were controlling the rostering process. Staff-side inputs may need inspection to mediate these effects.

In the Silvestro and Silvestro, (2000) large NHS study, manual rostering practice was reported incoherent, with informal training and hand written schedules barely comprehensible to the researchers. Later research criticizes manual rostering as unscientific, suborned by poor processes and reflecting preferences that defy optimisation by any technique (see Silvestro & Silvestro, 2008).

Fragmented craft manual scheduling at ward level is recognized as out of date (NHS Employers, 2007; Ward, 2008). More efficient scheduling can improve the quality of care and motivation, recruitment and retention of nurses (Wright et al., 2006). Crucially, rosters govern nurses' work life balances and their treatment by their employers.

Persistent highlighting of large sums spent on agency nurses pushed senior managers to reflect on historical rostering methods (Audit Commission, 2006). The selected Trust was criticized about agency spending, noted in the Trust's business case for E-Rostering.

Rostering logistical information technologies have been widely used for decades to optimize staff deployment and the commitment of production and distribution resources (see Simchi-Levi et al., 2000, Ch10 for many examples). The next section looks at how computerized rostering systems have emerged as alternatives to manual rostering for the NHS.

2.7 Electronic Rostering (E-Rostering)

The Public Accounts Committee demanded "a strategic and managed approach to controlling demands for temporary nursing" (Audit Commission, 2007). It recommended:

> "...strategy should be underpinned by a clear understanding of the requisite levels needed to provide safe and effective care, which IT-based workforce management and rostering systems could help determine" (Audit Commission, 2007).

Managing the complex resource picture and responding to key drivers of change is "why electronic rostering is important in today's NHS" (NHS Employers, 2007).

Software suppliers globally have developed rostering systems which schedule clinical staff and deliver many benefits (NHS Employers, 2007; Silvestro and Silvestro, 2008; Ward, 2008). They incorporate rules about: resource types; working patterns; deployed combinations of skills; services and customer types; service levels; and work histories, contracts and future availability of staff. The programmed logic runs until a stable roster solution is reached. Some systems apply complex mathematical techniques to minimize staff costs (Cheang et al., 2003).

The largest UK supplier (Allocate Software Ltd) claimed to have systems running in 110 acute trusts, 37 MH trusts and 29 PCTs by July 2010. The second place supplier (SMART) claimed rostering solutions in 35 trusts. Therefore the NHS has much experience in the adoption of E-Rostering. Acclaim in supplier press releases, their web sites and a few health management journals, report savings and management information as benefits (see Ward, 2008) but little empirical evidence appears in academic literature where the focus is on competing mathematical models of deployment logistics (Ernst et al., 2004).

Silvestro and Silvestro (2008) advocated E-Rostering to resolve the poor manual rostering practices they criticized earlier (Silvestro and Silvestro, 2000). However, they did not conduct empirical research into E-Rostering adoption. NHS Employers produced pragmatic advice on implementation and information on NHS-approved software suppliers including

Allocate and SMART (NHS Employers, 2007). Their guide declared E-Rostering aided flexible working; greater control; less administration; fast links to NHS HR and payroll systems; fair and open rostering; savings; and improved payroll accuracy, replicating the suppliers' shop windows.

Massey et al., (2008) advocated that E-rostering links to HR and payroll systems save administrative costs, speed up processes, improve data accuracy and reduce fraud, and agency staffing monitored more easily and absence controlled through databases. System transparency may support organisational justice and equality if access to data behind decisions is open. Also paperwork is replaced and data stored for performance measurement.

Working time flexibility has benefits for job satisfaction, recruitment and retention of staff, but complicates deployment (Truss et al., 2006). In acute and MH trusts managerial practices designed for full time nurses may marginalize flexible workers. Potential benefits from flexible working for staff and employers are often lost (Edwards and Robinson, 2001; 2004). E-rostering may ease flexible working administration.

Middle managers' control over staff may increase as systems' data informs them (Currie and Proctor, 2002). E-Rostering systems may increase effectiveness of middle and line managers under financial constraints, staff shortages, absenteeism and service quality demands (Silvestro and Silvestro, 2000).

Implementation involves innovation and problems typically associated with change programmes are apparent (Ward, 2008). Suppliers report in some Trusts E-Rostering implementation stalls with reversions to manual procedures. Influences of organisational factors and user behavioural responses may outweigh cost benefit arguments. Adopting E-

Rostering requires change management skills applied over a substantial project period and then transfer of responsibilities to willing operational managers (Ward. 2008).

Older social practices can interfere, for example nurses sharing identities and passwords rendering data sources untraceable (Lankshear and Mason, 2001). Any system's potential for surveillance and control is feared by some clinicians as an unacceptable managerial panopticon (Timmons, 2003). WMs have limited incentives to offer staff but deployment is their main tool, well-practiced in manual rostering histories. However, E-Rostering has potential to threaten their autonomy with its rules and information for higher managers, potentially interfering with WMs' decisions and social relationships.

This chapter has described the organisational context of this study, through the NHS layers to the case study MH trust and history of manual rostering. Previous research about adoption of technology innovations and behaviour of people affected by change provides the theoretical background for consideration when setting out the research aim and questions and conducting this research. Chapter 3 which follows examines and discusses previous research confirming key themes and developing the theoretical framework to guide the research.

CHAPTER THREE: PREVIOUS RESEARCH AND THEORIES ABOUT THE ADOPTION OF TECHNOLOGY

3.0 INTRODUCTION

This review of previous research identifies the factors that may influence the responses of affected stakeholders to the adoption of technology. Chapter 2 has already discussed context as influential background for the case organisation and considered historical manual rostering to illuminate workplace practices before E-Rostering.

This chapter considers important organisational factors, discussing the elements of strategy, culture, structure, politics and communications (3.1.1) and characteristics of affected front line managers (3.1.2). Successful technology adoption depends upon change management processes so these are considered in section 3.2.

Although organisational human factors and FLMs' responses are the main focus of the research, exploitation of technology may depend upon its perceived fitness for users' purposes. Therefore section 3.3 examines theoretical and empirical aspects of perceptions of technology efficacy. Then section 3.4 looks at how perceived outcomes of technology adoption and changes may influence responses of involved managerial groups.

Within the summary of each section the key factors from the literature are tabled in a box with reference lists. Then section 3.5 summarises the important themes and factors which may influence the responses of FLMs to E-Rostering adoption and draws the summary boxes together to develop the theoretical research framework.

3.1 ORGANISATIONAL FACTORS and FLM's CHARACTERISTICS

3.1.1 ORGANISATIONAL FACTORS

3.1.1.1 Strategy for Change and Innovation

Adoption of technology may be strategy driven by internal and external imperatives augmented by operational decisions on how to achieve the adoption (Cameron and Green, 2004). Management formulates strategy and applies it through decision-making. Alignment with strategy of those affected will influence how and what change happens. Perceived congruence by affected groups and individuals with organisational goals, structure and culture is identified as a major facilitating factor (Mintzberg et al., 1998; Balogun et al., 2004). Congruence is required both vertically through the hierarchy and horizontally across functional departments and professions (Nadler and Tushman, 1980). Strategic alignment of stakeholders favours the future vision, implying readiness to change and organisational flexibility (Wright and Snell, 1998).

Alignment of managers with strategy is difficult in healthcare because of competing factors. In the NHS both receptive and non-receptive contexts are found (Pettigrew et al., 1992; Newton et al., 2003). Size, complexity, professional interests, multiple stakeholders and healthcare priorities may not synergize (Pettigrew et al., 1992). Professional groups form custodial communities of practice (Ferlie et al., 2005). Wrapped in administrative and incremental cloaks, strategies may not percolate in NHS organisational cultures (Bach and Della Rocca, 2000).

Planned change theory and practice originated with Lewin (1951). Organisational change is moving from one to another fixed state through planned steps. Lewin's (1958) 'Three-step Model' offers three sequential *learning* stages of change: *freezing* or clinging to existing knowledge; *unfreezing*, processes exploring new ideas, issues and approaches; and

refreezing, utilizing and integrating new values, attitudes and skills with useful old ones. At commencement of change his valued force field analysis and current state versus end state discussions are powerful routes to learning. The model is often simplified incorrectly to "plan, implement, and review", disregarding Lewin's gift of learning as a mode of change.

Cummings and Huse (1989) produced a six-phase model focused upon readying the organisation. Bullock and Batten (1985) elucidated a four-phase model of planned change: explore, plan, action and integration. Kotter (1996) proposed eight steps recommending: leaders establish urgency; form a powerful guiding coalition; create a vision; communicate the vision; empower action on the vision; plan for and create short term wins; consolidate improvements; and institutionalize new approaches. Recent criticism accuses these approaches of ignoring affective influences and not considering the multilevel nature of large organisations (Rafferty et al., 2013). They also assume internal stability and external equilibrium for organisations are natural preferred states upon which change can be enacted. Strategy is the executive decision to move from old state to an aspired new one through structured changes. In contrast, empirical research showed clinical professionals when acting as informal change agents can achieve effective outcomes (Buchanan et al., 2007).

Pursuit of an end state credits the notion that strategic change events like technology innovations draw to an arranged settled end. However, new strategy may require ongoing changes affecting broad fronts of practice and behaviours (Robert et al., 2009). Bamford and Forrester (2003) criticize planned approaches, arguing against assumptions people in organisations work in one direction without material dissent. This criticism points validly to complex organisations like the NHS which have strong custodial professionals (Pettigrew et al., 1992, Ferlie et al., 2005).

Often organisations change for external reasons, but may not know what to do, because an internal end state cannot be defined (Hayes, 2002). This implies a continuum of action and reaction rather than planned change with start and end. Collectively named as having an *'emergent'* approach, supporters conceptually oppose planned change preferring more participation (Burnes, 2004). Planned change for uncertain business environments is challenged by Dawson (1994) and Wilson (1992). Timetables, objectives and methods fixed in advance are too reliant upon the manager's role and presumed competence (Wilson, 1992). Dawson (1994) describes organisational change as dependent on understanding complex issues and options, rather than on one-dimensional plans where interventions generate short-term results but reduce stability, a point others make (Hartley et al., 1997; Genus, 1998; Senior, 2002). Argument for *emergent* change assumes moving reactively through organisational states is possible, when external and internal environmental factors are uncertain, not controllable and stability is illusory (Stickland, 1998). Therefore degrees of management control may influence whether change is largely emergent or planned. Responsibility for emergent change devolves, moving away from vertical managerial control to broad facilitation of change processes and agents.

Change projects may employ tools like PRINCE 2 project management methodology (see Bentley, 2003) often the default standard in the UK public sector, or rely upon professional knowledge from the Association of Project Managers or the Project Management Institute. Nevertheless, planned projects may become uncoordinated and conflicted because cognitive, affective and behavioural outcomes were emergent and not controllable (Kim et al, 2009).

Strategic action links strategic decision makers, through project teams to FLMs and their staff (Cameron and Green, 2004). However, Pettigrew and Whipp (1993) believe there are no universal rules for change leaders. Alongside advocates of emergent change others present

more complete models of understanding like Hinings and Greenwood's (1988) model of change dynamics and Kanter et al.'s (1992) 'Big Three' model of organisational change. She refers to *forces for change* (producing movement); *forms of change* (articulated); and *execution of change* (implementing new roles). She warns the hardest part comes in the middle and perseverance is crucial. Pettigrew's (1985) process/content/context model and Burnes' (2004) change management framework also blend planned and emergent approaches to sustain continuity in change-making. The eight steps of Kotter (1996) already discussed above is an advocated starting point for those making organisational changes. Cameron and Green (2004, p119) note his:

> "model places most emphasis on getting the early steps right: building coalition and setting the vision rather than the later steps of empowerment and consolidation".

This linear planned approach focuses on managerial processes, leadership and preparation.

The literature has been preoccupied with changes as discontinuous events, where adverse effects on daily operations are ignored (Meyer and Stensaker, 2006). Organisations must balance changes with maintaining daily operations and how to implement future changes (Meyer and Stensaker, 2006). This balance may be difficult for demand driven large hospitals, sensitive to external and media criticisms, whilst managing internal complexity, conflicts and operational scale.

Strategic change toolkits combine a focus upon each affected individual with a view of how organisations and processes are changed. Some 60% of 16,000 corporate participants used change management methodologies by 2007, risen from 34% in 2003 (Change Management Learning Centre, 2008). An overwhelming bias for initiating change management *as early as possible* (following Kotter, 1996) helped projects be proactive in the people side of change. Similarly Weiner et al. (2004) recommend end users must be involved early, assisting their alignment with strategy.

Collerette et al. (2003a & 2003b) confirm that attitudes affect stakeholder responses and therefore implementation should include a transition management methodology which pays attention to staff attitudes and their influence upon responses. They also advise behavioural change takes time, requiring skilled leadership and incentives.

Findings from ten NHS-based processual studies showed the importance of history, culture, professional relationships and the vital role of power and politics in determining outcomes of innovation (Robert et al., 2009). An important conclusion was that adoption is a process, not an event. This process involves organisational decisions at high levels and informal decisions by users which influence implementation and then assimilation of innovations into practice.

How organisational characteristics influence processes is important research (Reardon & Davidson, 2007). Innovation involves capability in managing social and organisation factors and their interactions. According to May et al. (2003, p603) you cannot form a detailed set of instructions that will guarantee success for a particular innovation. Nevertheless, it is self-evident good practice that managers research prior experiences and external knowledge about similar technology adoptions and how organisational factors influenced processes.

Robert et al. (2009) focused on clinical technology in context making recommendations to consider social and organisational factors and their recursive nature. Pare & Trudel (2007) noted decision making about innovations should consider technological, organisational and social concerns together. The importance of considering the three domains of technology, strategy and organisation has been emphasized (Wainwright and Waring, 2007). Relationships between staff groups in both vertical and horizontal organisational dimensions and their power will heavily influence outcomes of innovation processes (Fitzgerald et al., 2002; May et al., 2003; Ferlie et al., 2005; Wainwright and Waring, 2007).

A business case for innovation necessarily indicates organisational readiness and should cover motives, aspirations and intentions (Pare & Trudel, 2007). Stakeholder engagement and navigating the politics of innovation is crucial (Pare et al., 2006; Pare & Trudel, 2007). An accessible business case communicates strategy and allows stakeholders to engage in debate and consider their alignment and responses.

Organisational culture will affect attitudes of managers to technological change, their ability to manage such change, responses of those affected and whether assimilation of new knowledge is encouraged. The next section discusses how previous research contributes to understanding cultural factors which may influence responses of those affected when adopting new technology.

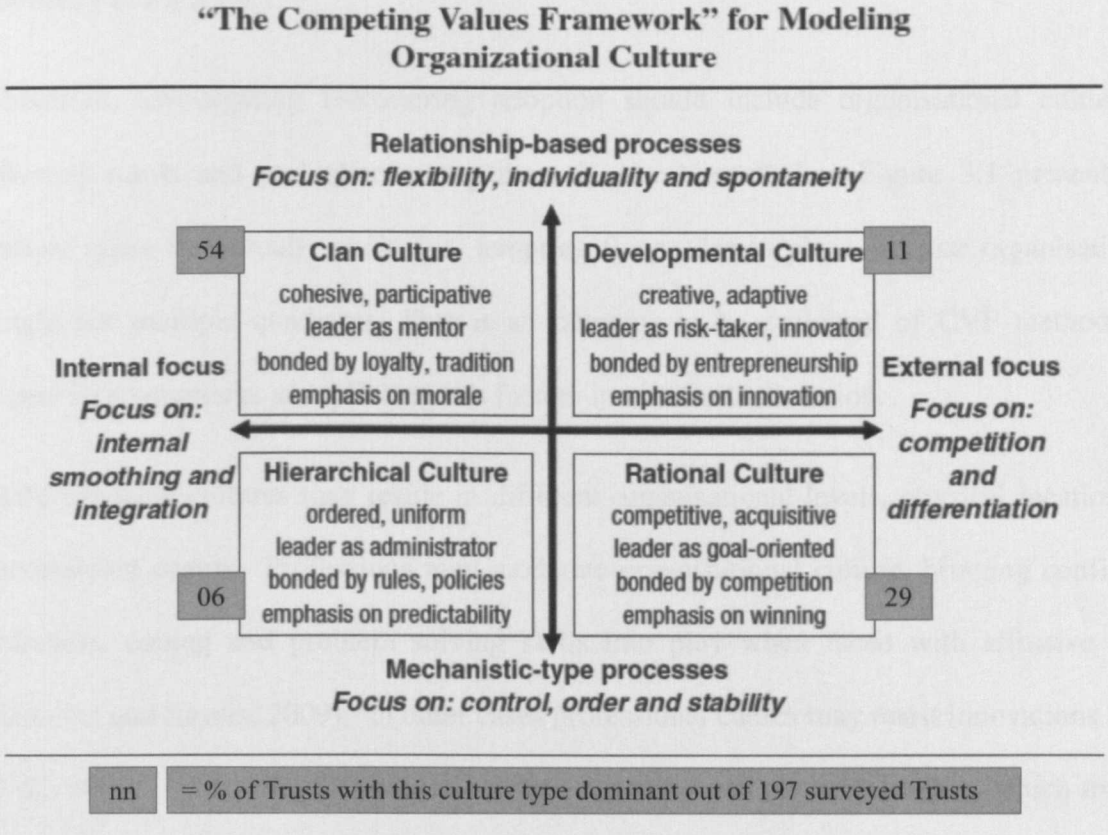
3.1.1.2 Culture and Technology Adoption

Organisational culture relates to assumptions, values, attitudes and beliefs which are shared among significant organisational groups (Schein, 1985a, 1985b, 2000; Davies et al., 2000; Scott et al., 2003). Culture is concerned with accepted ways of doing things, thinking and sense-making, across groups often identifiable by such behaviour. Research in health care illuminates relationships between shared thinking and performance (Argot, 1989; Zimmerman et al., 1994; Shortell et al., 2000). Innovations requiring changes to values, attitudes and beliefs, processes and roles, may be mediated by cultural influences of professional groups, resulting in slow changes and non-linear innovation career paths (Ferlie et al., 2005).

Relationships between senior management team cultures and organisational performances in English hospitals indicate factors influencing the success of technological and process innovations. Davies et al., (2007) employed an established culture-rating instrument, the Competing Values Framework (CVF) to assess organisational performance with routine

measures from senior managers in all 197 English NHS acute hospital trusts (Figure 3.1). The perceptions of senior managers and contingent relationships they established show organisational culture varied across Trusts, with contingent relationships between culture and performance. For example, organisations with dominant clan cultures (54% of English NHS Trusts) tended to an internal focus and poorer performance on external measures of success.

Figure 3.1 - The Competing Values Framework (Davies et al., 2007, p50)



Davies et al. (2007, p.63) reported:

> "Hierarchical cultures seemed to be associated with proportionally higher management salaries, which may reflect the greater emphasis on the role of managers in establishing rules and procedures. ... a hierarchical culture was associated with poorer and not better data quality, which may relate to the flow of information being poorer in this type of trust".

Aspects of performance valued in the dominant culture are those at which the organisation excels, showing recursive relationships. If culture and performance show covariance, then

evidence of direction of causality is needed. Certain cultures may emerge in high-performing organisations or extant cultures drive performance. Earlier studies usually regarded three or four key senior managers' responses as sufficient to define organisational culture type (Gerowitz et al., 1996; Gerowitz, 1998). The Davies et al. (2007) study of 197 acute trusts secured responses from four or more senior managers in 145 organisations and from three or more in 170 demonstrating excellent coverage and confirming validity for the survey and summary in Figure 3.1.

Therefore, investigating E-Rostering adoption should include organisational cultures on affected wards and at higher management levels. Nevertheless Figure 3.1 presents four culture types as mutually exclusive, tempting the reader to place familiar organisations in single not multiple quadrants. That is an outcome to be criticized of CVF methodology, where fixed quotients are split between factors in assumed contention.

Differing local cultures may reside in different organisational levels, physical locations and professional cadres. Professions may moderate organisational culture, bringing confidence, calmness, coping and problem solving skills into play when faced with affective events (Smollan and Sayers, 2009). In other cases professional cadres may resist innovations (Ferlie et al., 2005). There may be divides between espoused and perceived values which manifest in alignment difficulties (Kabanoff et al., 1995). There may be divisions between sub-cultures, influencing innovations towards heterogeneous outcomes (Harris and Ogbonna, 1998). FLMs' perceptions of their local cultures may reflect contexts as well as characteristics and professional values.

Davies et al., (2007) suggest technological innovation is more supported if culture is developmental. However, hierarchical cultures, focused internally upon governance and control, may include belief that technological instruments can mandate organisation-wide

change, promulgated by an adoption decision (Markus & Benjamin, 1997). Clan cultures, the dominant (54 per cent) type found by Davies et al. (2007), with their custodial, mentoring, cohesive and participative processes, may be defensive of traditions when faced with external pressures for technology innovations. In clan cultures with strong professional cadres, implementers of imposed and even voluntary innovations may find culture sticky and penetration resisted (Ferlie et al., 2005).

A learning culture, where organisations wish to develop and learn, may aid change and technology adoption (Truss, 2003). The NHS must organize user involvement so strategic initiatives become effective at local sites of operations (NCCSDO, 2004). The Roberts et al. (2009, p130) review suggests that "team functioning plays an important part in technological implementation and assimilation in an organisation". FLMs have a critical role in making strategy operational (Purcell and Hutchinson, 2007) and are prime users of E-Rostering technology. FLM characteristics and behaviours as opinion and professional leaders will influence local cultures (Brosius and Weimann, 1996).

Self-improvement necessarily requires an organisation to have assimilated knowledge of its own business processes and activities. This defines the organisation's capability and constitutes maturity within an evolutionary continuum where improvement is a competitive or moral imperative. The Software Engineering Institute (SEI) codified this into a model (Figure 3.2) of stages organisations display when deploying technology, improving and managing processes (see Paulk et al., 1995).

The five stages of capability maturity in Figure 3.2 indicate progression from ad hoc activities relying upon local heroism and tacit knowledge at the lowest Level 1 through to

self-conscious organisations relying upon documented processes, continuous improvement, and innovation to sustain maturity at Level 5.

Findings about learning capability and risk-taking propensity suggest non-profit organisations like the NHS are extremely risk-averse with low perceived need for internal expertise beyond professional specializations (Hull and Lio, 2006).

Figure 3.2 Maturity Levels and Focus in the Capability Maturity Model (Paulk, 1999)

Level	Focus	Key Process Areas
5 **Optimizing**	*Continuous process improvement*	Defect Prevention Technology Change Management Process Change Management
4 **Managed**	*Product and process quality*	Quantitative Process Management Software Quality Management
3 **Defined**	*Engineering processes and organizational support*	Organization Process Focus Organization Process Definition Training Program Integrated Software Management Software Product Engineering Intergroup Coordination Peer Reviews
2 **Repeatable**	*Project management processes*	Requirements Management Software Project Planning Software Project Tracking & Oversight Software Subcontract Management Software Quality Assurance Software Configuration Management
1 **Initial**	*Competent people and heroics*	

Arguably this lower risk tolerance and reduced learning capability make internal innovation a dubious strategic choice for NHS managers. For them external or cooperative innovation may be substantially better. These modes reduce dependency on internal learning capability but require a cultural bent for externals, not likely in dominant clan cultures (Davies et al., 2007).

In examining organisational and professional learning Clarke & Wilcockson (2001) noted these are interrelated processes in which *expert* thinkers engaged in double loop learning (Argyris and Schon, 1996). Expert thinkers conceptualize new practice rather than perpetuate or add increments to existing ways of working:

> "Practitioners thinking at a *competent* level reflected a defeatist attitude with little opportunity of changing the status quo. On the other hand, practitioners thinking at the *expert* level appeared to recognize and act upon potential opportunities" (Clarke & Wilcockson, 2001, p268).

These authors noted a wide sample of professionals and practitioners from three healthcare case study locations focused on the *irrevocable absence of resources* when resources were essential to their conceptualization of ways innovation happened. They limited themselves to the *competent* level whereas *expert* thinkers were creative, thought holistically and beyond resources and other limits, seeking possibilities out.

Organisations hold knowledge and complete complicated activities through knowledgeable, experienced and committed members who can facilitate learning new technologies (Argyris and Schon, 1996). Knowledge may be visible in routines, protocols and practices which can be inspected as theories in action (Argyris, 1997). Fish (1998) argues such theories in action are adapted creatively by practitioners to local circumstances. Therefore NHS expert FLMs may adapt depending upon their autonomy and professional discretion. Such adaptive skills may be deployed defensively as well as in support of mandated changes. Limitations built into organisation structures, into the duties, attitudes and procedures of functional departments may either restrain or encourage learning and adaption. The next section expands on this idea.

3.1.1.3 Structural Facilitation Effects

Complex organisations lack responsiveness because of an integral "non-linearity" where a large stimulus has only a small effect (Plsek & Wilson, 2001). In the NHS internal market Le Grand et al., (1998) found large scale structural reforms can have little impact below surface manifestations. However, Davies (2002) warns it may not be formal organisation but instead psychological and social structures, or culture, which is really controlling change (Hofstede, 1994). Organisational culture is "the way we do things round here" and it has

strong innate defenses (Handy, 1995; Martin, 2002). In particular, clinical professional groups have custodial values and cultures and may resist the spread or dissemination of innovations ("nonspread") as their first response (Ferlie et al., 2005).

Dispersed organisations may afford local units shelter and favour local cultures and working patterns. Affected individuals favour local norms over broader culture, seeing them more pertinent (Change Management Learning Centre, 2008). The concepts of vertical and horizontal alignment with organisational strategy also apply to cultures which may not be congruent internally or with strategy (Nadler and Tushman, 1980).

When innovation is information technology, organisational ascendancy of involved IT professionals may influence changes. IT unit professionalism presents in the five best predictors of IT adoption by organisations (Jeyaraj et al., 2006). However, Rose (2002) comments on poor penetration of IT experts into executive general management echelons and concludes successful IT professionals may be restrained from leading organisational and process changes that best use new technology, although their expert technical and project management skills are required (Marks and Scholarios, 2007). A political history of blaming technology professionals may mean they are unwilling to commit. The blame for failure particularly falls on IT professionals when technology is seen as a self-capable artefact by corporate advocates, the "magic bullet" described by Markus & Benjamin (1997).

Over use of agency staff is a concern for NHS HR departments so HR managers have a clear structural interest in E-Rostering (NHS Employers, 2007). Perceptions by affected staff about the HR department's priorities and behaviours will be a factor in technology adoption (Wright and Snell, 1998). HR has a role in leading a learning culture, ensuring the acquisition of knowledge and facilitating change. Where technology adoption involves

business process changes and systems integration, many jobs may be affected, requiring HR initiative in their redesign.

E-Rostering adoption has cross departmental effects and new processes and is therefore related to the concept of ERP systems (Enterprise Resource Planning). These systems integrate business processes across large organisations with suites of software using common data definitions (see Wognum et al., 2004). For HR professional areas in ERP systems projects Bradley (2008) claimed:

> "In the staffing area significant findings include the training of management and users, skills of the project leader, selecting the right consultants and user teams, and incentives for successful project completion".

Delivery of training tells staff about the value of skills and whether HR stands up for equity in their access. HR departmental siding with unilateral senior management decisions may forgo the trust of impacted people, who expect HR to represent all staff groups and mediate.

Reports of resistance may be one-sided favouring change agents who infer resistance is dysfunctional behaviour located in change recipients. Previous research shows change agents may generate resistance through their own actions and inactions, causing problems, misconceptions, inappropriate solutions, incorrect priorities, or even unfair treatment (Ford et al., 2008). Truss (2003) also found the NHS context was often a constraining factor, with the HR director's role important, as were senior staff attitudes towards HR interventions and change facilitation.

Four factors were distilled from a large review of change performance in the NHS (Sheaff and Pilgrim, 2006). First, hierarchical cultures lead NHS managers to challenge clinicians' values rather than collaborate (Marshall et al., 2003). Therefore WMs' views about E-Rostering may meet challenge from hierarchical management. Second, internal professional

support was the significant factor for changing clinical practice, managing innovation and fostering team-working (Packwood et al., 1998: Redfern et al., 2003). Support from professionals and their collaborative treatment will be important for E-Rostering adoption.

Third, occupational 'silos' promote internal technology change but make change management harder through insularity. They may lead to conflict when technology innovations cut across professional silos and require resource sharing and organisational change. Imposed structural changes may not eliminate differences between occupational cultures (Sheaff and Pilgrim, 2006). Changes enacted through technology innovations may be resisted strongly by professionals if threatening operational autonomy (Ferlie et al., 2005). Therefore autonomous WMs may resist E-Rostering implementation.

Fourth, no one size fits all: flexible organisational arrangements are needed to best fit local contexts and cultures (Sheaff and Pilgrim, 2006). If ward cultures and work patterns are heterogeneous then attempting a single image E-Rostering implementation may incite conflict. Ferlie et al., (2005) concluded that UK healthcare professionals differentiated by skills and communities of practice tend to remain so in the face of innovations they could share. Responses leading to nonspread of innovations came from professional cadres' behaviours. "Professionals have the power to block changes ...collective rather than individual leadership is in charge" (Ferlie et al., 2005, p.118). Also "complex innovations face greater barriers to their spread than focused ones" (Ferlie et al., 2005, p.119). E-Rostering is complex, affecting people, processes and technology and therefore may be resisted by professionals.

When innovations like E-Rostering are imposed, perceived motives of technology advocates may influence the responses of those affected. If hidden agendas become exposed then perceptions of politics may be amplified, further influencing responses of FLMs. The next

section explores aspects arising from perceptions of politics amongst stakeholders affected by technology adoptions.

3.1.1.4 Organisational Politics

Organisational politics involves behavior attempting to influence others (Gandz and Murray, 1980). "Formal", "informal", and "illegal" behaviours constitute primary elements and are necessary qualifiers accompanying political behaviour with four secondary attributes describing behavioural circumstances of "conflict", "power attainment", "acting against the organisation", and "concealment of motive" (Drory and Romm, 1988). These primary and secondary elements inform the judgement of participants about political situations and may influence their responses.

Eisenhardt & Bourgeois (1988, p737) defined politics "the observable, but often covert, actions by which executives enhance their power to influence decisions". However stakeholders may be multiple and form groups and alliances in legitimate and overt rational fashion. They concluded politics are not fluid but stable behavioural patterns based on characteristics such as position, location and age (Eisenhardt & Bourgeois, 1988). Nevertheless, strategic decision processes are political because they consider uncertain outcomes and stakeholders with conflicting interests. Resolution is through exercise of power by decision takers (Allison, 1971).

Middle managers are seen as information carriers and interpreters (Zuboff, 1988). Such roles may be diminished by computing systems which reduce their opportunities for control and interpretation and their numbers decline when systems are expanded (Currie and Procter, 2002). Alternatively, if middle managers retain interpretation and transmission roles, new technology may enhance their influence, political strength and control over FLMs. With E-Rostering this introduces a potential role conflict if service managers above WMs use system data to threaten WMs' autonomy over staff deployment.

In the literature there are reports on potential benefits of control, fairness, resource efficiency and data availability from E-Rostering (Silvestro and Silvestro, 2000, 2008; NHS Employers, 2007; Massey et al., 2008; Ward, 2008). However, little evidence emerges of which organisational structures and levels in practice best exploit E-Rostering technology. If E-Rostering objectives relate to accumulating data on staff deployment and increasing control (HFMA, 2008), then perceptions of politics may influence responses of those affected (Drory and Romm, 1988).

Wards are professional communities of practice (RCN, 2009). Alongside formal authority the power of WMs is vested in social organisation, leadership of values and clinical competencies shared with managed staff. Purcell and Hutchinson (2007) say that FLMs are key participants in the operational delivery of HR policies and practice. If E-Rostering helps WMs exercise their role more effectively, their power and standing may be enhanced.

Relationships between the IT function and user managers can be fraught when expectations of technology are not met. Waring and Wainwright (2002a; 2002b), in research into how to draw users and system designers closer together, utilized critical social theory and communicative action to support business process modeling of a hospital payroll and personnel system. The involvement of end users had an inherent political dimension. If involved in design, an implicit contract suggests users' reasonable needs should be met. However, these may exceed developers' capabilities and funds. If end users are excluded, even partially, technology implementation may collide with social factors and functional shortfalls emerge, giving rise to complaints amplified by resentment.

Employees respond in a negative way to their *perceptions* of organisational politics at work. Research substantiates:

"1) Organisational politics represent illegitimate, self - serving behaviours that are not officially sanctioned by the organisation; and

2) Employees respond to their perceptions of politics, as opposed to an objective state of reality" (Rosen et al., 2009, p28).

Generally employees demonstrate adverse reactions to perceptions of politics because politics cause stress (Ferris et al., 1989, 2002); divert employees from personal goals (Cropanzano et al., 1997); indicate interpersonal conflict (Vigoda, 2002); and impose unsolicited demands and pressures (LePine et al., 2005). If E-Rostering adoption is perceived a carrier for organisational politics, that may affect emotions and behavioural responses.

Trist (1981) notes designers follow technological imperatives, unless educated to the contrary. The social consequences may be conflict between work groups' interests and the implicit technological objective of increased management control. In socio-technical terms hospital wards may be autonomous work groups over routine rostering periods. The ward manager or deputy are the roster leads and organize pragmatic rosters within their powers and social structures of their local nursing group (Silvestro and Silvestro, 2000).

The arrival of E-Rostering may therefore have four impacts: *first,* organisational because roles and information distribution change; *second*, political because power moves with roster approval; *third*, electronic rosters will be more rules driven than manual rosters; and *fourth*, changes in rules and policies restrict flexibility for individual staff and historical work patterns. Dramatically different new roster cycle policies may cause WMs and staff responses to be amplified. How communications take place and content may affect perceptions of affected stakeholders and this is discussed next.

3.1.1.5 Communications

Communications is both phenomena and context because channels and content form part of organisational background and culture (Johns, 2001). Communications govern the social visibility of innovations and moderate acceptance (Rogers, 1995). The nature and content of

communications between senior managers, middle managers, project teams and FLMs underpin socialization processes in organisational contexts and influence perceptions of those affected and their responses (Cameron and Green, 2004). These processes mediate between management levels and groups as change affects them during socialization stages of *anticipation, encounter, adjustment and stabilization* (Ashforth et al., 2007).

Communication is a necessary process for alignment with strategy and how new policies are communicated will influence motivation and responses of those affected. Assimilated knowledge of old policies may be a barrier to change particularly if stakeholders believe them effective and contributing stability (Robey et al., 2002).

If as Branson (2008, p.377) claims "values alignment is the bedrock of organisational change" then researching perceptions of communication may help understand how outcomes of innovative technology are socially constructed (Smollan and Sayers, 2009). The way change is framed may stimulate discourse about strategy and implementation, which may result in shared understandings of phenomena and context, steering convergent behavioural responses (Mills, 2000; Ford et al., 2002; Bean and Hamilton, 2006; Ashforth et al., 2007).

Communication is an important contribution of change teams implementing new technology, processes and behavioural changes (Bentley, 2003; Cameron and Green, 2004). Emotional labour is required alongside rational discourse to lead and implement change. Committed communication is a key factor in change socialization, selling, delivering and receiving the change (Smollan and Sayers, 2009; Ashforth et al., 2007).

Therefore perceptions of communication should be investigated as a factor within case organisational background, influencing FLMs perceptions and responses and as a factor in the change management processes implementing the technology adoption.

3.1.1.6 Summary

When examining adoption of technology previous research indicates factors to be considered may include: change context; strategy behind the changes and adoption decision; culture of the organisation and local units; structural features and functions; organisational politics; and how communication features in cultures and managerial practice. The FLMs work under these organisational background influences which form a thematic area supported by previous research and which may affect their responses to the adoption of E-Rostering. Box 1.1 below summarizes these organisational factors as headings with associated references.

BOX 1.1 CASE ORGANISATION – BACKGROUND FACTORS

- **Change context** (Silvestro and Silvestro, 2000, 2008; DoH, 2005, 2007; Audit Commission, 2006, 2010a&b; Truss et al., 2006; Wright et al., 2006; NHS Employers, 2007; Edmondson, 2008; Smollan, 2008; Ward, 2008; Smollan and Sayer, 2009)
- **Strategy for change and innovation** (Nadler and Tushman, 1980; Pettigrew et al., 1992; Truss, 2003; Balogun et al., 2004; Cameron and Green, 2004)
- **Culture and technology adoption** (Clarke and Wilcockson, 2001; Marsick and Williams, 2003; Ferlie et al., 2005; Davies et al., 2007; Walter and Lopez, 2008; Smollan and Sayers, 2009)
- **Structural facilitation effects** (Wright and Snell, 1998; Ferlie et al., 2005; Jeyaraj et al., 2006, Marks and Scholarios, 2007; Purcell and Hutchinson, 2007)
- **Organisational politics** (Allison, 1971; Trist, 1981; Eisenhardt and Bourgeois, 1988; Drory and Romm, 1988; Ferris et al., 1989, 2002; Cropanzano et al., 1997; Silvestro and Silvestro, 2000; Waring and Wainwright, 2000a&b; Currie and Proctor, 2002; Vigoda, 2002; Le Pine et al., 2005; Purcell and Hutchinson, 2007; Rosen et al., 2009)
- **Communications** (Rogers, 1995; Mills, 2000; Johns, 2001; Ford et al., 2002; Robey et al., 2002; Bentley, 2003; Cameron and Green, 2004; Bean and Hamilton, 2006; Ashforth et al., 2007; Smollan and Sayers, 2009)

A further and important part of organisational background and context is how the attributes of affected people may influence their perceptions. FLMs and what influences their responses to E-Rostering adoption are the prime concern of this study, so their potentially influential characteristics are considered next.

3.1.2 FRONT LINE MANAGERS' CHARACTERISTICS

FLMs are key deliverers in the causal chain of human resource performance (Purcell and Hutchinson, 2007). Therefore their characteristics are considered in previous research and may influence responses to E-Rostering adoption. Cognitive and affective responses which determine attitudes to change may contain positive and negative elements (Piderit, 2000). Smollan (2006) developed a theoretical model depicting the nature of responses to

organisational changes and factors affecting them. This model is founded on perceptions of those involved as input variables. Their perceptions influence cognitive and emotional processes and lead to behavioural outcomes, their responses. Perceptions originate with initiating managers, affected stakeholders, change managers and all have contexts of organisational backgrounds and cultures.

Smollan proposed people experiencing change events have cognitive, affective and behavioural responses which may be recursive (Smollan, 2006). These concepts could contribute to a theoretical framework for research into the thoughts, feelings and actions of those impacted by the adoption of E-Rostering technology. His cogent propositions around characteristics of those impacted make empirical sense supporting as factors: FLMs' managerial qualifications and skills; main responsibilities; and perceptions of communications. Their responses may also be influenced by context and change management processes. Responses will be informed by FLM characteristics and by factors including: perceived favourability and fairness of outcomes; decision making processes; of justice; of scale, speed and of change timing; and ways of communication (Weiss et al., 1999; Paterson and Hartel, 2002; Matheny and Smollan, 2005; Smollan, 2006).

Technology adoptions like E-Rostering introduce changes to real and virtual organisations, changes to power distributions and may have accompanying new processes and policies. They are change events within the potential scope of Smollan's model (Smollan, 2006).

Affected stakeholders perceptions of politics are also seen as influential (Rosen et al., 2009) and so are perceived motives of senior managers who advocated the innovation (Cameron and Green, 2004). Therefore FLM managerial qualifications and skills, main responsibilities, perceptions of politics, perceived motives of senior management and communications are important factors, discussed in following sections.

3.1.2.1 Managerial Qualifications and Skills

The qualifications, experience and skills of people affected by technology adoption influence responses because they press on relationships between independent and dependent variables (Venkatesh et al., 2003). FLMs' views of their managerial skills, experiences and main responsibilities construct their professional self-image and expectations about treatment by their employer. Ward "sister" was preferred to the title of "manager" irrespective of gender and WMs were motivated to lead by passion for nursing above managerial aspirations (Royal College of Nursing, 2009). Ward sisters perceive:

> "their management work as *one* component of their role alongside clinical expertise, leadership and teaching, but perceived health care managers to view them primarily as managers of staff and ward resources" (Royal College of Nursing, 2009, p6).

Therefore adoption of technology aimed at improving managerial performances may conflict with WMs perceptions of professional norms and priorities. Kitchener et al. (2000) showed when studying the new public management (NPM) project that the bureaucratic mode did not replace the emphasis that supervisors of professional work placed on protecting autonomy and limiting management control systems. Therefore E-Rostering adoption potentially conflicts with WMs' self-image as custodial supervisors of professional work.

Previous experience of change, particularly with unfavourable outcomes, may influence responses to new changes (Weiss et al., 1999). Blame may be attributed to management by cynical stakeholders (Wanous et al., 2000). A lack of commitment may follow previous experiences with poor outcomes (Abraham, 2000).

The responses of users to adoption of new technology were explained by how their characteristics, including levels of competence and interest, mediate management influence on adoption (Leonard-Barton and Deschamps, 1988). This previous research showed that users of *low competence or low interest* in adoption say they respond to management and

limit themselves accordingly, whilst *high competence high interest* users will not see managerial influence as directly driving them. This encourages investigation of user characteristics to understand responses and managerial influence. Whether technology changes are of first order (to existing technology), or second order (new technology), minor or major in impact, all matter because these dimensions affect users' perceptions of changes and their individual situated responses (George and Jones, 2001).

3.1.2.2 Main Responsibilities

Changes in business processes alongside new technology imply job redesign where responsibilities and activities are changed. FLMs have assimilated knowledge of manual rostering skills may be threatened by new technology and processes. Their main responsibilities defined in job descriptions and evidenced by practice, form operational context and baselines for change. Therefore FLMs' perceptions of their main responsibilities factor into responses to change (Robey et al., 2002).

Closely associated with perceptions of responsibilities are perceptions of job satisfaction. Weiss and Cropanzano (1996) reviewed three approaches to job satisfaction: cognitive judgement; social influence; and dispositional. They noted whereas previous research defined it an *affective reaction* (feeling), empirical studies presented job satisfaction only as an *evaluative judgement* (measurable, positive or negative). In this review they introduced Affective Events Theory (AET) with the central notion that affective experiences (emotions and moods) have a direct role in determining attitudes and behaviours. Job satisfaction has been linked to decisions on turnover, retirement and organisational citizenship behaviour (Weiss and Cropanzano, 1996).

Aspirations for improved job performance may motivate. However, the literature does not always support a strong correlation between job satisfaction and job performance (Fisher,

1980; Judge and Bono, 2001). Finding persistent links between attitude (job satisfaction) and behaviour (job performance) is difficult, an ambition described as the "Holy Grail" of industrial psychologists (Landy, 1989). Although AET hypothesizes that job satisfaction mediates performance it is only one aspect contributing to motivation.

Empirical researches showed affect-laden events are causes of affective reactions (Fuller et al., 2003) and previous experience of unfavourable outcomes amplifies emotional reactions to similar events (Weis et al., 1999). Therefore investigation of perceptions of job satisfaction (an affective reaction) and of job performance may illuminate responses of FLMs affected by technology adoption.

Technology adoption means implementers must integrate changes to business processes, jobs and skills with strategic objectives, attend to change management principles, and through detailed planning and workforce cultural changes, navigate new systems of working (Huq et al, 2006). The role and characteristics of FLMs are therefore factors influencing technology adoption. When technology adoption is mandatory FLMs may perceive politics in play and new aspects threatening settled main responsibilities.

3.1.2.3 Perceptions of Politics

A large NHS based study of beneficial technology assimilation showed the importance of history, culture, quality of professional relationships and the vital role of power and politics in determining outcomes of innovation (Robert et al., 2009).

A model was proposed and tested by Rosen et al. (2009) integrating organisational politics with affective events theory. With perceptions of organisational politics (POP) the independent variable, they showed through mediators of frustration and job satisfaction that this variable influenced dependent outcomes of task performance, intention to turnover and organisational citizenship behaviour OCB. This conceptual model parallels Smollan's

theoretical but broader framework but was limited by ignoring other valid mediators from the contexts of employees, change managers and the organisational background (Smollan, 2006). However, Rosen et al. (2009) proved the hypothesis that perceptions of organisational politics affected responses to change events and showed its significance alongside other factors.

Information reaching affected managers about technology innovation will indicate the style of senior management intervention and influence FLMs responses (Huy, 2001). Therefore consultation and communications are important phenomena in understanding such influences (see section 3.1.1.5 above). How FLMs perceive the motives of decision makers and change leaders may influence their responses. This area is discussed next.

3.1.2.4 Perceived Motives for Technology Adoption

Stakeholders' perceptions of senior management motives will influence how they think, feel and respond to innovations (Cameron and Green, 2004). Their perceptions of motives will be also influenced by organisational factors (3.1.1) and their characteristics (3.1.2) and by perceptions of politics as discussed above (3.1.1.4). Perceptions of communications with them about the technology adoption may influence FLMs' perceptions of the motives of decision makers (Meyer and Stensaker, 2006). As professionals reflecting on the strategy, they may attribute motives to executives (consulted or not) and their thoughts will influence their responses (Ferlie et al., 2005). These influential perceptions of motives may be singular in each FLM or shared and convergent or context dependent.

3.1.2.5 Summary

In summary of section 3.1.2, previous research gives priority to certain FLMs' characteristics likely to influence their responses to new technology adoptions. These characteristics include their managerial qualifications and skills; main responsibilities; perceptions of politics; and how they perceived motives behind technology adoptions. Section 3.1.1 showed FLMs

respond to technology adoption influenced by organisational factors and local contexts and this section 3.1.2 shows their responses will be affected by their own characteristics. Box 1.2 below summarizes the influential characteristics of FLMs as headings with references.

BOX 1.2 CASE ORGANIZATION – FLM CHARACTERISTICS

- **Managerial qualifications & skills** (Leonard-Barton and Deschamps, 1988; Rogers, 1995; Argyris and Schon, 1996; Silvestro and Silvestro, 2000 and 2008; Clarke and Wilcockson, 2001; Venkatesh et al., 2003; Sheaff and Pilgrim, 2006; Smollan, 2006)
- **Main responsibilities** (Weiss and Cropanzano, 1996; Kitchener et al., 2000; Robey et al., 2002; Huq et al., 2006; RCN, 2009)
- **Perceptions of politics** (Drory and Romm, 1988; Zuboff, 1988; Currie and Proctor, 2002; Purcell and Hutchinson, 2007; Eisenhardt and Bourgeois, 2009; Robert et al., 2009; Rosen et al., 2009)
- **Perceived motives for adoption of E-Rostering** (Huy, 2001; Cameron and Green, 2004; Chawla and Kelloway, 2004; Meyer and Stensaker, 2006)

E-Rostering adoption needs change management processes that are sound for technology delivery and also sound in considering people and their likely responses to accompanying changes in behaviour and practice. Perceptions of trustworthiness of the change managers also influence responses (Chawla and Kelloway, 2004). These change management processes frame social consequences in practice and the degrees of adoption through user responses. The next section examines previous research about change management processes.

3.2 CHANGE MANAGEMENT PROCESS

3.2.1 Change Management Process Design

Beyond planned and emergent change discussed in Section 3.1, there is research on change processes specifically dealing with information technology. Davenport (1998); Nah et al., (2001); and Mourier and Smith (2001) emphasize change management techniques and organisational processes needed to adopt new technology. Inadequate change methodologies especially for human issues and overall management contribute to failure (Deloitte Consulting, 1998; Umble et al., 2003).

Managers may believe IT itself will create behavioural and organisational change. Markus and Benjamin (1997) call this the "magic bullet" theory in IT enabled transformation. Metaphorically managers believe they have the gun, IT is the magic bullet, end users are the target and once the gun is fired no further intervention will be required. Such decision takers may avoid hard facts about change management effort and end user needs and contexts. When failure looms they may blame the technology artefact, IT project managers, suppliers and consultants, whilst ignoring contexts, cultures and people-related aspects of change.

Causes and effects must be studied to understand responses to technology and process changes. Theorists' assumptions about nature and direction of causal influences were examined by Markus and Robey (1988). *Causal agency* can have three imperatives; technological; organisational; and emergent perspective. *Logical structure* refers to the time span of theory (static versus dynamic) and hypothesizes about causes versus outcomes, variance models with necessary and sufficient relationships, or process models with a recipe of sufficient conditions over time. *Levels of analysis* refer to entities about which the theory may apply; individuals and collectives.

Therefore people based units of analysis should feature in research methodology looking at people and organisations affected by technology adoption. For E-Rostering adoption in this thesis that would embrace senior management, service/general managers, ward managers (FLMs) and the project managers (see Chapter Four for further discussion).

The technological imperative can initiate innovation. When this triggers major organisational change, then Markus (2004) advises considering synergistic intervention of IT and organisational changes, rather than IT plus organisational change. She advises prototyping involves organisational as well as technology changes and change activities include post

project shake-down and benefits capture. She terms this combined approach "technochange" addressing operational, cultural and incentive misalignments to mitigate resistance.

The process delivering the completed innovative solution is as important as the solution and the bigger the change the more important becomes this point (Brady et al., 2006). Competence in change process design is a necessary imperative applied in practice to integrated technology and people-related changes (Cameron and Green, 2004).

3.2.2 Change Management in Practice

Mourier and Smith (2001) identified a series of twelve process elements strongly correlated to successful empirical changes, shown in Figure 3.3.

Figure 3.3 Process Elements Strongly Correlated to Successful Empirical Changes

1. The sponsor ensured visible and continuous support throughout the project
2. People understood what they had to do to make the change work
3. The project was adequately staffed and funded
4. A dedicated and capable project team
5. A strong project manager
6. Other organizational priorities did not get in the way
7. Progress toward the goals was tracked and publicized;
8. The change was explained to everyone
9. The change was kept manageable
10. Employees were treated fairly
11. The sponsor had the support of the other key executives
12. There was a detailed plan.

These elements are likely to be visible in a change process designed for success and less visible in one that is struggling.

Orlikowski and Tyre (1993) advocated the effectiveness of technological change through successive, short and intense cycles which allow staff to repeatedly settle with new work

routines. Large organisations have used the same approach (Collerette et al., 2003a, 2003b). These views proselytize that stability is a preferred state and change is painful, but more tolerable with less risk, if changes are incremental, small and between stable states. These studies reflect the punctuated equilibrium proposed by Gersick (1991), similarly not recognizing change may be externally driven and not comfortable.

A cascade of incremental technological components may add complexity and risk in both technical and social areas. Business reengineering advocates postulate that studying contemporary processes may rationalize and credit them just when the aim is their replacement. Instead the new should sweep aside the old without curiosity or regret (Hammer and Champy, 1993).

Planning technology and organisational changes requires consideration of techniques for implementation, including project and change management (Bentley. 2003; Cameron and Green, 2004). If the change is business process reengineering enabled by IT, then risk and stakes are high. If organisational changes fail then the cost escalates and time lost favours competitors to whom customers may be attracted (Sauer and Yetton, 1997).

If the approach is socio-technical (see Trist, 1981) this is much more incremental, with forethought, a cautious view of human aspects and facilitated by an expert following clear principles (see Mumford and Beekman, 1994). The NHS favours PRINCE 2 methodology for information technology projects. This mechanistic generic tool nevertheless requires experience in practice (Bentley, 2003). Its widespread use has not prevented the many NHS IT project failures even though it features risk management.

Enterprise Resource Planning software (ERP) was designed to meet the majority of the functional needs of major corporations with comprehensive integrated package software. As

implementation involves business process reengineering and job change, ERP projects face people related difficulties and problems with necessary pan-department data quality standards (see Huq et al., 2006). E-Rostering software because of its interfaces with financial, payroll, human resources and training systems, can be seen as a major logistics component of a constructed ERP suite. Therefore the sort of problems affecting ERP roll outs can be predicted unless anticipated and ameliorated by people consideration and training. The next section discusses training for technology adoption as considered in previous research.

3.2.3 Training for E-Rostering

Two types of learning are needed to implement E-Rostering: first how to configure new software by including company rules and policies; and second how to assimilate the new work processes (Robey et al., 2002). The first type of learning assumes rules and policies exist in articulated form and are within users' competences and powers. Policies may be written down but not necessarily consistent in use or interpretation (Argyris and Schon, 1996). Therefore an audit of policies and their practice must precede inclusion in new systems and training.

The second learning type, assimilating new work processes, requires allocation of work activities to redesigned roles and training new and reorganized appointees, a challenge with embedded NHS professionals (Ferlie et al., 2005). These aspects are possible factors in the adoption of E-Rostering. Training activities have to deliver technology skills assimilation and introduce new rules, policies and work processes (Robey et al., 2002). Who can best do such training is an important question. Expert resources from outside implementing organisations may assist (Cameron and Green, 2004).

The literature emphasizes that organisations and change managers must address participants as individuals and collectives (Robey et al., 2002; Smollan, 2006; Smollan and Sayers, 2009).

Their attitudes before change, during and afterwards will affect their responses and whether change outcomes endure. The treatment of people during change, particularly training, may be intended to affect their behaviour and the following section examines this.

3.2.4 Behavioural Changes

Cognitive appraisal of the change event may be influenced by perceptions of favourability of outcomes, justice, scale and speed, and timing (Smollan, 2006). FLMs' responses will be influenced by their characteristics in contexts. Their training may address desired behavioural changes. However, legacy assimilated knowledge may bar innovations and stimulate dialectic forces between old and new wisdoms (Robey et al., 2002). Policies and deployment practices from autonomous manual rostering may form "deep structure" which resists when disturbed (Gersick, 1991).

However consider the *positive perspective*: change excites people who enjoy improving themselves; stability and rituals are ossifying; learning may encourage and with such attitudes changes persevere (Argyris and Comfort, 1994). Engaging staff and managers in service of innovation may be productive. However, if culture itself is the object of change then existing cultures and embedded behaviour may moderate responses (Gersick, 1991).

The behaviour of those affected by technology adoption will be influenced by their priorities. Kegan and Lahey (2002; p.38) note that "Without an understanding of competing commitments, attempts to change employee behaviour are futile". Therefore FLMs' perceptions of priorities and how they rank against E-Rostering may need investigating before implementation or to explain responses.

Technology adoption may be a closed event with artefact handover followed by disengagement of project teams. This is a common criticism of NHS IT projects (Robert et al., 2009), colloquially "deliver and run". Inadequate addressing of organisational issues in

IT projects is a common reason for failure (Wainwright and Waring, 2004). The software artefact may be a "magic bullet" with desired behavioural changes expected just because technology was installed and users trained (Marcus and Benjamin, 1997).

If the changes impact unfavourably upon work life balances of FLMs and staff then communications and training may not convince participants that behavioural adjustment is worth the effort. The trainers and trained may not commit the emotional labour needed (Smollan and Sayer, 2009). Therefore perceptions of desired behavioural changes and actual outcomes for senior managers, middle managers and FLMs should be investigated and the change team asked how they communicated behavioural change, how dialogue proceeded and what has happened. These consultation and communication activities are discussed next.

3.2.5 Consultation and Communications

This subject was introduced in section 3.1.1.5 above and the role of change management teams as communicators and advocates emphasized. This role contextualizes the IT project and enhances the necessary discourse between clinicians, managers and change agents (Waring and Wainwright, 2002a, 2002b). Consultation takes time and has to be dialogue if alignment sought is to be genuine and durable. Communication skills of change management teams and the appeal of articulated content influence responses of affected FLMs (Bentley, 2003; Cameron and Green, 2004). Social visibility of an innovation may be influenced by communications and affect the likelihood of acceptance (Rogers, 1995).

Emotional labour is required to lead and implement change and motivating communication is a key factor in selling, delivering and receiving the change (Smollan and Sayers, 2009). How new policies are communicated will also factor into achieving alignment with strategy and motivation of those affected.

In summary, previous research indicates FLMs' perceptions of communication by and with the change team may influence FLMs' perceptions and responses to the adoption of E-Rostering. This change team communications' role extends beyond handover to FLMs and remains important during the following transition periods which are discussed next.

3.2.6 Transition

Empirical issues in the important transition period following IT implementations affect responses (Bridges, 1991; Collerette et al., 2003b, 2006). Impacted people want to understand reasons for changes interfering with work. They are hungry for information on what awaits them and expectations of technology shape attitudes (Ginzberg, 1981). Affected people become defensive when they feel neglected or treated with disrespect. During a transition affected people may feel tired, a sense of personal failure, role confusion and show irritation. Transition involves individual and collective learning processes which need facilitating, preferably by experts to avoid shortfalls (Clarke and Wilcockson, 2001). Productivity, quality of work and performance are likely to decrease during transition if business as usual must continue (Meyer and Stensaker, 2006). People will be very sensitive to opinion leaders during transition (Brosius and Weimann, 1996). Affected people observe management behaviours and calculate their own involvement accordingly (Smollan, 2006). Conflicting priorities during transition may confuse end-users about real managerial expectations (Collerette et al., 2006).

Previous research into change management often results in virtuous operational check lists, largely inconsiderate of culture and context, which assume people impacted by affective events can be managed in the same mechanistic fashion applied to technology installations. There is reluctance to consider emotions and behavioural responses, their impact on technology use, or social consequences at work and external factors, a complex set of

variables for consideration together by implementers and affected individuals (Giddens, 1984; Orlikowski and Robey, 1991; Orlikowski, 2000; Cameron and Green, 2004; Smollan, 2006). Experiential knowledge hones the attitudes of those facing innovation, influencing responses (Polanyi, 1962; Geertz, 1983). People may engage with changes, have related social and technical competencies, or previous experience of change was unpleasant and influences attitudes regressively (Weiss et al., 1999).

Research on the NHS showed person-oriented and task-oriented approaches each emphasized different activities in planning organisational changes (Battilana et al., 2010). Person-oriented leaders strongly communicate the need for change. They mobilize supporters and evaluate the change implementation. In a mandatory change the task is implementing change when the direction has already been selected. The culture and characteristics of those affected and the trust, respect, consideration, and leadership of change leaders may predicate outcomes.

3.2.7 Summary

For technology adoption previous research emphasizes certain key factors which constitute the change management process. Box 2 below summarizes these key factors, already discussed above in this section, as headings with related references shown alongside.

BOX 2 CHANGE MANAGEMENT PROCESS

- **Change management process design** (Markus and Benjamin, 1997; Davenport, 1998; Deloitte Consulting, 1998; Mourier and Smith, 2001; Nah et al., 2001; Umble et al., 2003; Cameron and Green, 2004; Markus, 2004; Brady et al., 2006)
- **Change management in practice** (Hammer and Champy, 1993; Orlikowski and Tyre, 1993; Mumford and Beekman, 1994; Mourier and Smith, 2001; Robey et al., 2002; Bentley, 2003; Collerette et al., 2003a&b; Cameron and Green, 2004)
- **Training for E-Rostering** (Markus and Benjamin, 1997; Wright and Snell, 1998; Robey et al., 2002; Cameron and Green, 2004; Bradley, 2008)
- **Behavioural changes** (Markus and Robey, 1988; Gersick, 1991; Argyris and Comfort, 1994; Kegan and Lahey, 2002; Robey et al., 2002; Wainwright and Waring, 2004; Smollan, 2006; Smollan and Sayers, 2009)
- **Consultation and communications** (Rogers, 1995; Waring and Wainwright, 2002a&b; Cameron and Green, 2004; Smollan and Sayers, 2009; Battilana et al., 2010)
- **Transition** (Ginzberg, 1981; Bridges, 1991; Weiss et al., 1999; Clarke and Wilcockson, 2001; Hayes, 2002; Bamford and Forester, 2003; Collerette et al., 2006; Meyer and Stensaker, 2006; Smollan, 2006)

Operational and social consequences of new E-Rostering technology also depend upon the technology's capabilities as desired, planned and actually delivered. Therefore the next section considers the efficacy of technology and how it influences the responses of FLMs.

3.3 TECHNOLOGY EFFICACY

3.3.1 Efficacy and Expected Key Benefits and Features

The efficacy of E-Rostering technology is its perceived fitness for purpose described by stakeholders, particularly users. FLMs in their perceptions may articulate both expectations of desired benefits (theories in use) and what has actually happened (theories in action) and identify differences (Argyris, 1991). Together these capture individual and group expressions of the efficacy of adopted technology. Technology efficacy may be attributed to the artefact (Markus and Benjamin, 1997). However it will be influenced by social contexts of deployment and by change and implementation processes. Fitness may be judged by perceptions of those impacted at various organisational locations and be discoverable in the words of affected stakeholders.

Expected benefits and features frame the nature of technology adoptions (Orlikowski, 2000). E-Rostering offers potential benefits of efficiency; transparency; equity; better data quality and management information; cost savings; bank and agency staff controls; links to HR and Payroll systems; better absence control and a better work life balance (see Chapter 2). There are assertions of benefits in patient experiences, visibility to staff and substantial savings from control over rostering processes (Edmondson, 2008). E-Rostering systems may link to electronic staff records and payroll, with reductions in fraud. Temporary staffing can be monitored more easily (Massey et al., 2008). There is potential for absence monitoring by FLMs, line superiors and the HR function.

Flexible working has positive benefits for job satisfaction, recruitment and retention of staff (Truss et al., 2006). Managerial procedures built around full-time nurses may underutilize flexible workers and benefits of flexible working are often lost (Edwards and Robinson 2001; 2004). Transparency of computer systems enables organisational justice and equality monitoring. Therefore E-Rostering may assist more equitable flexible working.

Systems' data may mean middle managers increase control over FLMs and improve their contribution to strategic decision making (Currie and Proctor, 2002). E-Rostering's potential for surveillance and control is feared by some clinicians as a technological panopticon, a metaphor for relentless control as the managerial ethos (Timmons, 2003). Nevertheless, at the Royal Berkshire Hospital after applying technology to rostering nurses, the next step is scheduling doctors (Edmondson, 2008).

The actual cost-benefits of computerized rostering have not been studied academically. Previous research exposed manual methods for producing duty rosters (Silvestro and Silvestro, 2000, 2008) and discussed mathematical theoretical models of nurse rostering (Cheang et al., 2003; Ernst et al., 2004). Theoretical arguments ignore how calculated optimum schedules may be kidnapped by social and managerial influences upon input variables and rejected or adjusted by FLMs when outputs are socially unacceptable or threaten autonomy. Schedules may be vulnerable to pragmatic, experiential and mischievous modifying behaviour at autonomous points of deployment.

Technology efficacy also depends upon whether a professional development life cycle was followed in technology acquisition. Such a cycle involves consulting users at the start to define their requirements (Bentley, 2003).

Technology efficacy in functional zones is ensured by programme governance (see Bentley, 2003) and is provable by testing against user-defined requirements. With packaged software, designers' values and objectives and previous customers' requirements may be embedded so testing needs to be organisationally specific, using local data to prove fitness for purpose. For package software flexibility would normally be built in and adaption to meet specific client needs ensured through configuration on installation.

3.3.2 Technology Acceptance Theories

In the literature on information technology quantitative success measures proliferate but a single dependent variable has not emerged. Delone and McClean (1992) after reviewing 100's of possible measures instead embraced a taxonomy resolving to six quantitative dimensions information systems' success: system quality; information quality; use; user satisfaction; individual impact; and organisational impact. Their application requires quantitative user surveys raising difficulties in comparing statistical results across different organisations and for different user groups within the same organisation. They also depend upon notions that users are neutral vessels of sound technical judgement and organisational context and social aspects, not easily detectable in quantitative surveys, can be discounted.

Other research focused on identifying factors which may predict success. The Technology Acceptance Model (TAM) has held attention in publications by Davis (1989, 1993); Davis et al., (1989); Amoako-Gyampah and Salam (2004). The model initially spotlighted two attitudinal dimensions, perceived utility of technology and its reported ease of use.

Later variables accounting for some social pressures augmented the model's predictive power (Venkatesh and Davis, 2000). Then Venkatesh et al., (2003) proposed and tested a predictive unified model named Unified Theory of Acceptance and Use of Technology (UTAUT) with four determinants of intention and usage summarized in Figure 3.4.

Figure 3.4 UTAUT Independent Variables (Venkatesh et al., 2003)

1. Performance expectancy (does it improve my job?)
2. Effort expectancy (perceived ease of use)
3. Social influence (of important people, peers and image)
4. Facilitating conditions (perceptions of organisational and technical support).

The first three directly moderate behavioural intention which moderates use behaviour, as do facilitating conditions (Ajzen, 1991). These may include perceptions of quality of IT services (Pitt et al., 1995). Behavioural intention significantly and positively influences usage.

Venkatesh et al., (2003) recommend contextual analysis beyond survey-founded UTAUT predictions of use, when developing technology strategies for complex organisations to discover *individual perceptions in context* and who faces difficulties in use and why. The concept of technology efficacy discussed in section 3.3.1 embraces such perceptions in context and users can be interviewed about them.

The TAM model applied to clinical technology innovations was concluded an effective predictor of intention-to-use by perceived utility (significant) and perceived ease of use (less consistent) by Holden and Karsh, (2009). Social influence was less consistent where facilitating conditions like support were significant. Perceived ease of use degraded in significance over time but user support continued to be appreciated. Eventually Holden and Karsh (2009) recommended conducting beliefs' elicitation studies to explore contextual influences and understand responses.

The TAM's main shortfall is to stress technology attributes when social and organisational factors, context and attitudes of the staff may control. Previous research offers twelve important people-related success factors listed in Figure 3.5 below.

Figure 3.5 Factors Influencing the Success of Innovation

Factors Influencing the Success of Innovation	Source
1. The advantage of the innovation over former solutions 2. Compatibility with the current staff values 3. Complexity level not exceeding the capabilities of end users 4. Social visibility of the innovation.	Rogers, 1995.
5. Social image that arises from the adoption of the innovation 6. Tangible character of the results 7. Degree of voluntariness associated with adoption.	Moore & Benbasat, 1991.
8. Lack of security felt and experienced	Bareil & Savoie, 2000 Nelson et al., 1995.
9. Stress elicited by the change	Ashford, 1988. McHugh, 1997. Decker et al., 2001.
10. Lack of control of one's work	DiFonzo & Bordia, 1998. Sutton & Kahn, 1987.
11. Degree of mastery of the new skills	Jimmieson et al., 2004. Bandura, 1991.
12. Active support from supervisors during change, regular information and sound training	Jimmieson et al., 2004. McNish, 2002. Szamosi & Duxbury, 2002.

Predictive theories of use like TAM and UTAUT may be unreliable in practice because of factors within contexts. Variable social structures affecting use in context may not have been considered (Trist, 1981). Legris et al., (2003) in a review of TAM argues its predictive capacity remains limited. Congruence with user expectations may be constrained unless functional adaptability was designed into the technology, facilitating variances in usage.

User occupation was the most influential variable in a study aimed at validating TAM (Colvin and Goh, 2005). System response times and quality of information outputs proved more important than perceived utility and ease of use. New ideas and technologies are also judged and relayed by opinion leaders influencing acceptance (Brosius and Weimann, 1996).

The concept of technology frames for thinking about congruence between different organisational levels or work groups was introduced by Orlikowksi and Gash (1994). Boland (1978, 1979) showed the conceptual framework of the designer influenced the kind of system. Ginzberg (1981) investigated how users' expectations of a system shaped their attitudes toward it. The social aspects of information technology development, selection and

implementation affect the responses of users (Markus 1984; Hirschheim and Klein 1989; Kling and Iacono, 1989; Waring and Wainwright, 2002a).

Lave (1988) has argued for the value of focusing on ''cognition in practice'' (ability to do tasks in real life) rather than ''cognition in the head'' (ability assessed by knowledge tests). Orlikowski (2000) proposed a practice-oriented understanding of the recursive interaction between people, technologies and social action to better explain emergence and change in technologies and use. This situated change perspective leans towards innovation affected in practice by contextual factors and recognizes the potential for adaptive responses.

Orlikowski's practice lens in her words:

> "Focuses on emergent technology structures enacted in practice rather than embodied structures fixed in technologies. This practice lens further recognizes that in both research and practice we often conflate two aspects of technology: the technology as *artefact* (the bundle of material and symbol properties packaged in some socially recognizable form, e.g., hardware, software, techniques); and the *use* of technology, or what people actually do with the technological artefact in their recurrent, situated practices" (Orlikowksi, 2000, P5).

Orlikowski framed technology with three dimensions: nature of the technology relates to expected key benefits; technology strategy relates to the objectives of the innovation for the organisation; technology in use refers to functionality and effectiveness in practice.

Orlikowski (2000) supports the concept of functionality and fitness for purpose as part of the "lens" through which to observe technology structures in practice. These dimensions therefore qualify new technology's efficacy through the perceptions of affected users. Previous research supports investigation of perceptions of expected key benefits and features of E-Rostering, perceptions of success criteria and perceptions of E-Rostering technology in practice to understand their influence upon responses of FLMs. Such investigations must

also consider the social aspects contingent with and interacting with the technology adoption and the next section looks into this.

3.3.3 Social Aspects of Information Technology Adoptions

The structural theoretical perspective may explain how use of computing systems is shaped by human actions. Technology deployed at work is attributed objectives, may become deterministic, and perceived with institutional properties, shaping users' behaviour, a medium for human action (Giddens, 1984). People readily allow their actions to be constrained by shared abstractions of social structure (Orlikowski and Robey, 1991). This recalls the influence of the organisational background factors discussed in section 3.1 which influence the social consequences of technology adoption through responses of stakeholders.

Kling and Iacono (1984) found new information technology resulted in more tightly controlled middle managers. Accessible computer data led to wide knowledge of deviances, so broader institutional control was the reality, replacing hierarchical controls. Some managers are unable to relate to information technology which would increase workers' autonomy (Zuboff, 1998). Managers with hidden agendas may push for IT because of control ambitions but social consequences of technology adoption may lead to outcomes not anticipated by managers (Smollan and Sayers, 2009; Smollan et al., 2010).

The currency of technology may contribute to the social status of adopters (Venkatesh and Davis, 2000: Venkatesh et al, 2003). If users discover theirs is an outdated or reduced installation they may react adversely. Perceptions of need for further development may factor strongly into FLMs' responses to E-Rostering adoption and so should be investigated.

Adaptive skills are part of manual rostering and routinely exercised under the rostering manager's autonomy (Silvestro and Silvestro, 2000, 2008). For E-Rostering such adaptive skills may re-emerge post implementation influenced by tacit knowledge, local pressures and

social factors. Therefore technology efficacy perceived by FLMs may influence how they think, feel and respond to its adoption.

3.3.4 Summary

Previous theory and empirical research about responses to technology adoption justifies the investigation of users' perceptions of the strategy behind adoption, expected key benefits and features, and its efficacy in use to meet their expectations. However software implementations which change practice and social interactions are affective events, responses to which involve cognition, emotions, attitudes and behaviours. Box 3 summarizes key factors affecting perceptions of technology efficacy and influencing FLMs' responses to E-Rostering adoption. Supporting references are listed alongside.

BOX 3 TECHNOLOGY EFFICACY

- **Expected benefits and features** (Ginsberg, 1981; Orlikowski and Gash, 1994; Orlikowski, 2000; Venkatesh and Davis, 2000; Currie and Proctor, 2002; Bentley, 2003; Venkatesh et al., 2003; Truss et al., 2006; Edmondson, 2008; Massey et al., 2008)
- **Technology acceptance – criteria for success** (Davis, 1989 and 1993; Davis et al., 1989; Rogers, 1995; Venkatesh et al., 2003; Amoako-Gyampah and Salam, 2004; Holden and Karsh, 2009)
- **E-Rostering in practice and social aspects** (Moore and Benbasat, 1991; Orlikowski and Robey, 1991; Pitt et al., 1995; Rogers, 1995; Brosius and Weimann, 1996; Orlikowski, 2000; Silvestro and Silvestro, 2000 and 2008; Smollan and Sayers, 2009; Smollan et al., 2010)
- **Need for further developments** (Venkatesh and Davis, 2000; Venkatesh et al., 2003)

The perceived efficacy of technology in use will bear upon adoption success through users' responses to perceived outcomes and these are considered next.

3.4 PERCEIVED OUTCOMES

3.4.1 Emergent Responses

Cognitive and affective responses to expectations and perceived outcomes of those impacted determine their attitudes to changes (Smollan, 2006). There may be double loop learning: those affected by change events modify their behaviour, thus modifying outcomes (Argyris, 1977). This may underpin dynamics in the emergent change model (Burnes, 2004). Positive and negative elements in responses may generate corresponding feedback loops (Piderit,

2000). Behavioural responses will be informed by perceived favourability of outcomes, fairness of outcomes, decision-making processes and communications, commanding their research (Weiss et al., 1999; Paterson and Hartel, 2002; Matheny and Smollan, 2005).

Technology adoption may be a planned change with success criteria, organized under a technique like PRINCE 2 (Bentley, 2003). Such plans are theory in use, whereas in action success and timelines may not happen as planned, transforming into indeterminate transitions where responsibility has transferred to FLMs and change agents have withdrawn (Argyris, 1977). Actual outcomes may approach corporate desired outcomes or move towards local differing needs. Affected stakeholders may be adaptive if not aligned with strategy and actual outcomes are distant from desired outcomes, supporting further developments.

3.4.2 Summary

Previous research recognizes desired and actual outcomes and their differences as key components influencing responses of affected managers. Perceptions of outcomes by senior, middle, FLMs and change managers should be investigated to establish the impact of E-Rostering adoption and the behavioural responses of those affected.

Box 4 below lists factors in perceived outcomes that previous research shows influence responses of FLMs affected by technology adoption and includes supporting references.

BOX 4 PERCEIVED OUTCOMES

- **Desired outcomes** (Argyris, 1977; Orlikowski, 2000; Bentley, 2003; Cameron and Green, 2004; Smollan, 2006; Purcell and Hutchinson, 2007)
- **Actual outcomes** (Weiss et al., 1999; Piderit, 2000; Paterson and Hartel, 2002; Burnes, 2004; Matheny and Smollan, 2005; Smollan, 2006)
- **Perceived differences** (Argyris, 1977; Burnes, 2004; Smollan and Sayers, 2009; Smollan et al., 2010)

In a case study a theoretical research framework representing factors and potential relationships are important to guide the collection of data and analysis and indicate research

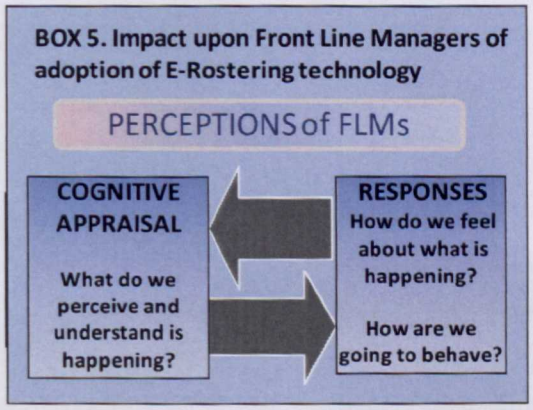
questions (Yin, 2009). The FLMs responses are at the core of the research aim and of the framework which the next section develops progressively.

3.5 DEVELOPING THE THEORETICAL RESEARCH FRAMEWORK

This chapter has identified important thematic groups of factors to be studied as independent variables when researching responses of FLMs to the adoption of innovative technology. These were summarized in Boxes 1.1, 1.2, 2, 3, and 4 above.

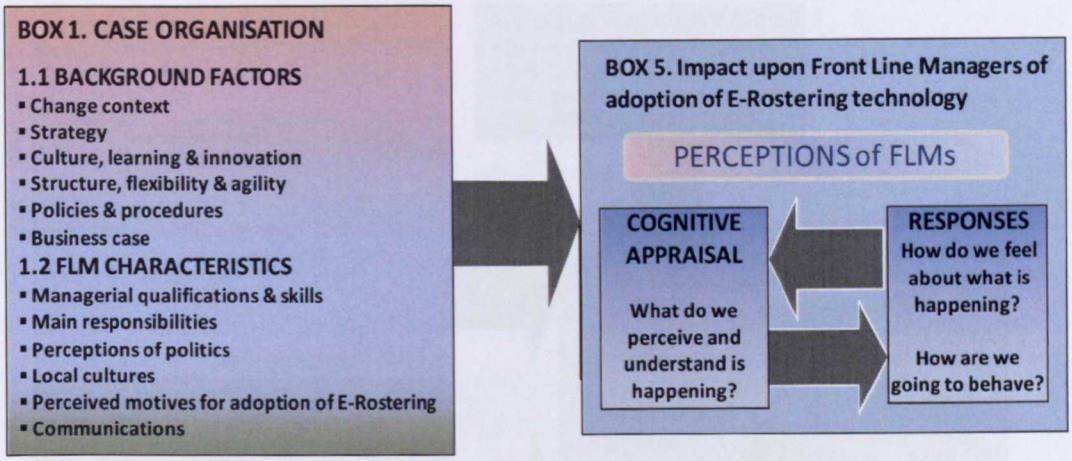
Previous research recognizes FLMs will make cognitive evaluations of technology adoption and organisational changes as well as having affective responses and both will influence their behavioural responses (Weiss and Cropanzano, 1996; Piderit, 2000; Smollan, 2006).

These interactions lead to the responses of FLMs to E-Rostering adoption, the dependent variable shown in the Box 5 below, forming the core of the theoretical research framework.

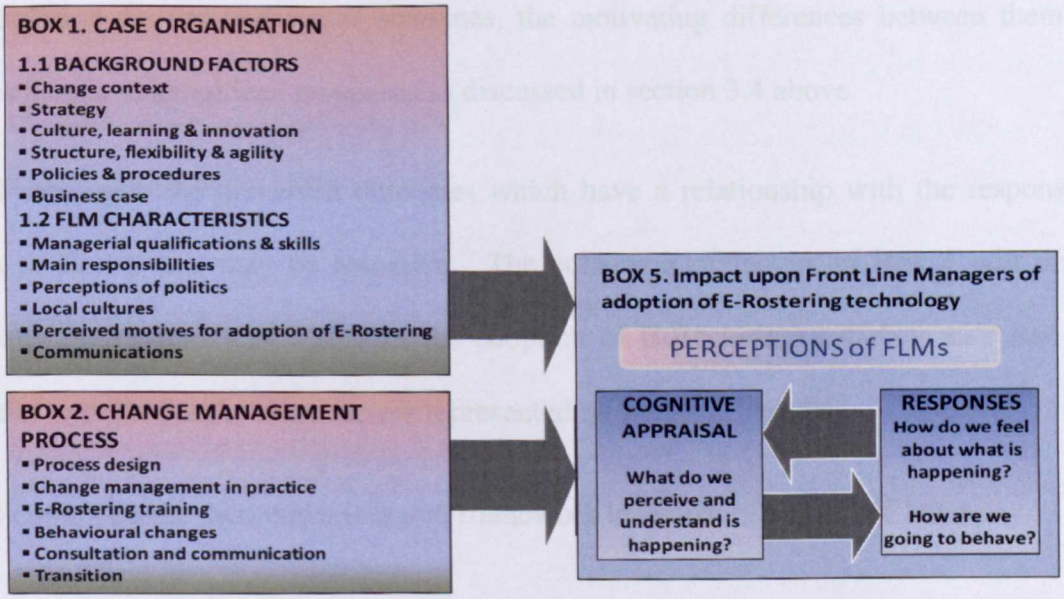


The important case organisation background includes the factors discussed in section 3.1.1 above. However, the case organisation is home to the FLMs, therefore their characteristics (discussed in section 3.1.2) are embedded, also influencing their responses. The case organisation factors and FLMs' characteristics form social elements and human factors in place before the change event. They are important independent variables influencing responses to E-Rostering adoption, here presented by combining factors in Box 1.1 and Box

1.2 into Box 1 below, showing their potential causal relationship with perceptions and responses of FLMs represented by Box 5.

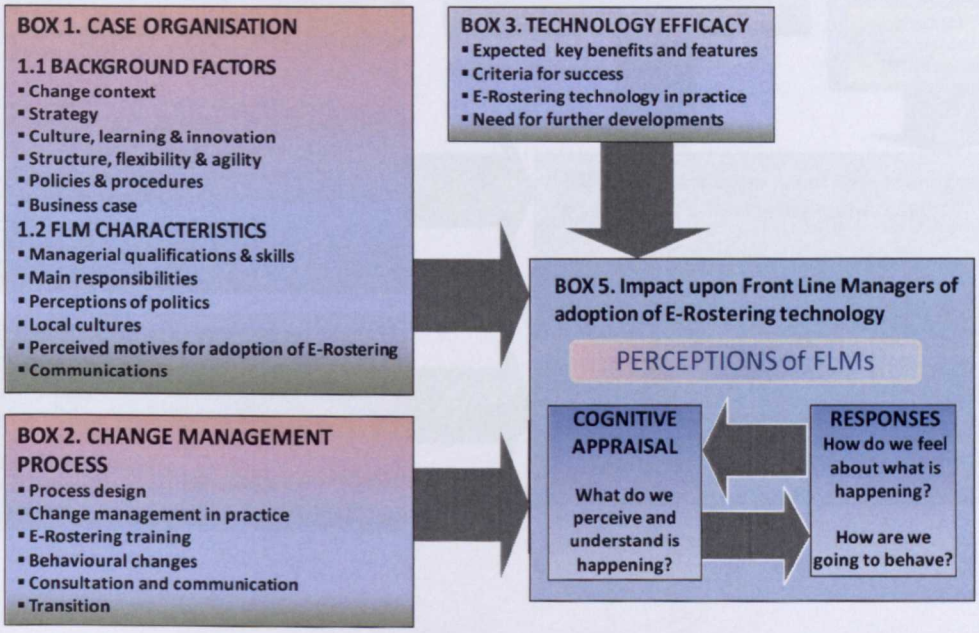


The adoption of E-Rostering happened through an applied change management process. This process has influential factors discussed in section 3.2 and shown in Box 2 below, placed to show its influence with Box 1 on Box 5 in the developing theoretical framework.



The perceived nature of the technology has an influence upon the responses of affected managers. Their perceptions develop during communications and training and are qualified by experiences post implementation. Factors comprising the perceived efficacy of the

technology were discussed in section 3.3. These factors are represented in Box 3 below in the developing framework to show their influence upon FLMs' responses in Box 5.

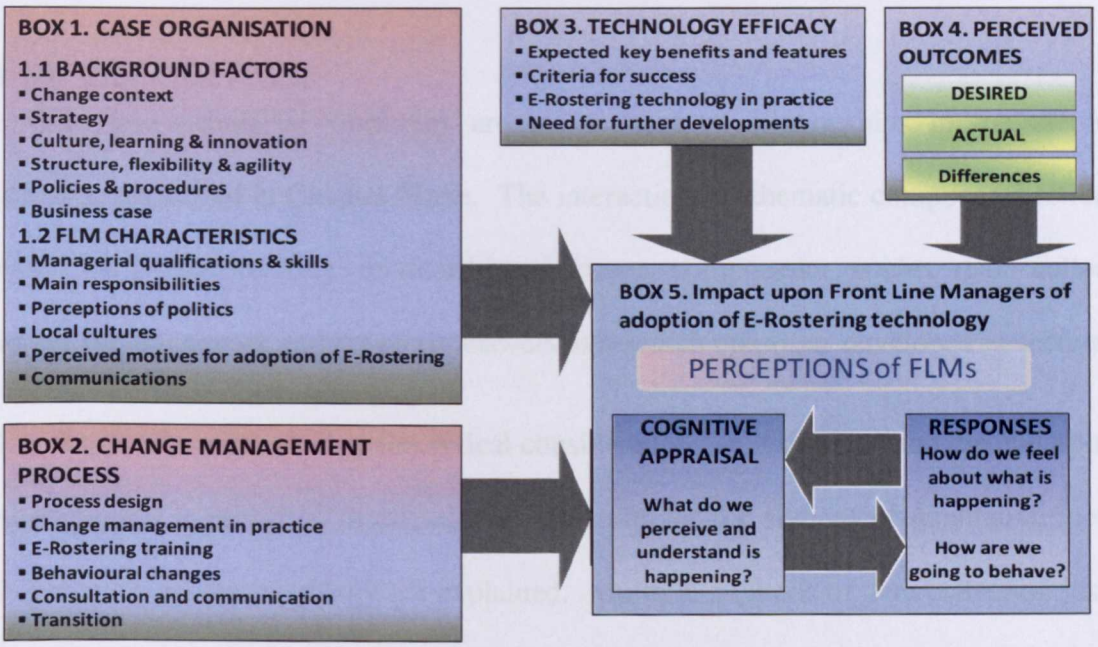


The affected FLMs will have perceptions of the outcomes from E-Rostering adoption which may embrace desired and actual outcomes, the motivating differences between them, and may influence stakeholders' responses as discussed in section 3.4 above.

Box 4 represents the perceived outcomes which have a relationship with the responses of FLMs in Box 5 that may be recursive. The collection of factors in Box 1 will directly influence the responses of FLMs to the adoption of E-Rostering and they may also have potential to influence the other factors represented by Boxes 2, 3 and 4.

Box 4 completes the theoretical research framework in shown in Figure 3.6 below.

Figure 3.6 Theoretical Research Framework - Responses to E-Rostering Adoption



This chapter shows that human factors present in the organisational background variables (Box 1) and in the change management processes (Box 2) are likely to have strong influences. As the research aim is to explain the responses of those affected by E-Rostering adoption, these two collections of factors have the potential to lead the research focus.

The objective of the next chapter is to explain and justify the research design, sampling, data collection and analytical methods chosen in order to answer the research questions and then to describe and discuss these methods of investigation as practiced in this study.

CHAPTER FOUR: METHODS OF INVESTIGATION

4.1 INTRODUCTION

The front line managers' responses are at the core of relationships in the theoretical framework developed in Chapter Three. The interactions of thematic components reflect the research aim. Investigating relationships between components guides data collection, validates the framework and develops answers to research questions developed in section 4.3.

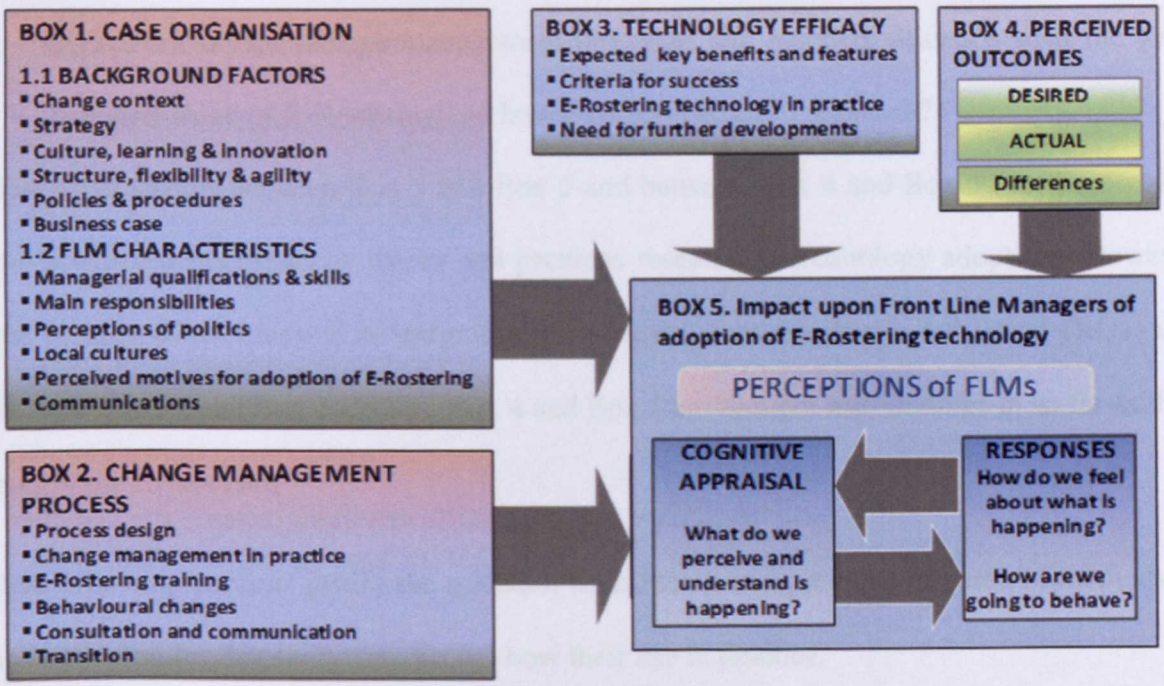
In this chapter the methodology theoretical considerations are examined and the underpinning epistemological approach is discussed. The reasons for the choices of qualitative methods and case study research strategy are explained. Multiple methods of data collection justified by theory are described covering governance; observation; sampling; qualitative interviews; data reliability and validity and the reflexive approach. Finally, analytical methods are discussed and approaches to building explanations from rich data are written up.

4.2 THEORETICAL RESEARCH FRAMEWORK

This theoretical framework developed for the research is shown below in Figure 4.1. Each of the components of the framework may influence and be influenced by other components recursively.

The main source of data used to explore this framework was the perceptions of impacted stakeholders. These stakeholders are the four management groups which are also units of data collection and analysis. They are the Trust senior managers, the strategic decision makers; the service/general managers who respond to the senior managers; the change project team which responded to the Nurse Rostering Board and the Director of Service Development and Performance, and ward managers who operate front line units and respond to service managers.

Figure 4.1: Theoretical Framework – Responses to E-Rostering Adoption



This theoretical framework can be given temporal dimensions (Smollan et al., 2010) and be valid longitudinally. However, this study had a bounded timeframe. The end users, the WMs, were observed in training and interviewed post implementation covering new adopters and those using E-Rostering for up to a year.

Although this study looks across four managerial groups, the prime focus is upon responses of WM. As front line managers they are the main users and deliverers of operational change (Purcell and Hutchinson, 2007; Collerette et al., 2006).

4.3 METHODOLOGY

The research purpose is to identify and explain the responses of front line managers in a mental health NHS Trust to the adoption of E-Rostering technology and to the accompanying changes in operational policies and practices.

The research questions are as follows:

RQ1: How do the characteristics of the case organisation influence what the ward managers think of E-Rostering and how they respond to its adoption?

RQ2: How do the change management processes and practice influence what the ward managers think of E-Rostering and how they respond to its adoption?

The relationships between Box 3 and Box 5 and between Box 4 and Box 5 (see Figure 4.1) are confirmed important by theory and previous research in technology adoption. However the priority of the study is investigating relationships between Box 1 and Box 5 (RQ1) and between Box 2 and Box 5 (RQ2). Box 4 and Box 5 are brought into findings in so far as they contribute to that end.

The following sections justify the selection from theory and previous research of methods of investigation for this study and discuss how their use in practice.

4.3.1 EPISTEMOLOGICAL POSITION

Research design and methodology may be predetermined by a researcher's philosophical preferences, somewhere between the epistemological extremes of the positivist and the phenomenologist (Burrell and Morgan, 1979). In this study the search is for meanings and interpretations behind people's behaviours in social and organisational contexts. This research is realist, concerned with perceptions of phenomena in an empirical study.

In the realist epistemological position people produce accounts with assumed direct relationships to social phenomena of "real" experiences at work, perceptions of technology, operational changes and sense making of impacts upon their lives (Madill et al., 2000). Interview responses have validity and applicability beyond singular interview contexts to which radical constructionist philosophers limit them. This justifies interpretive analysis and search for meaning across multiple respondents (Kvale and Brinkmann, 2009). "Accounts of

meaning must be based initially on the conceptual framework of the people whose meaning is in question" (Huberman and Miles, 2002, p49).

4.3.2 INVESTIGATION OF PHENOMENA

Phenomenology is a philosophy or method of inquiry in which reality consists of objects and events as perceived or understood in human consciousness from the first person point of view. The researcher attempts to understand relative views as perceived by respondents because these have strong influences upon real behaviour (Miles and Huberman, 1994). Social phenomena are therefore investigated by collecting and trying to find meaning in the perceptions of people involved, in context. When organisation and issues are complex, like the NHS, this means asking about perceptions without constraining subjects' abilities to answer, avoiding closed questions. This qualitative focus involves collecting and analyzing rich data with the objective of identifying meanings. It is not concerned directly with the frequency of social phenomena (Van Maanen, 1979).

This researcher agrees with Miles and Huberman (1994) and Silverman (2006) that research design and methodology should be founded upon the research aims and questions in the first instance, rather than philosophical bias. Continuous reflection as the research proceeds will assure the justified methodological approach, its boundaries and limitations.

4.3.3 QUALITATIVE METHODS

For research into responses of change subjects the literature shows two dominant methods, surveys and case studies (Brewster et al., 1996). Surveys detect differences indicated by quantitative measurements (Babbie, 1990). Therefore surveys collect factual data or indicate dimensioned opinions or relative attitudes about specific issues. With a survey methodology analysis relies upon statistical linkages but may not illuminate situational complexity or multiple linkages. It deals only with predicted variables and data within boundaries set by the

quantitative survey. The consensual position about qualitative research is well set out by Denzin and Lincoln (2000, p10) as:

> "Both qualitative and quantitative researchers are concerned with the individual's point of view. However, qualitative researchers think they can get closer to the actor's perspective through detailed interviewing and observation. They argue that quantitative researchers are seldom able to capture their subjects' perspectives because they have to rely upon more remote, inferential empirical methods and materials".

Surveys are unlikely to deliver deep understandings of meaning and behaviour founded upon individuals' perceptions in context and therefore qualitative methods are required in this study (Silverman, 2006).

Points of view and perspectives may not reliably represent lived experience. If interviewees come from a role based cadre that meets regularly around shared objectives, their voices may describe shared organisational discourse rather than personal realities. For example pharmacists engaged in substance abuse recovery, when interviewed replied in the "familiar rubric of self-help groups" (Gubrium and Holstein, 2002, pp. 21-2). Themes arising from voiced perceptions of interviewees may be founded upon shared experiences. Therefore exploring how interviewed cadres communicate, interact and train needs to be part of the interviews and data analysis.

4.3.4 CASE STUDY RESEARCH STRATEGY

Case studies have both scope and technical characteristics. In empirical scope it:

> "Investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (Yin, 2009, p18).

Data collection and analysis strategies cope with:

> "technically distinctive situation in which there will be many more variables of interest than data points, and as one result relies upon multiple sources of evidence with data needing to converge in a triangulating fashion; and as another result benefit from the prior development of theoretical propositions to guide data collection and analysis" (Yin, 2009, p18).

The theoretical research framework for this study integrates components previous research declared important but also guides data collection and analysis as Yin (2009) advises.

Figure 4.2 below shows three research conditions to be considered: the form of the research question; need for behavioural control or not of events; focus on contemporary events or not. These conditions are applied to each possible method: experiments; surveys; archival analysis; history and case study to select the optimum research method.

Figure 4.2 Relevant Situations for Different Research Methods (Yin, 2009, p8)

METHOD	(1) Form of Research Question	(2) Requires Control of Behavioural Events	(3) Focuses on Contemporary Events
Experiment	How, why?	Yes	Yes
Survey	Who, what, where, how many, how much?	No	Yes
Archival Analysis	Who, what, where, how many, how much?	No	Yes/No
History	How, why?	No	No
Case Study	How, why?	No	Yes

The research aim of this study is explanatory, to find reasons for FLM responses and understand them. The case study is well matched to research questions which demand comprehension of social or organisational processes discoverable in rich data gathered in context (Hartley, 2006).

The key feature of case study is the emphasis on understanding processes in context, meaning the research question theme is "how". The research questions in this study are focused upon "how" factors in the theoretical research framework influence responses of FLMs. The researcher wishes to explain their responses in context, enquiring into behavioural events but with no wish to control them. The focus is on a contemporary event, the adoption of E-Rostering. There is no historical interest beyond provenance of the change programme, contexts and experiential data from interviews.

These conditions rationalize the method choice using Figure 4.2 down to case study, using multiple methods, part of the definition of case study research (Yin, 1994), including observation, sampling, qualitative interviews and informants, documents, system records and proximity to subjects.

There is a concern to understand context as an explanatory factor in organisational behaviour (Rousseau and Fried, 2001). For this study considering organisational context and its relationship with processes and factors underpins research design. The case study approach was chosen because it is well suited to research looking into contemporary behavioural phenomena in real-life contexts in a complex organisation.

Case Study Limitations

A scientific method legacy was the proposition that qualitative single case studies cannot deliver valuable general, theoretical, context independent knowledge and so contribute to scientific progress (Campbell and Stanley, 1966; Abercrombie et al., 1984). However phenomenological studies of learning indicate a qualitative leap in applied knowledge from rule-governed beginners to fluid performers with tacit skills in people Pierre Bourdieu (1977) calls virtuosos and Hubert and Stuart Dreyfus (1986) call true human experts. "It is only because of experience with cases that one can at all move from beginner to being an expert" (Flyvbjerg, 2004, p421). Case knowledge is central to human learning (Cragg, 1940; Christensen and Hansen, 1987).

In studies of human affairs "concrete context dependent knowledge is therefore more valuable than the vain search for predictive theories and universals" (Flyvbjerg, 2004). Eckstein (1975, p116) took the balanced view "Comparative and case studies are alternative means to the end of testing theories".

In this single case study of critical nature, "defined as having strategic importance in relation to the general problem" (Flyvbjerg, 2004, p425), we may learn how inputs coexist with certain outputs with the force of example (Flyvbjerg, 2004). The goal is to expand and generalize theories (analytic generalization) and not build from frequencies (statistical generalization). The objective is to perform a "generalizing" and not a "particularizing" analysis (Lipset et al., 1956, p419). This is helped by purposeful theoretical sampling (Huberman and Miles, 2002). Valid interpretation of information collected may permit propositional deductions based upon the reasonable transferability of findings to similar contexts and cases, helping to explore relationships and develop theories (Flyvberg, 2004). The research design is illuminated with a developed theoretical research framework to guide the study, the case study research strategy is justified and the multiple qualitative methods identified to carry it out. Therefore this thesis now turns to discussing methods of investigation, relating theory to practice and explaining how the research was accomplished.

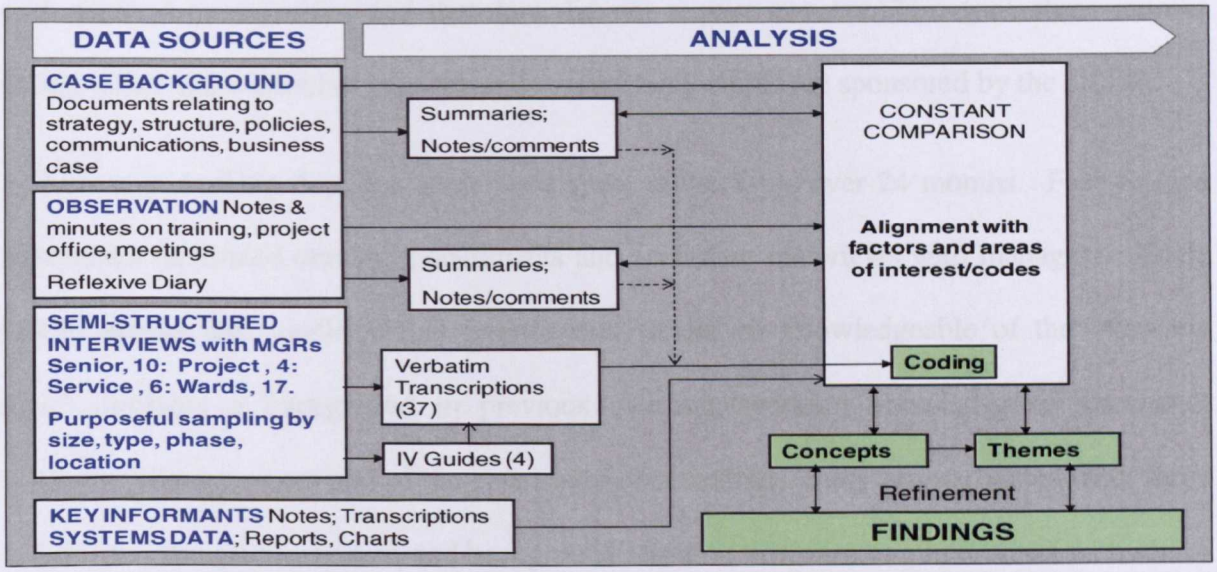
4.4 DATA COLLECTION

4.4.1 INTRODUCTION

Previous research showed E-Rostering technology adoption, though of strategic importance to the NHS has barely been academically studied (Silvestro and Silvestro, 2008; HFMA, 2007). Therefore this E-Rostering adoption is a critical case and likely to have generalisability (Flyvbjerg, 2004). The NHS Trust under study was selected because its E-Rostering implementation was contemporary and of sufficient scale to present variation in ward types, WMs and contexts, to support purposeful sampling and validity for findings. The main data sources were strategy, planning and project documents; verbal accounts of functional and line senior and middle managers and WMs from interviews; discussions with informants; meetings; observation of training and project management; information from the supplier about software capabilities and advice given the Trust.

Figure 4.3 below outlines the sources and types of data, how it was handled and analysed.

Figure 4.3 Overview of Data Sources and Analysis Processes

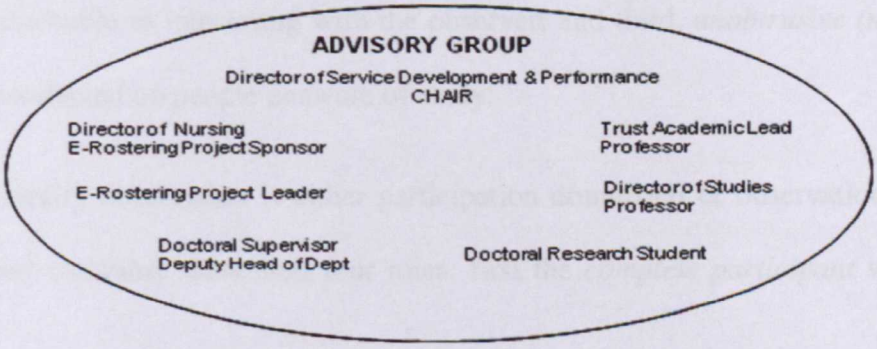


The succeeding sections discuss governance and the ethical approach to the research and then the complementary multiple methods (Figure 4.3) augmenting the case study strategy. Each section links to theory and explains methods in practice; observation; the use of interviews; sampling subjects; and then limitations of the study and data quality and reflexivity.

4.4.2 GOVERNANCE

An advisory group including University and Trust academics and Trust senior managers was set up on the initiative of the researcher and his supervisors. A terms of reference was drafted by the researcher, agreed at the first meeting and is given in Appendix Three. The Advisory Group composition is shown in 4.4 below.

Figure 4.4 Advisory Group Members



The Advisory Group requested submission of the research proposal to the NHS Regional Ethics Committee (REC) which decided the study was a "Service Evaluation", not concerned with medical interventions and therefore did not require consent. This took three months during which the researcher became an honorary NHS employee sponsored by the DSDP.

At least two working days per week were spent at the Trust over 24 months. Face to face acceptance facilitated obtaining documents and arranging interviews with managers. Kvale (2009) applies the condition that interviewers should be knowledgeable of the interview topic; implying a background in previous research, working knowledge of situational contexts of interviewees and of the case study organisation. Early access helped meet these conditions through observation and background research, scene-setting interviews with senior managers, developing relationships with informants and assimilating the Trust's own terms and language, which facilitated observation as discussed in the next section.

4.4.3 OBSERVATION IN THEORY

Observation has been characterized as "the fundamental base of all research methods" in the social and behavioural sciences (Adler and Adler, 1994, p.389).

> "Even studies that rely mainly on interviewing may employ observational methods to note body language and other gestural cues which may lend meaning to words of the interviewee" (Denzin and Lincoln, 2005, p.729).

Angrosino in Denzin and Lincoln (2005, p.732) goes further to note observation can be categorized in three main ways. First, *participant observation*, immersed in host communities and requiring rapport; second, *reactive observation* under controlled settings with people amenable to interacting with the observer; and third, *unobtrusive (non-reactive) observation* conducted on people unaware of study.

More simplistically observation is either participation dominated or observation dominated. Burgess (1984) combines these into four roles: first the *complete participant* who operates

covertly concealing intentions; second *participant-as-observer* who participates, forms relationships and observes overtly; third, *observer-participant* who maintains only superficial contact with subjects; and fourth the *complete observer* who stands back, listens and looks.

The observer's experiences and reflection become legitimate sources of data (Brewer, 2000: p.59). Membership roles were emphasized by Adler and Adler (1987) in contrast to conceptually pure observation, catalyzed by emergent views that pure observation was impossible in practice and ethically questionable over informed consent (Denzin and Lincoln, 2005). Non-participant observation, the researcher's intention in this study, may be difficult when subjects attribute the researcher status and roles, affecting responses.

Furthermore the role of the observer does not on its own define or limit the observation procedures, which according to Angrosino in Denzin and Lincoln (2005, p.732) involve procedures at three levels of increasing specificity: first, *descriptive observation*, neutral recording of detailed descriptions; second, *focused observation*, looking at pertinent material within well-defined activity categories; and third, s*elective observation*, focusing on specific forms of general categories. Valid evidence reflexively obtained requires combining concepts of observational role and observational specificity in practice as discussed next.

4.4.4 OBSERVATION IN PRACTICE

Researcher competence in observation, or failure to develop it, has implications for data reliability and validity. If the observer has to:

> "...rely exclusively on his or her own perceptions. They are therefore more susceptible to bias from their interpretations of situations" (Adler and Adler. 1998, p.87).

The event observed may proceed differently because it is being observed. The degree of reflexivity to detect this may not be achieved if the researcher is adapting to context.

Informants at all levels afforded the researcher feedback and cross referencing for observations and early findings. They acted as prisms refracting different perceptions and crystalisations of shared realities (Richardson and St Pierre, 2005).

The four categories of role (Burgess, 1984, after Gold, 1958) and the three levels of specificity (Angrosino, 2005) can be integrated to create matrix cells (see Figure 4.5 below) which show actual observations made in this study.

Figure 4.5 Observational Activities in this Study – Role and Specificity

Role of Observer (Burgess, 1984)	**Level of Specificity (Angrosino, 2005)**		
	Descriptive Observation - neutral recording of descriptions of all details	**Focused Observation** - only looks at material considered to be pertinent	**Selective Observation** - more specific form of a more general category
Complete Participant operates covertly concealing intentions	No activities	No activities	No activities
Participant-as-Observer participates and forms relationships and observes overtly	Collection of Trust Documentation & Data • Business case • Policies • Archived Reports • Archived Minutes • Staff and Patient Surveys • Performance • Intranet content • Mgt Info D/Bs • Informants	Nurse Rostering Board • Feedback on request to project lead and project manager after meetings • Discussion in shared office with team members Key Informants • Fortnightly meetings with DSDP	Key Informants • Occasional meetings with Project Lead – feedback and discussion • Ad hoc or informal encounters Workshops Edited paper by PM on transition post implementation
Observer Participant only superficial contact with people under observation		Interviews of Managers Access to E-R system reports suite	Interviews of Selected Managers Reviews of E-R system reports with PT
Complete Observer stands back, listens to and looks at proceedings	• Trust sites and buildings • Ward environments • Staff appearance	Nurse Rostering Board • Attending meetings • Hearing progress reports and plans Being there in shared project office, able to see and hear happenings on the E-Rostering project	Roles of NRB team members • Chairman • project manager Training Observation • Ward Managers and Deputies • Trainers in action

The table in Figure 4.5 shows how observations contributed to the case study data collection in distinguishable ways. Similarly collection of documentary and system data involves alerting observations which lead to inquiry. Divisions between theoretically separate forms

of observation were often overlapping in practice, so the researcher remained reflexive in observational roles and behaved to minimize influence on subjects.

Reflexivity may have several levels of adaption which the researcher needs to think about (Markham, 2006). "The conscience of the individual researcher plays a very large part in determining the morality of a given interaction", says Angrosino in Denzin and Lincoln (2005 p. 738), giving researchers obligations to support social justice and apply moral principles particularly when collecting data.

The main data collection method in this case study is qualitative interviews. The next section considers theories behind this approach, justifies its choice, and explains the rational sampling of interview candidates, then discusses how semi-structured interviews were carried out, acquiring consent and organizing data collection.

4.4.5 INTERVIEWS: THEORY, SAMPLING AND PRACTICE

4.4.5.1 QUALITATIVE INTERVIEWS: THEORY

Two main interview approaches are polarized in general theory as structured and unstructured. Structured interviews rely upon closed questions under controlled enquiry and limit answers to only questions posed by the researcher (Denzin, 1970). Interviewees' contributions are collected through filters applied by the investigator (Mischler, 1986).

In contrast unstructured interviews collect interviewees' words relating to open questions or other matters interviewees find important. The phenomena described arise from the consciousness of the interviewee about his life world (Kvale and Brinkmann, 2009). Questions are predominantly open with a focus on "specific situations and action sequences in the world of the interviewee" (Kvale, 1983, P176).

> The interviewee is seen as a participant in the research actively shaping the course of the interview rather than passively responding to the interviewer's pre-set questions" (King, 2004, P11).

During open interviews responses may drift away from the researcher's aims. However a modified open approach, using prepared interview guides reflecting research questions and the theoretical research framework, can be an efficient research method (Merton et al., 1990). Familiarity with the respondents' world assists a semi-structured and focused technique where questions are in words respondents understand.

Interviews captured responses of interviewees in their own words, explaining their own and others behaviours as they made sense of E-Rostering changes and how to respond to them (Wong and Weiner, 1981). Data from interviews was cross-compared, checked with observations, documents, system reports and the researcher's reflexive diary. This triangulation is "a process of using multiple perceptions to clarify meaning, verifying the repeatability of an observation or interpretation" (Denzin & Lincoln, 2005, p454). Data collected in this way has meaning and depth because the "interview seeks qualitative knowledge as expressed in normal language; it does not aim at quantification" (Kvale, 2009, p11). Who should be interviewed is directed by the sampling strategy, discussed next.

4.4.5.2 SAMPLING STRATEGY

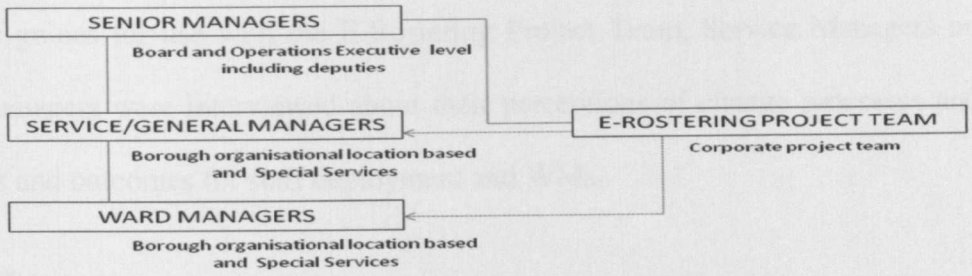
The objective of the interviewee sampling strategy was to acquire data with sufficient reliability and validity to meet the research aim.

> "Reliability refers to the trustworthiness of observations or data; validity refers to the trustworthiness of interpretations or conclusions" (Stiles, 1993, p.601).

Sampling purposefully finds enough candidates to cover potential variations in responses and finds candidates for interview who are theoretically useful and not random, assisting the collection of data "likely to replicate or extend the emergent theory", here the theoretical research framework (Huberman and Miles, 2002). Figure 4.6 below shows the four

managerial groups examined in this study: senior managers, the E-Rostering project team, service managers, the WMs and how they relate.

Figure 4.6 Trust Line Management Overview



The following paragraphs explain the sampling strategy for each group.

Senior Managers

The functional departments with a direct interest in E-Rostering were approached: Service Development; Directorate of Nursing; Human Relations; Finance; Service Directors; Information Technology; Training, and Quality Assurance. Ten senior executives at this level were interviewed first. Previous research showed three or four key senior managers' responses as sufficient to define organisational culture type (Gerowitz et al., 1996; Gerowitz, 1998). The purposes of senior manager interviews were to collect case background material; investigate views of culture; establish strategic motivations and expectations for E-Rostering; and see how perceptions varied.

E-Rostering Project Team

E-Rostering Project Team members were interviewed next. These four people reported to the DSDP and were responsible for software implementation with accompanying policy and practice changes, training WMs and service managers. This team was the prime agent in constructing and executing the change management process (Box 2 in Figure 4.1).

The E-Rostering Project Team comprised of the Project Leader (contemporarily In-Patient Lead in the Service Development Department); the Project Stage Manager responsible for project administration and NRB secretary; and two senior trainers, a seconded Deputy WM

and Trust Bed Manager. All except the Project Stage Manager were nursing professionals. All four were members of the NRB although trainers rarely attended.

Interviewing senior managers and observation of WMs' training helped the researcher refine interview guides for use with the E-Rostering Project Team, Service Managers and WMs. Senior managers were interviewed about their perceptions of change processes and impact, responses and outcomes for staff deployment and WMs.

Service Managers

Service managers each supervise about six WMs' and are the highest level of E-Rostering users. Implementation was to introduce their approving rosters and using system reports. They were trained last and therefore interviewed after WMs. Perceptions of how and why their WMs responded to E-Rostering were sought. Interview selection criteria reflected geographical divisions and reporting lines, generating six interviews at this level.

Ward Managers

Informants indicated larger, busier, high occupancy, "24/7" shift patterns, and acute service wards would be most impacted by E-Rostering. Other variables were medical type, number of beds, bed usage, phase in the E-Rostering roll out and borough served. Small units and day wards were not included because their simple staffing deployments require little rostering effort (Silvestro and Silvestro, 2008).

The Trust had settled at 50 wards of all types before data collection finished. Of these 19 clearly met the purposeful selection criteria for candidates whilst 31 were too small or not working shifts. Four WMs were missed through maternity leave, promotion, ward closure and long term sickness. Therefore 15 WMs of the target 19 (c80%) were interviewed, two twice on a before and after E-Rostering basis as phasing enabled this. These 15 WMs managed 416 nursing staff, roughly half the Trust's nursing establishment. This high

acquisition of target candidates supported the recommendation of Eisenhardt (1989) implying theoretical saturation would be reached.

WMs were interviewed after the E-Rostering Project Team. Three WMs brought their deputy to the interview without alerting the researcher, explaining this helpful for technical questions. The researcher did not object, used the prepared interview guides and directed questions at the WMs, whose responses seemed uninhibited. Deputies rarely spoke.

The applied criteria for sampling for the WMs are shown in Appendix Four which also covers related service managers. The researcher found sufficient consistency of answers within each of the four managerial groups to suggest sampling effective "to the point of redundancy" (Lincoln and Guba, 1985, p. 204).

4.4.5.3 QUALITATIVE INTERVIEWS IN PRACTICE

Interview guides

Interview guides were designed to elicit appropriate data from interviewee types to meet research aims (Berg, 2001). The guides carefully relate interview open questions to themes and factors (Boxes 1-4) in the theoretical framework. This guide structure facilitated later comparison and interpretation of data to organize findings and answer the research questions. Four targeted interview guides helped consistent investigations across the four managerial groups and are presented in Appendix Five.

The researcher sometimes formulated the implicit heard message and recycled it for clarification of interviewee's perceptions. This recycling of dialogue within an interview is a necessary process, helping to focus on reliable information and testimonial validity, but needs reflection in practice to avoid leading interviewees (Kvale, 2009).

Feedback from subjects was sought about the relevance of the questions to their world, contributing to testimonial validity. This and early findings lead to refined interview guides

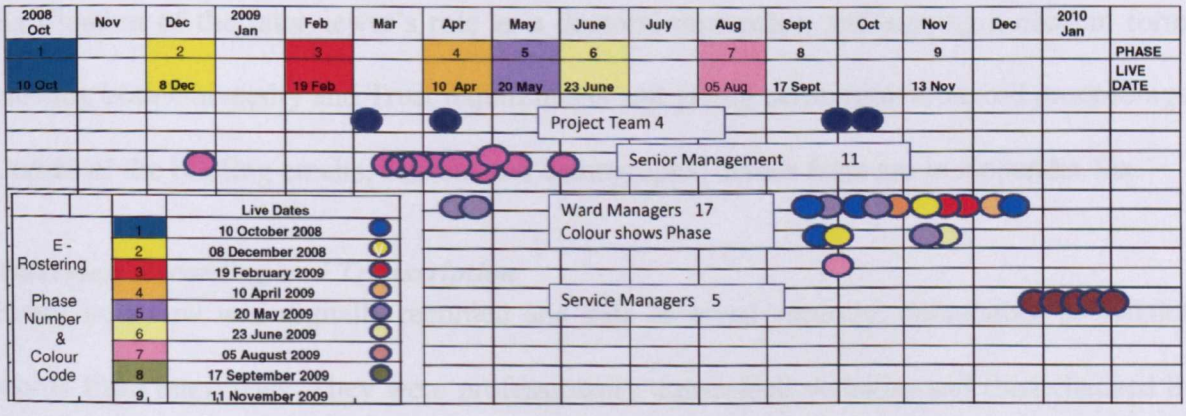
using terminologies from in vivo responses to focus upon factors in the research framework. Such learning helps add phronesis, practical context-dependent deliberation about values, to the researcher's skill set, an intellectual virtue noted as beneficial in qualitative research and augmenting reflexivity and insight (Flyvbjerg, 2001; Cassell, 2009).

The researcher met regularly with informants to investigate reliability of descriptions and language, validity of interpretations and to make explicit checks on matters of fact, operational policies or their denial. This triangulation was instrumental in judging and maintaining the efficiency of interview guides and collecting reliable data.

Interview timings

Interviews took place from March 2009 to January 2010 whilst the E-Rostering nine implementation phases ran at equal intervals spanning October 2008 to November 2009. Respondents were told interview time was not limited. They were free to answer as they saw fit and bring up their own points. Probes were used seeking clarity and questions moved on when answers seemed saturated. Interviews lasted about 1.25 hours without limitations. Figure 4.7 shows interview timings and E-Rostering roll out schedules.

Figure 4.7 Timings of 37 Interviews and Phase Implementation Dates



Phase timings allowed two WMs to be interviewed before training. These "before" interviews employed a modified interview guide and these ward managers were interviewed again after implementation.

Arranging Interviews

Candidates' identities were confidential to the researcher. They were sent individual briefing e-mails, an abstract and the researcher's CV. Senior managers were cooperative, but obtaining appointments got progressively more difficult at lower management levels.

Most WMs were not diligent in opening emails or replying, independent of source. Some had inboxes at storage capacity limits, meaning all new emails were rejected. Observation showed a culture where WMs treated email as optional. Even the Director of Nursing said she could not get replies from wards. Therefore the researcher telephoned persistently until personal contact was made, explained the research and invited candidates to interview. This approach was appreciated and appointments were then made to fit duty patterns.

All 37 interviews were conducted privately in convenient locations during interviewee working hours. "As the first few minutes of an interview are decisive" (see Kvale and Brinkmann, 2009, p128) each interview was preceded by discussion of the research abstract; clarification of the interviewer's role as a doctoral researcher; and signing a consent form, meeting both University and Trust requirements and giving permission to record proceedings. Copies of the briefing emails, consent and demographic details form are in Appendix Six.

Interview Recording and Transcription

Every interview was digitally recorded and data archived securely, cumulating in 370,000 words from interviews. They were professionally transcribed verbatim and then checked by the researcher whilst listening to original recordings to ensure reliable data.

Each interview recording and transcription was augmented by observational notes on candidate demeanor and venue for later reference in analysis and reflection as advised by previous research (Holstein, 1993: Gubrium and Holstein, 1994).

4.5 RELIABILITY AND VALIDITY

4.5.1 DATA RELIABILITY

The reliability of qualitative data is its procedural trustworthiness; that the researcher conveys what the reader would have observed in his place. WMs are working with localized autonomy, influencing their own contexts. Therefore asking them and other impacted managerial groups how WMs were affected "using situated assisted enquiry" provides cross referencing (Holstein and Gubrium, 1995, p29). This aids empirical validity and adds richness to data as phenomena are seen through different eyes (Denzin and Lincoln, 2005).

Marcus and Fisher (1986) advise focusing on voices of respondents. This data has intrinsic validity because it is composed of the subjects' words. Interviews are ideal for this and the primary method of data collection here (Kvale, 2009). Qualitative interviews become more effective when guided by prepared questions (Kvale and Brinkman, 2009). The interview guide gives reliability to semi-structured interviews when tailored by categories of respondent, four management groups in this study (King, 2004). Data reliability was also aided by careful interview opening and closure, consistent questions, non-intrusive recording, and professional transcription (Kvale and Brinkman, 2009).

4.5.2 GOOD PRACTICES EMPLOYED TO AID VALIDITY OF DATA

In qualitative studies the researcher is the instrument so validity depends upon her rigour and competence (Patton, 1990). This researcher was reflexive, conscious of strengths and shortcomings, cognizant of presuppositions and kept a reflexive research diary for later reference in analysis. Validity of qualitative data means the trustworthiness of interpretations

made from information collected to answer research questions. Stiles (1993, p602/6) suggests good practices, summarized in Figure 4.8, with this researcher's modes of compliance noted.

Figure 4.8 Good Practices to Aid Validity of Data and Researcher's Compliance

Good Practice (Stiles,1993)	**Researcher's mode of compliance**
Disclosure of orientation	The researcher disclosed his background to the Trust and all interviewees before interviews took place.
Explication of social and cultural context	Culture investigation was part of the research but the researcher was conscious of his own perspectives and has reflected on these to understand any easement of interpretation.
Description of internal processes of investigation	The researcher could be surprised or affected by his findings and change his impressions; whenever this happened it was noted in his reflexive research diary for evidence.
Engagement with the material	Over engagement can lead to distortions so the researcher kept reflective watch, has used disclosure to inform readers and sought to understand the interviewee's perspective in depth.
Iteration: cycling between interpretation and observation	The methodology relied upon a commitment to iteration and constant comparison, a cyclical route to integrity and quality.
Grounding of interpretations	Feedback and discussion with informants and an executive workshop to discuss interim findings helped ground interpretations. Analysis of data whilst interviews continued showed confirmability in the findings and interpretation of the information collected.
Ask "what", not "why	The interview questions were designed to explore the participants' views without insisting they be explained. This led to interview questions which could be answered and did not substitute participants' explanations for those the researcher should devise.

Portrayals of social realities simultaneously describe and constitute the realities (Garfinkel, 1967). "Striving for sensitivity about one's prejudices, one's subjectivity, involves a reflexive objectivity" (Kvale and Brinkmann, 2009, p.242). Reflexivity was an integral part of the ethical approach the researcher wished to demonstrate in practice (see section 4.6) and to help the validity of interpretations, further discussed next.

4.5.3 ACTIONS TO HELP VALIDITY OF INTERPRETATIONS

In qualitative research the epistemological shift, from the truth of statements or data to understanding by people, entails an appropriate selection of qualitative validity criteria to support trustworthiness of interpretations. An overarching contribution to validity comes from triangulation (Lather, 1986a). This means seeking information from multiple sources

and cross referencing (Stake, 2005). This research's case study strategy, multiple methods and seeking different managerial group's perceptions support this approach.

Previous research yields another six forms of relevant validity, which divide into two types of impact upon validity: first the *simple fit or agreement with preconceptions* including coherence, testimonial validity and consensus or replication; second is *change or growth in understanding* including uncovering or self-evidence, catalytic validity and reflexive validity (Stiles, 1993).

The impact of these two types of validity is upon three loci: first on *readers* of the interpretations; second on *participants in the research*; and third on *researchers and theories.* Figure 4.9 overleaf, constructed by the author, positions the six forms of validity against the three loci and two types of impact, populating cells with validity names and definitions. In each validity cell the researcher's actions in attending to each during this study have been noted. This matrix may be a contribution to and of use in future research.

Data reliability and validity are returned to in Chapter 6.5 which discusses the limitations and boundaries of this study more broadly and in practice

The case study is well matched to research questions which demand detailed comprehension of social or organisational processes because of rich data gathered in context (Hartley, 2006). Such comprehension is assisted by reflection and the researcher understanding where data, interpretations and apparent insight risked influence by his own biases and experiences. Reflexivity must be a thinking and actioned theme consciously applied throughout the study. The next section discusses these aspects of reflexivity from theory and then through the lens of this researcher's practice.

Figure 4.9 Validity Supporting Interpretations in This Study: Locus of Impact; Definitions; Actions Taken By Researcher

Locus of impact of validity (Stiles, 1993)	**Validity with this type of impact: Fit or agreement (Stiles, 1993)**	**Validity Definition** *Researcher's Actions*	**Validity with this type of impact: Change or growth (Stiles, 1993)**	**Validity Definition** *Researcher's Actions*
Readers of thesis	**Coherence**	Refers to the quality of the interpretations. Ability of story to engage readers (Spence, 1982). Resonance of findings with researcher's theory and belief system. ***Researcher set out to write thesis in a readable style and to structure the whole story around the final theoretical research framework.***	**Uncovering; self-evidence**	A solution for concerns that lead to reading the account in the first place. It feels right to the reader as well as the researcher and yields action (Rosenwald, 1988). ***The thesis is part of a professional doctorate written to meet academic guidelines and to appeal to business managers and consultants. It is intended to have coherence from both perspectives.***
Participants in study	**Testimonial validity**	The accuracy of interpretation is supported by those whose experience it purports to represent (Stiles, 1993). ***Researcher used playback in interviews of words and subject's thoughts to check interpretations.***	**Catalytic validity**	The degree to which the research process reorients focuses and energizes participants (Guba and Lincoln, 1989; Lather, 1986a, 1986b). A catalytically valid interpretation produces growth or change in participants. ***The interviewees at all levels said the discussions had caused them to think about their roles and experiences in new ways and they saw that as beneficial.***
Researcher and theory	**Consensus; replication**	Other investigators and peers familiar with the raw data find proposed interpretations convincing (Guba and Lincoln, 1989; Potter and Wetherell, 1987). ***Findings and interpretations were shared with informants and supervisors. As a result interview guides and some findings were adjusted.***	**Reflexive validity**	This refers to how theory or the researcher's way of thinking is changed by the data. Interpretation is in dialectical relationship with observation. This requires ceaseless confrontation with daily lived experiences (Lather, 1986). ***The researcher engaged in constant comparison across data and interpretations and this changed the relativity of factors.***

4.6 ASPECTS OF REFLEXIVITY

4.6.1 Introduction

Reflexivity at various levels is an important and distinctive feature of qualitative research (Banister et al., 1994; Symon, 2004; Alvesson and Skoldberg, 2009) and an integral part of the sound ethical approach this researcher wished to practice. Discussions are drawn together in this section examining aspects from previous research, the author's reflexive behaviour throughout the research processes to show consistency in practice. Section 4.6.3 is written in the first person because there the author is reflecting about himself and his practices.

4.6.2 Exploration of reflexivity in previous research

Portrayals of social realities simultaneously describe and constitute the realities (Garfinkel, 1997). "Striving for sensitivity about one's prejudices, one's subjectivity, involves a reflexive objectivity" (Kvale and Brinkmann, 2009, p.242). Qualitative research is distinguished through reflexivity by the researcher throughout the whole study and at various levels (Banister et al., 1994; Symon, 2004; Alvesson and Skoldberg, 2009).

In this study functional reflexivity was shown in methods' sections above (4.2; 4.3; 4.4; 4.5) when recognizing how pre-understandings may influence findings (Banister et al., 1994). Section 4.3 also considered the assumptions of the research perspective used, demonstrated epistemological reflexivity and recognized certain skills in the researcher that facilitate an effective case study research strategy (Stake, 2005; Yin, 2009). In a complex case study parts may not easily be interpretable without a conception of the whole and vice versa. Therefore hermeneutics is an important form of reflection (Alvesson and Skoldberg, 2009). Thus it was this researcher's intention to think and behave reflexively throughout the study (Azjen, 1985, 1991) and to pay attention to how one thinks about thinking (Maranhao, 1991).

Reflexive research defined by Alvesson and Skoldberg (2009, P9) has "two basic characteristics: careful interpretation and reflection". Careful interpretation of empirical data is to the forefront during all research methodological stages with analysis particularly underpinned by iteration and reflexive thinking. Reflection turns attention inwards to the holistic researcher and his experience, placed in the research context. Reflection for empirical research can be defined as the *interpretation of interpretation* and includes a critical self-exploration of one's own interpretations of empirical material (Alvesson and Skoldberg, 2009). A ceaseless confrontation with daily lived experiences is required (Lather, 1986b). This contributes strongly to reflexive validity (see Figure 4.9 for my actions) and adds temporal dimensions to interpretations through time-stamps in the researcher's diary.

4.6.3. Reflexivity and the Research Process

4.6.3.1 The Researcher

In Chapter One, I noted my engineering, industrial general management, software development, IT Director and management consultancy backgrounds. Reflection, feedback and triangulation were regular features of interpersonal contact in my business activities. Over decades I have interpreted words and behaviour and learnt second impressions, which reflect upon the validity of the first, improve quality in sense making. Consciousness of the stages of socialisation: anticipation; encounter; adjustment; and stabilization, helps recognize how these affect communications and interpretations between people and groups (see Ashforth et al., 2007, Table 1.1).

Miller (1997) noted that the interviewer's ability to give an honoured account of his role may affect the type of account given by respondents. I gave interviewees an abstract and my CV by email before meeting up and explained the research aim and my role when making appointments by telephone. We spent the first ten minutes of interviews socialising before we went through consent processes emphasising confidentiality and my ethical commitments.

Senior managers were interviewed in their own offices, thus advertising participation and status, but also their hospitality, acceptance of me and my research. Other interviews took place in private rooms chosen by participants.

I embedded myself early in the Trust to acquire the lingua franca, ease the flow of data and to develop an understanding of cultures and contexts. I could sense from my background that E-Rostering implementation may not be an exemplar project and WMs may have issues. This reflection made me careful not to suggest problems, anticipate negative responses or respond to "what do you think?" entreaties from interviewees.

4.6.3.2 Documents collection

In securing and then interpreting documents I always reflected on their context and purpose and the motives of those releasing them to me. Most documents were communications from those with power to those with less and sometimes evidenced organisational politics. Some had restricted circulation because executive writers were worried about reactions "if they fell into ward managers' hands".

My activities were not restricted. To the senior management I was not a threat, perhaps was a potential insider, or at least trusted to observe the confidentiality and ethics in the terms of consent. Nevertheless I was concerned interviewees should not see me as a management spy and made sure my research aim and practice was explained to their satisfaction.

4.6.3.3 Systems Access

On request I was given full access to E-Rostering systems and databases. I routinely looked at WMs' uses of the system and E-Rostering performances of wards before interviews and again afterwards to triangulate statements and opinions. I did not disclose my foreknowledge or system's access. Many trained WMs seemed unaware of the comprehensive information within the system. When the system's data showed WMs were inaccurate, ignorant or misleading, I had the opportunity to reflect on their potential motives.

4.6.3.4 Observation

Theories of observation and my practice were discussed in section 4.4 but it should be highlighted that reflection is also a form of observation. I recognized the paradox that to assure non-participation, despite an overt presence, requires you look through your own lens at your own lens and reflect upon whether you are intervening. To help ensure reliable data such reflection needs to be contemporary with the act of observation. Therefore I made the effort to reflect whilst observing and kept notes for later reconsideration and analysis.

As researcher and observer I also was being observed and what is more, by *skilled mental health professionals.* I noticed verbal mirroring on many occasions, empathetic body language by interviewees, provocative responses and signals that were repeated when ignored. It was therefore important to be consciously reflexive, not lose sight of interview guide and not encourage gaming dialogue, perhaps intended by some participants.

4.6.3.5 Interviews

The importance of interviewer reflexivity and potential impact upon interview processes was highlighted by King (2004). Joint construction in interviews was emphasized by others (Oakley 1981; Mishler 1986; Jorgenson 1991; Kvale 2009).

I realized that the process became dialogue and interview situations were as much constructed by the *skilled mental health professionals* as me and my interview guides. The professionals replayed questions to test an emphasis or seek a clarifying prompt. They told stories and used metaphors and closely examined my reactions to their words. They re-interpreted questions postulating reflection. "I wonder why you asked me that?" they would say and then introduce answers to their own question, replacing my research interest with priorities of their own. They brought emotion and attitudes into their answers and consciously observed my reactions to their behaviour and adjusted accordingly. I noticed that if seen

supporting an emotion, then they offered more of it and if I was neutral they moved towards rationale. These reflections were again visible in the transcripts during analysis.

The literature emphasizes the need for reflexivity on the part of the researcher but does not heavily consider the potential of interviewees for contemporary reflection within the process and the need to notice and interpret it. I sensed the interviewees were exercising a professional norm, behaving well, even generously, in seeking clarification and exploring though reflexive dialogue. They wanted to talk and were comfortable doing so, supporting the semi-structured interview approach, the open questions used and showing trust in my ethics. They made polite attempts to have me declare personal views but I declined and reminded them that their words are important research data.

At the conclusion of interviews I asked interviewees if they had anything else to say and whether discussions had covered key areas. In varying words they expressed similar reflections: the interview had been a rare opportunity to talk and think freely about their own work situations; they enjoyed it; it had been refreshing to take part and they were catalyzed to reflect further. This feedback endorsed the semi-structured interview style and validated the interview guides.

4.6.3.6 Workshop

In a feedback workshop with senior managers, participants persistently guessed which FLM had spoken what quotation, disregarding any interpretations. When I politely refused confirmation I was not pressed, but light-hearted guessing continued. I could see this was a shared dissembling tactic, possibly to avoid some uncomfortable findings. As the senior managers' many guesses on names were *all* incorrect, this behaviour evidenced they were distant from their staffs' perceptions of E-Rostering.

4.6.3.7 Informants

I had fortnightly reflexive meetings with the Director of Service and Performance (DSDP). These were used to triangulate findings and test interpretations particularly about culture and context. I was also resident for long periods in the Project Team open office where I could discuss anything, hear them and reflect. This helped me understand the Trust had many things beyond E-Rostering to deal with and senior management attention was waning. It emerged in these discussions, despite finger pointing at their defensiveness, that on reflection, the informal autonomy of professional WMs was probably an important cultural strength.

4.6.4 Analysis and Reflexion

As reflexivity is important for hermeneutic analysis here I discuss my reflexive approach during analysis. There were key changes in my own understandings and feelings during the research process and a selection are reviewed here.

At work I was responsible for large organisational and technology change programmes and in this study found the literature both familiar and enlightening. My theoretical framework emerged feeling sound in both concepts and likely application. The collection of business case and strategic plans, combined with early senior management interviews, presented a rational and credible technology adoption. Therefore I anticipated interviewing FLMs about their responses to success. However I was dismayed to hear tales of incompetence, unfair treatment, a lack of inclusion and support, technology flaws and implementation failures.

Good practice in change management and technology, familiar to me and available to the Trust in accessible literature and experts was apparently being ignored. I was emotionally and professionally tempted to intervene and advise but did not. Intervention would move the study into action research, not the agreed approach, change the research aim mid-stream and raise ethical issues about consent.

Therefore in analysis when coding to themes and factors from previous research, I reflected continuously seeking cause and effect in the data related to theory and not falling into pragmatic diagnosis and cure, out of professional temptation. I looked for any signs in transcripts and my notes that I had shown emotion, disapproval or disclosed sympathy and possibly influenced perceptions and answers.

As analysis progressed through a large amount of rich data I realized that iteration was made more purposeful by reflection and that reflection itself becomes more valid when it is critical. An epiphany was that analysis of rich data must include triangulation of reflections across interpretations. If my thoughts cross reference, they probably have reflexive validity and constitute insight into my own biases.

My research behaviour changed following recognition, on reflection over early transcripts, that sometimes I made judgements of individuals and applied them to filter interpretations of their evidence, showing management behaviour with its power relationships. Academic research instead requires unbiased interpretation of reliable unfiltered data.

That amplification in self-awareness sensitized and changed my approach to interpretation and coding. An example may illustrate. During analysis system data contradicted a WM's assertion of her and her staffs' regular use of E-Rostering. She had not signed in for six months and her staff made few on-line duty requests. My first thoughts were that she was deceitful. On reflection seeking further information revealed she was wrestling with uncooperative staff. In her interview she was showing autonomy and protecting them, behaviour later emerging as a professional norm.

4.6.5 Summary

When writing about critical management studies Alvesson et al. (2009) warned researchers should avoid an individualistic inward-looking focus. Reflexivity was not naval gazing but best applied as being theoretically fussy but methodologically unfussy.

Multiple methods, a feature of this qualitative case study, are consistent with reflection. They afforded opportunities for many triangulations which increased reliability of data and for deliberate and critical reflection about my interpretations. Being reflexive is an integral part of the research methodology and was practiced at all stages. For me a conscious educational development was learning that analytical benefits and increased validity arise from diligent attention to reflection when interpreting perceptions and other qualitative data. I have learned the objective of reflexive thinking is to be ethical and being reflexive leads to good research in practice rather than approaching a saintly state of mind.

Earlier in this section Figure 4.7 was used to link the data sources of appropriate evidence to each other and to analytical processes. The next section discusses the analytical processes deployed to interpret the data and explain the responses of FLMs to the adoption of E-Rostering technology.

4.7 ANALYTICAL APPROACH

4.7.1 ANALYSIS

This section explains the analytical methods used within the overall case study work flow shown in Figure 4.10 below which also shows links to the thesis structure and generation of chapters. This work flow has the analytical objective of identifying themes and relationships and outlines the chain of evidence. The largest analytical component was processing the rich verbal information collected through the 37 semi-structured interviews.

The researcher employed analytical techniques linking text in transcriptions to themes and factors represented in the theoretical research framework which were used were used as provisional codes in analysis. Matrices were used to align themes and factors to answers with axial coding and to the management groups, processes refined by iteration (see Averill, 2002). The core of themes and factors from previous research was augmented by emergent factors, new codes and concepts as data collection and analysis progressed.

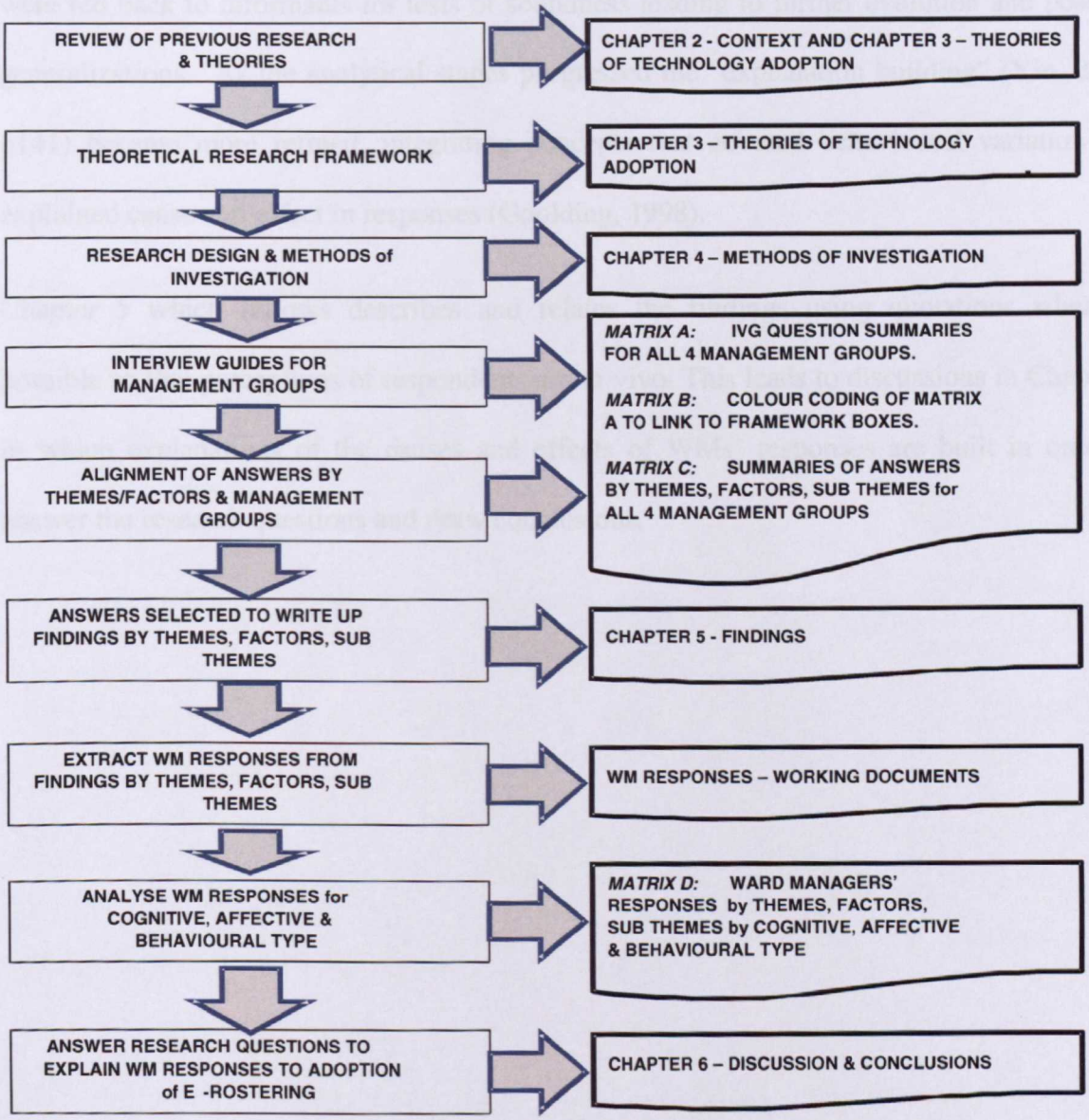
Data from case background material and observation notes were reviewed before and in parallel with analysis of interview transcripts. In this way the interview guides' reliability and validity were checked and data from interviews was triangulated with documentary evidence and observations and vice versa.

The analytical approach was progressive, with skills developing, technique improving and analysis refined as work continued. This was consistent with the case study method where explanations and discoveries of meanings of perceptions of respondents in context develop progressively (Yin, 2009).

Figure 4.10 overleaf portrays the continuous activities and iterations as well as representing the logical analytical framework and workflows. The four key matrices appear in the work flow in Figure 4.10. They are too large to include and therefore illustrative extracts in Appendix Seven indicate content and analytical utility. The analytical progress they facilitate is to link answers from interview questions back to the themes and factors behind those questions [Matrix A]; to align answers so linked back to the framework boxes and across the four management groups [Matrix B]; to allow extracts from answers to be aligned to themes, factors and sub themes and management groups to construct the findings in Chapter 5 [Matrix C]; to analyse answers linked to themes and factors to break them down into cognitive, affective and behavioural elements to help explain the responses of WMs to the adoption of

E-Rostering [Matrix D]. This last matrix was instrumental in assembly of the discussion and conclusions in Chapter 6.

Figure 4.10 Study Work Flow



4.7.2 EVOLUTION OF EXPLANATIONS

The use of matrices as described assisted with pattern detection and matching and explanation building; comparing empirical patterns with those indicated by the theoretical framework (Trochim, 1989; Averill, 2002). The literature says developed theory should be true to the data, parsimonious and only explain phenomena under study (Goulding, 1998). The analytical procedures moved from dense descriptions captured within interview

transcripts and categorization of actors' phenomenological worlds to propositional explanations of causes and effects (Cassell and Symon, 2004). This helped themes and factors emerge as persistent with relationships which were investigated further. Propositions were fed back to informants for tests of soundness leading to further evolution and possible generalizations. As the analytical stages progressed the "explanation building" (Yin, 2009, p141) became more refined, integrating concepts that covered behavioural variation and explained cause and effect in responses (Goulding, 1998).

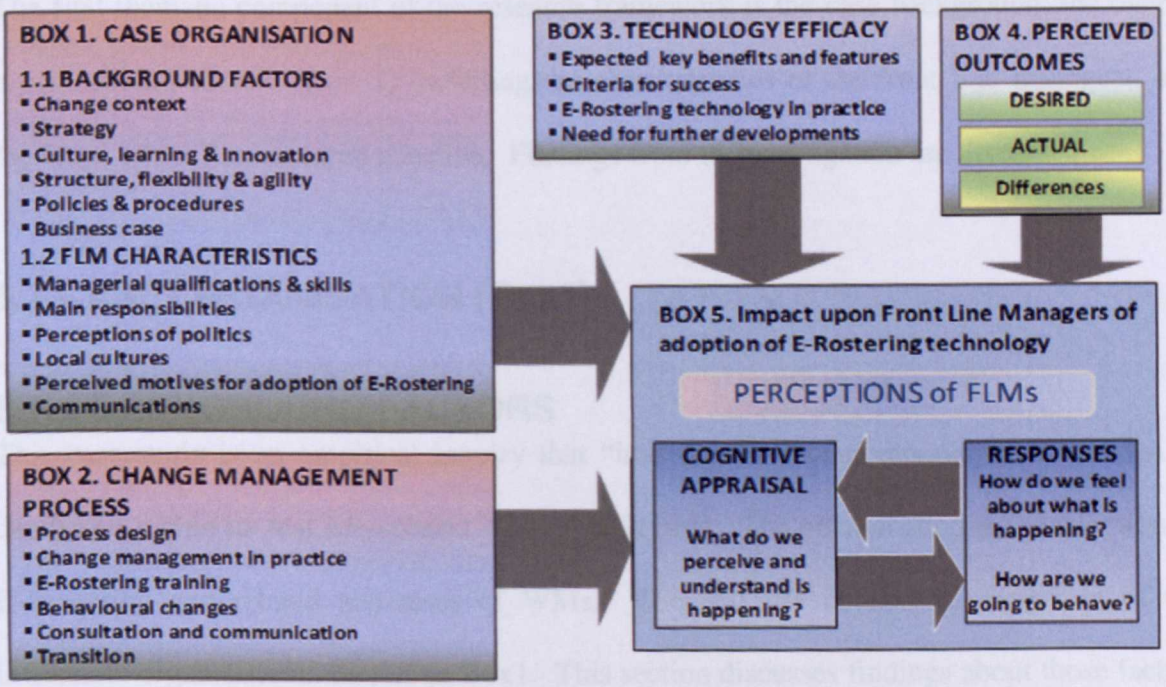
Chapter 5 which follows describes and relates the findings using quotations wherever possible so that perceptions of respondents are in vivo. This leads to discussions in Chapter 6 in which explanations of the causes and effects of WMs' responses are built in order to answer the research questions and draw conclusions.

CHAPTER FIVE: FINDINGS

5.0 INTRODUCTION

This chapter presents and discusses the research findings using the theoretical framework developed in Chapter 3 (see Figure 5.1) to structure the contents of the chapter and guide the reader by focusing upon data about salient factors in turn (Weiss and Cropanzano, 1999; Smollan, 2006: Rosen at al., 2009).

Figure 5.1: Theoretical Research Framework – Responses to E-Rostering Adoption



Each of the thematic components of the framework (Boxes 1 to 4) represents factors and context which may influence responses of WMs to the adoption of E-Rostering technology, with their responses represented conceptually by Box 5. The research questions are focussed upon factors in Box 1 and Box 2 because these are the most important research interests and so they have the largest presence in this chapter. Factors in other boxes (Box 3 and Box 4 in Figure 5.1) are discussed in so far as they have contingent influences on responses or moderate factors in Boxes 1 and 2.

The research aim of this case study is to explain the responses of FLMs in the selected mental health Trust to the implementation of E-Rostering technology and accompanying new policies and new practices. The research questions the study has investigated are:

RQ1: How do the characteristics of the case organisation influence what the ward managers think of E-Rostering and how they respond to its adoption?

RQ2: How do the change management processes and practice influence what the ward managers think of E-Rostering and how they respond to its adoption?

The first thematic component of the research framework is the case background, the overall organisational context (Box 1) including the characteristics of the front line managers, and the focus of the first research question. Findings from its investigation are discussed next.

5.1 CASE ORGANISATION (Box1)

5.1.1 BACKGROUND FACTORS

This case study is an empirical inquiry that "investigates a contemporary phenomenon in depth and within its real life context" (Yin, 2009, p18). The phenomenon is the adoption of E-Rostering and related responses of WMs. The real life context is comprised of the influential organisational factors in Box1. This section discusses findings about those factors to help to answer the first research question, focused upon their influences upon the responses of WMs to the adoption of E-Rostering. The following sections deal in turn with each organisational factor.

5.1.1.1 Organisational Change Context

An external audit in 2005 noted that 54% of Trust expenditure on temporary nursing staff was foreseeable because it related to annual and study leave. The 46% remainder was therefore attributable to issues arising from staff headcount levels and deployment practices.

The audit also noted "the majority of temporary staffing requests relate to weekend and night shifts, when it was most expensive, suggesting inadequate rostering of current staffing establishments" (Trust Business Case, 2008). Shifts worked exceeded permanent staff at full headcount levels by 7 per cent, evidence of over-hiring agency staff as loose routine.

Prior to E-Rostering adoption each ward used its own manual rostering and assessed needs for and then requested agency staff. Monitoring relied upon agency supplier reports which finance managers checked. Their primary interest was whether "financial balance" (Trust expenditure equals Trust budget) was threatened, rather than deployment of ward staff, permanent or agency. WMs were not averse to agency staff, regarded them as flexible and facilitating and some were long term.

The change context for the Trust had multiple external pressures to reduce agency reliance and costs and including the suggested adoption of electronic rostering (NHS Employers, 2007). These pressures are noted in the Trust's business case, an E-Rostering strategy set against the historical context of prior rostering practice which is discussed next.

5.1.1.2 Prior Rostering Practice

General manual rostering practice in the NHS before the use of E-Rostering was examined in Chapter 2.6 on context. However in this section specific findings about prior rostering practice in the selected Trust are discussed as contextual factors influencing WMs' responses.

5.1.1.2.1 Autonomous Local Rostering

Before E-Rostering each ward at the Trust prepared their own rosters in their own way. WMs signed off rosters usually drafted by deputies, but four out of fifteen interviewed WMs said they performed manual rostering themselves. Convention was to prepare a four week roster, offered to staff about two weeks before commencement. The manual roster was written on unique ward paper templates or a spreadsheet to facilitate printing and made available to all

staff. Changes agreed by the deputy or ward manager were annotated on the master roster. A key element of ward managers' autonomy and authority was control of staff rosters.

5.1.1.2.2 Idiosyncratic Paper Records

Another factor was the informality of record keeping processes. Staff requests for off duty time were written in a diary or entered following telephone calls, emails and hand written notes. "Everyone has got somewhere where they have written something" (WM8). Staff could see other people's requests and clashes, negotiate with colleagues or change their own plans and make grantable requests, confirmed by approval and inclusion in rosters. These informal processes amongst amenable ward staff reduced WMs work to resolve conflicts. Paper forms requesting training, study leave, annual leave cards and sickness notes were submitted for approval, filing and inclusion in manual rostering. When staff relationships were not amenable, in the words of one senior manager the ward was like an "abusive household" (SenM10). Local context affected WMs whilst idiosyncratic record keeping evidenced their autonomy.

5.1.1.2.3 Continuous Changes

Manual rosters were subject to continuous changes and annotations. No Trust policy limited staff requests. Therefore short term flexibility was accommodated by WMs, reinforcing local cultures. Incoming duty managers and staff looked at the roster folder to check deployments and absences. Roughly 25 per cent of shifts in studied wards were covered by agency staff whose names and duties had to be visible in the roster. Manual rosters were esoteric living documents, constantly amended, peculiar to each ward, the daily reference for staff and the basis for weekly manpower and payroll returns.

5.1.1.2.4 Manual Rostering Workload

Producing a four week roster for the selected wards took an expert about eight hours, excluding other duties or was sometimes done in a long evening at home to avoid interruptions. Running changes were annotated on the paper master roster by staff and duty

manager. The 15 WMs interviewed rostered roughly 420 staff in total, half the Trust's nursing resources, confirming they were a purposeful sample. The average number of ward staff to be scheduled was 28 including agency personnel.

5.1.1.2.5 A Craft Activity - Expertise

WMs perceived themselves as experts with years of experience in manual rostering, initially as charge nurses and then deputy WMs. They claimed professional understanding of balancing needs of patients with preferences of their staff. "...Charge nurses were quite good and on top of things...because they've done it for so long" (WM12). Manual rostering was a craft activity learned from ward colleagues. Rosters were scrutinized by senior management only during investigation into serious incidents, patient and staff safety or fraud.

Service managers had all done rostering earlier in their careers. They perceived effective manual rostering as:

> "It was an idiosyncratic issue" (SM5); "...The right skills mix and making sure that you don't end up in the papers" (SM1); "...The staff were happy, to a degree...ensuring that basically it meets the service needs as well as the staff needs, because if you don't do both then it's just, it's disaster" (SM4). Short term changes were the norm: "I couldn't sit down and say for one week that this roster, this manual roster is going to meet all my needs this week" (SM5).

The manual roster was mainly a theoretical construct for guidance, whilst the actual roster lived underneath it and was reconstructed through frequent alterations. Short term negotiated flexibility was the norm, lubricated by availability of agency staff. WMs assembled their manual rosters autonomously. E-Rostering potentially threatens both their autonomy and the value of their tacit rostering expertise.

The absence of standards and training for manual rostering allowed local rules, customs and behaviour and encouraged autonomous rostering. Historically each ward deployed within its own social culture, lead by the expert WM in a clinical context framed by numbers, skills, qualifications and experience of nursing staff.

5.1.1.2.6 E-Rostering Trainers Knowledge of Manual Rostering

Both E-Rostering trainers had strong backgrounds in manual rostering and pressures of staff deployment. They had empathy with WMs who afforded them credibility. The trainers described their manual rostering experiences as:

> "dealing with staff issues" (PT3) and perceived success as "when I was able to tell that everything has been balanced and a good roster has been created" (PT3) and "making sure that you know all the shifts were covered...that we had the right skills on duty...specific requirements like gender..." (PT2).

They said staff deployment was not calculated in monetary terms during manual rostering. Variances in monthly accounts might be queried later. The trainers approached E-Rostering with a full appreciation of the craft nature and long history of the local manual practice. They set out believing E-Rostering adoption would sweep away local idiosyncrasies with standardized rules whilst reducing the effort of rostering.

5.1.1.2.7 Summary of Rostering before E-Rostering

With 800 ward staff to deploy, rostering was a key professional skill, not monitored from above. Learning manual rostering was a valued rite of passage en route to ward manager. WMs had professional custody of manual rostering and their control of deployment was key to supervisory power and social influence.

Manual rostering effectiveness lay in accommodating short term changes, underpinning the WM's power and ward social and professional structures. It created a short term staff deployment plan, which became through alteration and annotation, acceptable to staff and was the duty-worked matter of record for the period. Sickness, holidays, training, qualifications, special skills and other inputs to rostering were held in separate manual records on each ward adding further localization.

E-Rostering adoption was launched into contexts of deep experience of manual rostering with varying internal craft and social traditions on each ward. E-Rostering implied devaluation of

legacy skill sets and threatened the WM's autonomy and local behavioural practices. Such perceptions predisposed defensive responses from WMs and their staff to E-Rostering, as did their views of the strategy for adopting E-Rostering, which the next section examines.

5.1.1.3 Organisational Strategy

The Trust responded to external audit and pressures with a centrally planned adoption of E-Rostering rather than an emergent change model (Hayes, 2002). Planned changes for large organisations are criticized as often overtaken by events (Bamford and Forrester, 2003). They rely too much upon line managers coping with uncertainty (Wilson, 1992; Dawson, 1994). Therefore the strategy of the Trust is important in the rationale for adoption of E-Rostering. Alignment of the four managerial groups with the strategy may factor into the WMs' responses.

5.1.1.3.1 Senior Management Alignment

Senior management aligned with the adoption of E-Rostering, a Board approved strategic innovation. "It is a good thing" said a senior Service Director, and "I am looking forward to it" (SeM8). However, only the executive sponsor (Director of Nursing, SeM10) and the Director of Service Development and Performance (SeM3) were directly involved.

5.1.1.3.2 Senior Management Control Ambitions

The refrain "finance, finance, finance" (SeM3) meaning cost control, summed up Trust strategy. However, senior managers thought financially driven agendas were unpopular, may create resistance from WMs (SeM8) and references to finance were avoided as headlines. The transmitted aims of E-Rostering were toned back to efficiency, fairness, transparency and safety without hard financial targets. Nevertheless, senior management believed untoward ways of shift working existed so a hidden control agenda steered E-Rostering, colloquially "the elimination of Spanish practices" (SeM10) in duty allocations on wards.

The Trust's "Nursing Strategy 2006-2008" booklet stated in "Improving Working Lives" that using a Nurse Rostering System would reduce unnecessary agency staff, help Trust staff plan their lives better, and improve work life balance. The NHS extolled technology for staff deployment, recommending "Tips for Implementing an E-Rostering System" (NHS Employers, 2007). However, the Trust was a follower, a late adopter with external stimuli leading to internal initiatives (Rogers, 1995). Nevertheless, the Trust chose E-Rostering through strategic thinking, but intended control (Truss, 2003).

5.1.1.3.3 Service Managers' Alignment with Strategy

The service managers (the WMs' line managers) expressed interest in on-line management information about leave, sickness, training and shifts. They had not seen the business case but dutifully rationalised E-Rostering strategic aims as meeting their perceptions of Trust needs, to save agency costs, manage wards consistently and control leave and sickness. However, they did not reference specific E-Rostering functionality, long published on the Trust intranet and by Department of Health and NHS Employers resources (NHS Employers, 2007).

The Trust strategy intended service managers should approve online provisional electronic rosters from their WMs before issue, a role development, to achieve better control of agency staff and improved utilisation of permanent staff. However, system reports and interviews confirmed that service managers were not second-approving E-Rosters. There were very few support requests from service managers back to the Project Team members, who perceived this as low engagement. The Project Team said the responses of the service managers were:

> "difficult to gauge as some did not come to training" (PT2); "others have been several times and are still hopeless" (PT1); "they find it a very good tool in terms of being able to collate information on performance" (PT3 on training feedback); "some are still a bit slow to approve the rosters they should be approving" (PT2,); "no sign of SMs approving anything" (PT1); "very, very few " approvals (PT3).

5.1.1.3.4 Project Team's Alignment

The Project Team's perceptions of the strategy for E-Rostering covered senior management aspirations which they communicated during training to WMs. The Project Leader helped author the business case but her team members had not seen it. They said they knew the reasons for the project from "talking around" (PT3). They said it was:

> " to save money, spread our staff out, for monitoring that competences are up to date, observing people movements, performance observation, monitoring for observation, showing where to improve" (PT2) and to "increase efficiency – making sure money invested in E-Roster will lead to right level of staff with right skills, properly rostered" (PT3).

The supplier trained the trainers in E-Rostering functionality including possible benefits and told the researcher they proposed those benefits during the tender process. The same benefits were used in the business case, thus setting up a closed loop of rhetoric.

5.1.1.3.5 Ward Managers' Alignment

Senior management motives for E-Rostering perceived by WMs were to save money and help WMs make sure the right nursing staff are in the right places at the right time. This received-view repeated the trainers' rhetoric, observed by the researcher. WMs had no quantified success criteria and were not setting any. The strategy was perceived by WMs as driven primarily by the internal financial and control objectives of the Trust. How the Trust business case reached and was perceived by interviewees is examined next.

5.1.1.3.6 Business Case for E-Rostering

The business case is a factor influencing responses because it is a means of obtaining buy-in and understanding the need for changes (Cameron and Green, 2004; Kotter, 1996). Four key documents detailed the objectives of the E-Rostering adoption project, summarising what the system can do and how implementation would be approached with phases and timescales. The first was the Full Business Case approved by the Trust Executive explaining the objectives, benefits and affordability of the proposal. The second was the Nurse Rostering Brief published after business case approval to familiarise senior managers with the nature

and benefits of E-Rostering. The third was the Project Initiation Document (see Bentley, 2003) published in August 2008 to the Nurse Rostering Board. This explained possible benefits and efficiency gains but not accountability for benefits delivery. The fourth key document was the intranet Nurse Rostering Information Sheet explaining "E Nurse Rostering – What can it do?"

The senior management knew there was a business case. However, circulation was limited in case it was contentious for lower level managers and staff. The researcher observed the Business Case reflected credible benefits announced in accessible NHS guides, NHS Employers publications, supplier publicity, and journals (NHS Employers, 2007). Nevertheless, opportunities for service and ward managers to influence strategy, supplier selection and implementation planning were limited.

Strategy is formed within and influenced by the Trust's culture so the next section looks at whether the Trust showed cultural elements that present changes as learning opportunities and influence how the adoption of E-Rostering was perceived.

5.1.1.4 Organisational Culture, Learning and Innovation

Organisational culture is the way we do things round here according to Handy (1985) and it has strong defences. Impacted individuals may favour local over broader culture and see it as more pertinent (Change Management Learning Centre, 2008). Therefore cultural perceptions may influence responses of those affected by E-Rostering. These perceptions, collected by semi-structured interviews and non-participant observation, are discussed next.

5.1.1.4.1 Top-Down Approach but Local Cultures

Mergers had produced a complex and geographically spread mental health Trust facing five sources of primary funding, deploying 2500 staff serving a million people of wide diversity. Senior managers described their culture as top down and internalised but said merged bodies

had not integrated behaviourally. Distinctive local cultures were sustained by physical distances, local histories and lack of interaction.

The distance of the senior managers from the front line was confirmed by their discovery of local practices. The DSDP (SenM3) was enthusiastic:

> "Everything was unexpected ... all the big things after Phase 1 ... we didn't expect any of this ... we found loads of things ...it has been about our preparation work rather than rostering, the processes, to ask the team leaders what they think their shifts are, what they should be rostering. Then we compare what they think to budget. Custom and practice has grown over time, the question is what is right?

He reflected E-Rostering was "Almost a side-effect, catalyst or the carrot" musing how discovery of the extent of local working practices had surprised him. SenM1 the senior training manager said "I couldn't even tell you what wards it is in ... I am completely outside [E-Rostering] from that point of view" showing his distance. Implementation was a voyage of discovery of local practice by trainers leading to negotiated agreements. The supplier's advice and from the NHS (see NHS Employers, 2007) was to identify these operational practices well in advance by audit and resolve well before E-Rostering adoption to ease implementation. The adoption had been a practice lens illuminating autonomous operations run by the WMs (Orlikowski, 2000).

The senior managers universally perceived that cultural change on wards was required to enable E-Rostering adoption. However, they acknowledged limited knowledge of local ward cultures, other than perceptions of indifference to Trust aspirations. Some wards are "difficult but we don't really know why" (SeM10).

The service managers refined "top down" culture into "trickle down" (SM1), perceiving senior management are distant, without a full grasp of ward working conditions. "They will not share plans with lower levels and do not care about ward conditions for staff" (SM5). An example of "trickle down" was the sudden request to service managers in one department

to take a 6 per cent cost reduction, labelled as a continuous improvement plan (CIP), commented upon as "a cut I am always expecting" (SM5). Service managers perceived wards as relatively autonomous, "free to get on with it" (SM1), but corporate culture was:

> "very bureaucratic" with intent to "narrow services to what commissioners will pay for" leading to the "lowest levels of staffing in the UK for in-patients, acknowledged by every health care commission in the last three years" (SM5).

The WMs said consistently Trust culture was top down; there was little communication even one way (downwards); managers appear from above when they hear of problems and who you know matters. Bureaucratic control evidenced perceptions of a powerful head office. There was no overarching Trust culture, rationalised as unlikely given many physical sites and different services. The manager of a large ward on a satellite site noted "We are not part of the mother ship" (WM8). The WM's imperative was "Fix things on your ward yourself as best you can" (WM9) meaning custodial autonomy. Inter ward manager communication was termed infrequent but some co-location and friendships (WM's 3, 6, 10) facilitated contact.

5.1.1.4.2 Human Resources: Desire for More Control

The senior HR manager saw E-Rostering congruent with her desire for more control of nursing staff and WMs:

> "We are wasting money on allowing people to earn all sorts of amounts to suit themselves. We don't have control. We've got people working excessive hours detrimental to patient care because they are doing 80 hours a week. That just isn't on. It's also to do with the management of sickness and leave" (SenM5).

She said people go off sick or take annual leave to avoid rostered duties. "We've got a lot of tails wagging dogs and it has to be the other way around". When asked about the ward managers' consistent denial of knowledge of budgets she said:

> "Yes, well they would" and then "We have ward managers, many of them don't manage full stop, a cultural thing with this organisation. We do have some people who are managers who actually don't like managing".

She offered further critical perceptions:

> "We could list 10 ward managers who are absolutely useless and who will not improve. This [E-Rostering] is a threat to some wards because effectively the managers collude with the staff over the current roster. It is going to create a lot of angst in nursing across the Trust" (SenM5).

Nevertheless, she said: "It stands or falls on the ward managers", identifying front line managers as key deliverers noted by previous research (Purcell and Hutchinson, 2007).

5.1.1.4.3 Nature of Control

The long serving SenM6 was clear the system would not be used as intended saying: "Well it won't be", suggesting reactionary forces outside managerial control.

The most senior HR manager distanced herself from the Trust's ward by ward local E-Rostering implementation saying:

> "I am used to a different model of control over nursing, which would be a central nursing office, so you have all the chess pieces and you can move them as fits best the organisation. That doesn't happen here and I actually don't see that it will...somewhere in the organisation we have to have over arching control and review mechanisms because what then can happen very easily is...we can all end up doing different things" (SenM5).

This insight from external prior experience portends what actually happened as WMs negotiated over local rules and then responsibility for E-rostering was transferred to them at implementation. She also advised "I think any rosters should be supervised, viewed, looked at, checked by somebody else".

5.1.1.4.4 Lack of Support Services

Service managers were disappointed about corporate services:

> "Support services [HR, IT, Finance] do not do terribly well" (SM3). Deception was implied, "There are temporary changes hiding permanent plans" (SM1); and the "Perception from the ground floor is that the Trust is not trying to be more open and inclusive of staff" (SM4).

The length of time to acknowledge vacancies and recruit was perceived slothful and bureaucratic at 18 weeks minimum excluding induction. Defensive legalistic recruitment was

blamed, not sensitive to competition for staff. The HR function's rigid view was Trust procedures were standard NHS and it was line managers who were slow.

Service managers resented cost accountability implied by their approval of E-rosters whilst they perceived corporate services' under performances contributed to long term staff shortages, forcing hire of agency staff.

5.1.1.4.5 Pressures on Senior Management Culture

Foundation trust ambitions were adding pressure and far-reaching construction redevelopments had been refused planning permission. There were frequent changes in senior incumbents with only one director surviving the research period. Senior managers felt under siege from the Department of Health, the Health Care Commission, the Care Quality Commission, NHS London, the local MP and the press. All interviewees perceived senior management on the back foot, distant, absorbed with their own problems and therefore relying upon local ward autonomy.

5.1.1.4.6 Senior Aspirations and Ideas Management

After a great deal of discussion, senior managers would come together to form decisions, support them or not oppose them. One senior manager summed this process up as "benign alignment" (SeM3) which supports champions or lead-takers but may not hold them accountable. The proposal to adopt E–Rostering had gone through this process.

The aspirational culture and benign alignment decision processes mean the organisation is open to ideas, described as a "field of flowers" (SeM3), with the caveat there was no harvesting mechanism. So the Trust supports the idea of change at all levels, a sign of an innovative culture (Marsick and Watkins, 2003) but lacks implementation skills and did not see itself an early adopter of innovation:

> "This Trust is usually quite late in getting things going actually, so I'm not surprised if it's been out there a while [E-Rostering] and we haven't done it. It's a bit of a dinosaur" (SM4).

The Project Team perceived the Trust operates top down and they:

> " ...have yet to witness any bottom up change ... innovation is zilch ... there is nobody to feed ideas to ... you have to know where to take it" (PT3).

The Trust had not used internal or external benchmarks to plan implementation or assess E-Rostering outcomes. SenM6 remarked "I think there is a tendency for this organisation not to look at other places". Management encouragement of innovation and change by self, signs of a learning organisation was more aspirational than effective (Walter and Lopez, 2008).

5.1.1.4.7 Perceived Lack of Resources

It was a consistent theme through all interviews and observations that Trust personnel perceive they always have too few resources. Extra resources are needed to drive changes which therefore struggle. This institutionalised belief justifies defensive responses when faced with innovative changes like E-Rostering (Robey et al., 2002).

5.1.1.4.8 Culture and Behavioural Change

Cultural benefits were perceived linked to E-rostering adoption "like transparency, honesty and sharing with your staff, well essentially yes, behaviour changes, you'd say" (SM3). Service managers said ownership of E-Rostering adoption and promotional behaviour by their cadre was desirable but in practice left WMs to respond autonomously. Behavioural changes could aid E-Rostering adoption through more "buy in from "all of them" (PT2), service managers, WMs and nurses.

The old manual rosters were usually a month in advance and with short term changes. Therefore the new 8 weeks, then 12 weeks E-Rostering cycles accompanying E-Rostering were perceived as a major cultural change, affecting staffs' personal planning and behaviour. System generated schedules can conflict with staff duty and social expectations giving WMs

a dilemma, to adjust the roster manually and accommodate staff, or to enforce it. There was reluctance for enforcement because it prejudices cooperation. WMs had limited power to discipline uncooperative staff who may just go sick. Local culture was a perceived factor encouraging adaption and resisting rostering practice changes.

Some WMs responded with a period of grace for staff behaviour adjustment, which also bought time to find work-arounds. The perceived top down culture did not extend to unequivocal formal authority for WMs, even though relatively autonomous. They perceived themselves conventionally (see RCN, 2009) as the clinical leader on the ward, exercising managerial control through staff relations, allocation of duties and rewards, and negotiation of local custom and practice.

However, Davies (2002) notes that instead of formal organisation, the psychological and social structures, "the software of the mind" (Hofstede, 1994) often termed culture, may be controlling. Furthermore, the organisational structure and departmental roles will affect flexibility and agility when changing. They are important factors and the next section examines how they are perceived at the Trust.

5.1.1.5 Organisational Structural Effects

Four important structural factors discussed here are the fit and flexibility of the HR function for technology adoption (Wright and Snell, 1998); the presence of occupational silos (Sheaff and Pilgrim, 2006); role boundaries and influence of the IT department (Marks and Scholarios, 2007); and the sheer size of the adopting organisation (Rogers. 1995).

5.1.1.5.1 Human Resources: Role in Implementation

HR members on the Nurse Rostering Board focussed on HR administrative interests rather than augmenting change management skills. They avoided some actions, claiming resource pressures, particularly cleaning up ward personnel data which defaulted to WMs, but implementation dates were not delayed to allow data clean-up work. Old training records

were on cards at wards in varying states of currency, problematic for sharing with E-Rostering databases. Ownership of data was confused. The HR function did not negotiate for a prioritised HR agenda within the change programme, a positive factor for success in previous research, or represent the WMs or develop their role (Truss, 2003).

Although wards vary in clinical nature and scale, the WM's self-perceived scope of responsibility has coherent physical, clinical, financial and human boundaries. The WMs perceived their responsibilities in terms of managerial autonomy and the nursing professional silo, both of which they defended.

5.1.1.5.2 Bureaucracy and Lack of Support

Job descriptions are aligned by HR with NHS guidelines from the national Agenda for Change programme (DoH/NHS KSF, 2004). Service and ward managers perceived HR reluctant to deviate from existing job descriptions, motivated to keep jobs parked within national pay grade bands. The E-Rostering supplier recommended permanent roles to cover administration of E-Rostering software, training and user support. Service managers have extended accountabilities and they and WMs are exercising new systems skills and managing behavioural changes as a result of E-Rostering. Nevertheless, job role development was avoided by the NRB.

This meant that existing job descriptions, person specifications and salary structures had to accommodate E-Rostering without consultation, engendering defensive responses from affected service and ward managers.

The Project Team perceived these aspects as outside their territory. The DoN reflected later there was a missed opportunity to review WMs' formal job descriptions to include more technology and change management skills.

5.1.1.5.3 Lack of Inclusion of Service Managers

Service managers had not seen the business case, were not involved in E-Rostering software selection or project planning or discussions about responsibilities after adoption. Also, they were not represented on the Nurse Rostering Project Board. They were trained last, largely after implementation, even though their approval of provisional E-Rosters from WMs was operational policy. This lack of involvement disabled them as potential key adopters and leaders in E-Rostering. Simultaneously, senior and ward managers were questioning their contribution, pointing them out as uninvolved, needing enrolment, lacking motivation and interest. Here the service managers were victims of both policy and procedural injustice (Brown et al., 2010). Their unfair treatment provoked their disengagement as a response.

The Project Team thought "service managers should be made accountable to deliver acceptable rosters" (PT2). They were not signing off E-Rosters and had been reluctant trainees. On reflection the Project Team said service managers should have been trained first and their new responsibilities made clear from above. In a top down culture the senior managers, NRB and Project Team had not given service managers priority despite their organisational position and strategic objective of enrolling them.

Responsibilities are made known in policies and procedures, published to codify and communicate the will of management. The Trust's policies and politics around them are therefore important factors in the organisational context of E-Rostering adoption and the next section reports upon their influences.

5.1.1.6 Politics and Policies

Policies and procedures offer reference material on methods of operation. Who owns policy formation may have political dimensions. Middle managers are important information carriers in that context (Zuboff, 1998). FLMs are enactors of HR and operational policy on a daily basis (Purcell and Hutchinson, 2007). Therefore, currency or absence of relevant

policies, organisationally who is accountable, and how these factors are perceived may influence responses of those affected by E-Rostering.

5.1.1.6.1 Lack of Formal Rostering Policies

Senior managers expected E-Rostering would include and enforce Trust rules and policies, but there was no roster policies document to guide implementation. Senior managers whilst suspicious were not familiar with local rules on wards or how manual rostering had crystallized local staff expectations and work life balances.

Examples the researcher observed were three 12.5 hour shifts to make 37.5 hours, a short week; working 9:00 to 17:00 as a cross shift (part morning and afternoon) to keep shift pay; never or always working weekends; working fixed patterns; working only with certain colleagues.

The Project Team members showed confident interpretation of the Trust's unwritten rules and policies affecting rostering:

> "We've got the right policies that we're making reference to and the right rules. The only thing with rules is that we then need to work towards a standardisation, which we'll actually be able to do when all units are actually on the system" (PT2).

The Project Team reviewed local ward practices to "try to bring everybody into line" (PT3). Negotiating and managing conflict around policies was done by the Project Team and WMs without involving HR as previous research suggests prudent (Meyer and Stensaker, 2006).

Historically the manual roster was a "lived-in" schedule, stretching four weeks ahead with many changes in practice. The new eight week electronic roster and four week cut off for requests required staff to plan up to twelve weeks ahead. Corporate intent was to limit short term flexibility and number of requests. WMs were messengers to staff on these unpopular new policies, but were not consulted, did not support them and their response was defensive.

Throughout twelve months of implementation phases and six months afterwards the promised Trust E-Rostering policy was in unpublished draft between the NRB and HR. Meanwhile trainers advocated the new 8 week cycle and 4 week requests cut off. When finally published this 8 week cycle had been overruled and extended to 12 weeks, with the roster to be posted six weeks in advance. Neither WMs nor service managers had been consulted and they were not disposed to implement it.

The HR function did not participate in dialogue with each WM about rules and policies. The Project Team negotiated rules and policies with each WM, supporting autonomy, with data of variable quality loaded into the system. After implementation WMs handled rules interpretation and conflict with staff, normal working for them.

A conflict example was policy requiring E-Rostering rules configured so qualified permanent staff worked shifts otherwise expensive for agency cover. This puts the best permanent staff on the least popular shifts, like weekend nights. WMs were not consulted and did not agree.

The Project Team perceived some WMs thought policies for guidance only and not directives for staff. Nevertheless, WMs concurred that coverage of unwritten rules and policies by E-Rostering was good enough and their own wards' local rules and customs were in the system. The interviewed WMs also felt with only one exception that their staff knew local rostering rules and policies in use. The belated Trust published E-Rostering policies were not retrospectively adopted.

The communication processes in the Trust and how they affect and inform managers and staff is an important factor in the case background (Mourier & Smith, 2001). Information exchange is important in sustenance of culture particularly when manifest in operational practice (Handy, 1985). The findings in this area are examined in the next section.

5.1.1.7 Communications

Consultation and communications activities between the four management groups about E-Rostering factor into perceptions and therefore responses of those affected (Cameron and Green, 2004). Senior management described internal communication as "good old fashioned team briefings" (SeM8), a top down cascade, but not rigorously followed. The Director of Nursing said communications was "not at the heart of what management does" (SeM10).

5.1.1.7.1 Partisan Communications

A senior level concern, confirmed by other levels, was communication should never undermine Trust management. Service and ward managers felt this lead to bland, self and partner praising content and censorship. The business case for E-Rostering had limited circulation in case of reaction. News about ward level responses in early E-Rostering phases was suppressed under two motives: not alerting other WMs to issues on path-finding wards; and not confirming pre-existing practices to external interests. One rare communications initiative was the popular monthly professional meeting arranged by the DoN for WMs. However, it was bypassing their service managers and line superiors who were not invited. E-Rostering was introduced to WMs through this professional nursing forum, not through line superiors.

5.1.1.7.2 Ineffective Communication

At all hierarchical levels managers reported that communication processes and channels were ineffective. Trust intranet news content was perceived as pallid, institutional and non-controversial. Service managers had unenthusiastic perceptions of communications:

> "Good system in principle but the discipline is not necessarily there to apply it well" (SM1). It offers "Limited information, tailored to management ends. The problem with communication is this desperate need to see the positive in everything. They will not tolerate negative comments about our service" (SM5). "I share all the information that's been given to me" (SM3). "Whether that's effective is another thing" (SM2).

Contact with peers was perceived infrequent by WMs. One gregarious WM observed: "No, strangely enough no...Actually we don't have that opportunity" (WM10). Discussions in

advance about E-rostering with their service managers were denied and they showed little interest post implementation. The WM representative on the NRB emailed all 50 WMs with encouragement but received only one response. He said "I think there is a history in this Trust of people working in isolation, like ward managers" (WM4). Disinterest by his superiors was "No news is probably good news" for both parties (WM6). E-Rostering intranet content was the only communication to ward staff before WMs' training. As one WM said:

> "I think the key thing is communicating; not only to us managers but ...to the wider workforce. Emails and bulletins on the Intranet...that's not adequate" (WM4).

These perceptions of limited communication with each other and their superiors reinforce the sense of isolation and autonomy perceived by WMs.

5.1.1.7.3 Communication by Ward Managers

Implementation immediately followed WMs' training. The briefing and training of their staff then happened as communication and negotiation on the job by the WMs. This communication was in context, tailored by WMs to get responses they needed, unmonitored by Project Team or service managers.

This chapter now considers findings about characteristics of front line managers, components in the organisational background factors (Box 1, Figure 5.1) and how they influence responses to the adoption of E-Rostering technology.

5.2 WARD MANAGERS' CHARACTERISTICS

5.2.1 Qualifications and Skills

Interviewees were asked about their education, training, skills, role tenure and demographic details as part of the consent process. Interviewees referred to their own experiences and perceptions of their abilities when answering interview questions.

5.2.1.1 Qualifications

All fifteen interviewed WMs were registered mental health nurses but just two had only this professional qualification and they were long term WMs. Eight had health care degrees and three had other graduate qualifications. Two had master's degrees and four had postgraduate diplomas.

Four had been ward managers for less than a year and were in their early thirties. Another was a service manager returned to a difficult ward. Average service was 12 years, one third above 10 years and none below three. Excluding the four new ward managers, the average age of the remaining eleven is 46 years, averaging 14 years as ward managers and 15 years at the Trust. They were generally highly qualified professionals with significant ward management experience, although none had management degrees.

5.2.1.2 Financial Management Skills

A senior finance manager said WMs were given monthly accounts, nominated accountants to answer queries and were trained to use the finance system. However, all interviewed WMs were unable to state their financial budget. They were very reluctant to check with the system when requested, suggesting low familiarity and usage.

The WMs had low signatory levels with respect to their ward budgets. They consistently said they could spend £100 on their own signature, but only from a ward £5000 budget for environmental items. Otherwise WMs raised requisitions on service managers and place work requests upon the Facilities Department. Agency staff requests should be agreed by service managers but refusal was infrequent with the agency supplier accepting direct calls from WMs and providing staff accordingly.

The WMs have little authority to spend, have no influence in the budget processes and annual budgets may be changed without consultation during the year. In recent RCN studies, despite

extensive responsibilities, WMs rarely had financial authority to cover even essentials, like torch batteries (RCN, 2009).

Low financial authority implies low status but simultaneously encourages clinical imperatives ("shroud waving", SenM10) and fixing things autonomously. There is dissonance between low financial authority and taking responsibility for cost savings, an objective of E-Rostering.

5.2.1.3 Technology Skills

In previous research technology skills influence responses to innovations. Perceived low utility of the technology and difficulty in use may inhibit technology acceptance (Davis, 1989, 1993; Davis et al., 1989; Venkatesh et al., 2003; Amoako-Gyampah and Salam, 2004). Precedent associated with unfavourable outcomes may produce defensive reactions (Weiss et al., 1999). Therefore some questions about technology skills featured in interview guides (see Appendix Five).

The WMs were self-deprecating about their skills with computer technologies, particularly older ward managers. They all claimed to be largely self-taught and felt obliged to use computers at work. The Trust provides Microsoft Office courses but they had not used them. WMs have Microsoft Outlook for email and were trained in Pinfo, the patients' electronic records system. The Trust's intranet publishes policies, regulations and guidelines and WMs said they use it when necessary.

Some WMs were antagonistic towards office systems: keeping up to date with emails was perceived as burdensome, even optional and Outlook calendar was rarely used. Dealing with email was resisted on righteous grounds; it diverted time away from patients. There were no sanctions for this provocative dissidence.

Nevertheless, five WMs perceived IT skills within their routine competences and a further eight perceived they were "good" with IT. However, acquiring skills with E-Rostering was

challenging and they all wanted more training and support. Some had already delegated E-Rostering to deputy managers, following manual rostering precedent.

5.2.1.4 Prior Experience of Change

Weiss et al. (1999) say precedent associated with unfavourable outcomes will amplify emotional reactions to similar events. Others attribute blame to superiors (Wanous et al., 2000); and tend to show lack of commitment (Abraham, 2000). Therefore WMs' previous experience of change may influence their responses to the adoption of E-Rostering.

Interviewed WMs bar one said they had no prior experience of technology adoption and no training in how to manage such events. Even the one (long serving) exception said "My knowledge base wasn't what I would have liked to be able to manage these changes...interactions with my staff" (WM4).

Nevertheless, in the previous twelve months all wards had adopted a shared electronic patient records system (Pinfo). When reminded of this, the ward managers explained they had been trained with everybody else and had not perceived they were managing any changes. One WM represented the others well:

> "I think because Pinfo involved everybody at the Trust, everybody had to do it. It was a much slower pace, they took into account some are quicker than others when it comes to systems, whereas I think E-Rostering it was just sort of...it doesn't affect everybody so they [*senior management*] don't care. I think for the ward managers it was just like, right we'll [*senior management*] get this [*E-Rostering*], they'll [*project managers*] deliver that, send them [*ward managers*] for this training" (WM14).

Nevertheless, they insisted that managing a variety of changes was a normal part of their job. Their common responses were: going with the imposed changes; communicating and smoothing them in with staff; coaching; assisting and solving problems arising, to resolve things on their wards, adapting processes, behaviour and negotiating. They felt practiced at behaving in this professional adaptive way.

Service managers were not perceived by WMs as experts over the adoption of technology or managing changes. Only WM15 said she had actively fed back issues about E-Rostering to her service manager, primarily to represent her staff.

5.2.1.5 Common Themes in Ward Managers' Experiences

Three common experiences were perceived. *First,* imposed changes have long been a feature of the WMs' experiences. However, they are not trained in change management, a low ranked competence in their NHS skills framework. *Second,* WMs' responses to such changes are situated compliance, modified by their adaptive skills and local priorities. *Third,* communication skills and willingness to talk with staff are important competences deployed to achieve settled changes.

5.2.1.6 Adaption

WMs' prior experiences, the Trust's top down culture and their semi-autonomous role have conditioned them to roll with imposed changes, to support their staff and to communicate with them, as adaptive processes. Technology adoption at the senior levels may lead to adaption at the operational levels.

The top down culture inhibits transmission back up the organisation about happenings in diverse local contexts. Local adaption removes the need to feed back that imposed changes introduced problems and also preserves local reputations and freedoms. Simultaneously, if service managers do not intervene, their diffidence allows local adaption, preserves autonomy and the service managers' distance. The WMs' prior experience of change included self-perceptions of adaptive capability (Wei and Lau, 2010). So they have adapted around E-Rostering and continue to adapt to minimize disruptive impact upon the local status quo. Defensive responses have been camouflaged by partial compliance, supported by the adaptive capabilities of WMs.

5.2.2 Main Responsibilities of Front Line Managers

WMs' responses to E-Rostering will be influenced by perceptions of benefits for them and the Trust and how these support their main responsibilities. This section examines WMs' responsibilities through the lenses of their self-perceptions, their job description, clinical leadership, resources, authority and support.

5.2.2.1 Self-perceptions

The WMs' self-perceptions were of extensive responsibilities. They referred to managing ward clinical tasks daily; assuring care pathways; supervising and developing staff; ensuring staff training; allocating staff to ward shifts and duties allowing for skills required, patients' sex, staff gender and any special needs; obtaining staff from permanent and temporary sources; meeting patients needs for health care, eating, drinking and sleeping in a clean and safe environment; working within multidisciplinary teams including doctors and social workers; assessing and managing risk to patients and staff; investigating ward incidents; ensure documentation is current; monitoring and managing sickness and absence for leave and training; representing the ward in meetings; having 24/7 responsibility; writing reports for higher management. This substantial self-perceived scope reflects the breadth and weight of duties their professional body insists are real (RCN, 2009).

5.2.2.2 Formal Job Description

The Trust formal job description for WMs is an institutional view, presented in bureaucratic coded language relating to skills and organisational aspirations, semantically some distance away from the earthed task-centric self-perceptions articulated above. The WMs' perceptions resonate with an operational world where activity is aimed at short term outcomes. The formal job description is light on cost management and workforce planning responsibilities and only requires the lowest level of service and project management skills under the national key skills framework (DoH/NHS KSF, 2004). Nevertheless, all the interviewed ward managers perceived their responsibilities as managing care services whilst handling changes.

5.2.2.3 Clinical Leadership

WMs perceived themselves as the profession local leader, the "expert practitioner within the nursing team" (WM6) and "from a nursing perspective I am the highest authority on the ward" (WM4). They work to clinical governance standards and apply Trust policies on support and development of staff and they recruit staff and mentor student nurses.

5.2.2.4 Lack of Resources

The shortfall of permanent ward staff versus establishment in early 2010 was 24.6 per cent on average but as high as 47 percent on one ward and are covered routinely by agency staff. During interviews WMs were not able to state their budgeted headcount accurately, consistently underestimating. They reported agency resources were readily funded and so they were not pushed to secure permanent resources instead. The Trust budget and spend on agency staff were sheltering ineffective recruitment processes for permanent staff, reinforcing the very need for agency staff. As one WM put it:

> "I can get agency or bank staff which obviously is more expensive. That's not the problem, it's not the manpower, it's the recruitment process itself" (WM14).

WMs described dysfunctional procedures for recruitment of permanent staff. They were too lengthy; lead to nugatory work (anonymised applications meant rejected candidates reappear); were too elaborate and defensive (making ideal internal candidates reluctantly suffer day long assessment centres); put HR work upon WMs (sifting candidate long lists down to shortlists). Service managers strongly backed up these views and claimed HR's processes were not competitive with rival employers. For example, recruitment cannot be commenced until a vacancy has been approved. Even then as SM1 put it there is a "16-18 week recruitment cycle and then induction – [rival trust] does 12 weeks including induction". However, people are leaving all the time, keeping pressure on rostering and agency costs. E-Rostering may help but is not tackling the fundamental recruitment issue.

5.2.2.5 Lack of Disciplinary Authority and Support

WMs reported their formal disciplinary powers constrained by weight of procedures. They perceived the HR function was unwilling to move quickly and adhered to a legalistic defensive approach. Unacceptable behaviour may persist and awkward people remain in post for long periods, threatening the WM's status and authority. They perceived their ability to formally discipline staff for not cooperating over E-Rostering as unsupported.

5.2.3 Perceptions of Politics

Affective experiences directly determine attitudes like job satisfaction and behaviours like job performance. Indirectly, through attitudes like job satisfaction, they may influence judgement driven activities (Weiss and Cropanzano, 1996). Technology change may affect the virtual organisation constructed of participant's perceptions, so E-Rostering adoption may be a proxy for organisational change (Orlikowski and Robey, 1991). The authority and roles of middle managers may change if bypassed or given more control (Currie and Procter, 2002). Front line managers are key actors in the operational delivery of HR policies and practice (Purcell and Hutchinson, 2007).

Electronic rostering changed WMs' and their deputies' activities affecting: data entry and maintenance; responding to system outputs; administrative processes; applying new policies and reviewed local rules and practices. Previous research notes the potential benefits of E-Rostering (Silvestro and Silvestro, 2000, 2008) but outcomes for organisational structures, power distributions, and changes in roles and relationships are not covered. When WMs were asked about managing wards after implementation of E-Rostering they talked about resistance and conflicts as follows.

5.2.3.1 Resistance

Changes to the final E-Roster caused by late requests from staff, sickness, and emergencies are agreed by WMs and entered to keep the E-Roster current. WMs perceived this duty irksome, made worse by new longer cycles. Communication of policy to staff and their

training for on-line requests defaulted to WMs. System records show policy deadlines for requests are generally ignored leading to negotiated adjustments to the published roster. The policies were resisted by staff and not supported by WMs.

5.2.3.2 Conflicts between Policies and Practice

Manual rostering practice, E-Rostering rules as agreed at ward level and the new delayed policies are divergent leading to confusion and conflict. WMs are obliged to use their skills and experience to find resolutions which maintain staff cooperation, adapting responses within their autonomy.

Trust policy allows staff to swap shifts with WM's approval. This requires data entry into the E-Rostering system and reprint or manual alteration of the published E-Roster.

> "Every time someone comes to me to change something I have to go onto the computer and start fiddling with it" (WM2), with pressure arising because "They still come in ...asking you for the same thing that they used to", even though "Everyone has been warned that the E-Rostering is <u>not</u> like the manual [roster]".

Timely roster approval before release to staff was required by policy, but few service managers had actioned approvals with the general outcome as: "I'll wait for the bollocking from the manager, but I'll print it out" (WM3).

Rules and system logic can conflict with WMs' priorities. The system was set up to place permanent staff on shifts expensive to cover with agency staff: "...The finance department say our focus is weekends and nights ....because they cost twice as much as earlies and lates on Monday to Friday" (WM4). Better permanent people end up on nights and weekends leaving early and late shifts covered by agency staff. As most patient care is daytime the policy runs counter to perceived clinical common sense. Risk is increased by more temporary staff on waking shifts. As experienced WM4 said: "I want to be able to have that ability to choose and to discriminate where I put my staff".

The system will not deploy qualified nurses onto shifts in place of unqualified staff, thus leaving agency on shift instead of available permanent staff. E-Rostering may give qualified staff days off when not wanted, or deploy them for long periods on nights or off duty. The system warns if in any period not enough people are taking annual leave, implying WMs should ask staff to take leave when it suits their employer.

Rule driven but unpopular rosters meant WMs had to either stand behind them and manage consequences or adapt E-Rosters to suit staff and patients' needs. In practice they adapted.

5.2.3.3 Lack of Transparency and System Configuration

E-Rostering was communicated during training as offering increased fairness because of accessible duty records. However, on-line access for ward staff was deliberately restricted to information relating to self only. Duties in draft or unapproved E-Rosters were not accessible to staff either. As WM8 said: "If you can only see your own shifts, how can you judge the fairness of what you have been given?".

WMs print out "approved" rosters to show staff. Neither original E-Rosters nor adjusting intervention processes are visible to staff. WMs are custodians of fairness but the system as configured is not fully transparent to staff, leading to mistrust.

5.2.3.4 Risk Transfer to Ward Managers

WMs found out when trained they were to train their staff how to submit shift and off duty requests. They were conscripted messengers about the system and new cycle policies. This transferred pressure for successful adoption and risks of failure to WMs at implementation. This was an increase in their responsibilities, without incentives, new resources or support.

5.2.3.5 Lack of Support from Service Managers

The system showed virtually no sign-offs by service managers. Only one (SM3) had a history of enquiry but even she was rarely approving rosters. WMs' perceptions were pithy:

> "I don't think she knows ... much about it herself" (WM1); "They don't show much interest in anything as such....they more or less allow us to get on with it....the only time they come out to you is if as I said if your budget is going ... funny" (WM2); "He doesn't...he hasn't..." (WM4); "He came round ... .he definitely says that he needs to find out..." (WM5); "I think he does, yes, because he once sent me an email...approving, not at the moment...discussed reports, no" (WM8); "No, not at the moment" (WM9); "People don't take an interest until there's a problem ...No, no, they don't have a clue themselves I think" (WM11); "Not really. I think she's too busy at the moment" (WM12).

These perceptions about service managers were of distance from WMs, a lack of involvement and support, disinterest unless budgets were threatened, a lack of competence in system usage and absence of accountability for approving E-Rosters. Interestingly WMs were not complaining. They did not want more involvement from service managers. Lack of second approval of rosters allowed reciprocal liberties. WMs were working around the approval policy and publishing their own rosters to their staff, not to policy deadlines or time periods.

5.2.3.6 Adaption by Ward Managers

A WM in the first phase describes her response as:

> "We still offer flexibility in terms of shift patterns... We still have our own local policy on the wall...If you are a ward manager you have to negotiate with staff otherwise ... staff would just take off sick. I think we wanted to make it like life goes on as normal..." (WM1).

Live with E-Rostering since October 2008, this settled ward in August 2010 was scheduling eight weeks ahead, but only 13% of shifts allocated by auto-rostering.

A later phase WM was:

> "...Having a period of grace...just to sort of create an incentive for them (staff) to accept it, because they can sabotage it" (WM3). A colleague said: "For the staff obviously it's accepting there are certain rules about E-Rostering and getting the requests in. Staff will be staff and will still demand immediate requests...I just have to keep reminding them that they need to put their requests in early" (WM5).

A further WM perceived:

> "...making requests...I am having to try and compromise....the consequence of this is someone would either go off sick or something you know...Well, they are adjusting but they don't like it to be honest" (WM10).

That WM was assigning staff only four weeks ahead with no approvals in the system but had the second highest level of auto-rostering at 59.6%. Another puts it as:

> "...It's kind of like resistance from staff...the onus is on me to change you know and bring out an eight week rota and live with it...they want you to fit around them" (WM11). A further view was: "We need to be more consistent ...with how we manage it ...for that is going to change the behaviour of our staff" (WM13).

In summary the service managers were distant from WMs and not taking part in the E-Rostering cycles. WMs were left to their own devices even though service managers should authorize hiring of agency staff. WMs were sensitive to staff behaviour and in each island ward negotiated their adaption to E-Rostering's presence. Trust policies communicated by trainers were beacons rather than mandates. The early phase wards were left alone as policy evolved. Later phases faced revised policies, still transmitted by trainers rather than HR, service or senior management. Risk and transition work was transferred to WMs on implementation. WMs have adapted locally, retreating to earlier customs and practices, particularly over request handling and deadlines, in order to retain control and maintain staff relations, aided by paucity of interest and support from service managers and above.

5.2.4 Local Cultures

Where culture itself is the object of change, the existing culture may moderate responses to the change event Gersick (1991). That view supports this study's interest in perceived local cultures as possible influencers of FLMs' responses.

The Trust objectives for E-Rostering included elimination of "Spanish practices"; the wish to enroll service managers in ward staff deployment; making off duty requests on line; extended request deadlines; forcing permanent staff over agency staff for certain shifts; and extended roster cycles. Given historic ward autonomy these operational changes may constitute changes in WMs' perceptions of organisational cultures; what working here feels like; levels of autonomy and perceptions of how things get done.

5.2.4.1 Ward Managers' Perceptions of Culture

WM3 reflected his colleagues on strong local cultures and his perceptions of lack of support in a long career spanning several sites in the Trust:

> "the links and the politics take time for me to understand, it's difficult to drive changes in people's behaviour and peoples' attitudes. They will see you as, he comes from a different site, he doesn't understand what's going on here".

On lack of support:

> "Nothing happens...only when something is wrong, that's when they act fast. No matter how minute it is, it will be blown up". Perceived procedural constraints applied. "You have to follow the format. It's there, you don't go through short cuts, that's the difficulty....you have to follow the process" (WM3).

Organisational issues slowed things down:

> "I feel quite strongly it's about the politics, some people have very fixed strongly held things about particular people so it takes you a lot of time to justify anything".

WMs can use persuasive skills and influence locally when support from outside the ward is lacking: "I have more power to actually sort of make actual changes happen on my ward, in a very sort of friendly way" (WM3). E-Rostering was; "It's a decision from above".

From one long serving ward manager (WM2):

> "The patients are normally not a problem. It's the system that's at fault...the Trust as it is...the management"; "You only hear if you are overspending at the end of the month"; "How much do you think you are managing, I've got no idea"; "Nobody's got agency budget ...not included, no, no, no, it's not"; "There's been so many changes...you've got so many policies...pretty complex...the Trust is currently very big...".

His perception of his position is evoked over his ward's budget:

> "It just arrives, yes...I don't think any of the [ward] managers know anything about their budget until they are told, this is your work, this is what you should be doing, that's it, and you are what you do, ...you haven't been part of that job description, the design of it, it's nothing to do with you ...it does keep you the ward manager under pressure...therefore I just take my jacket off and get on with it....at the end of the month you get your knuckles wrapped you know because we are overspending" (WM2).

WMs' views of Trust culture were consistent themes bluntly expressed. It was top down and budgets were imposed without discussion. There was little routine line interest from above. Responses to matters raised were slow but if there were ward problems or an incident then a flood of enquiries and superior managers would arrive. There was pressure from unrelenting shortages of permanent staff, dealing with so many policies, the complexity and frequency of changes and the feeling of being distant in a very large organisation. Local autonomy was also local isolation through perceived lack of support, encouraging a "can do" attitude and adaptive capability.

5.2.4.2 Managerial and Clinical Role Conflict

A clinical professional cadre was encouraged by the nursing hierarchy co-existing alongside managerial structures. Nursing careers could aspire to modern matron, nursing practitioner, nursing consultant, into nursing governance and the nursing directorate as professional routes, beyond WM. An experienced WM explained:

> "There's managerial supervision and there's clinical supervision and the two are different...managerial is ...mainly performance related issues whereas clinical is....mainly around expected competencies..." (WM6).

The monthly meetings organized by the DoN were a popular place of professional refuge:

> "I think that I quite like the hierarchy in the Trust at the moment, the nurses' hierarchy. That structure is more accountable" (WM4). Of his line superiors: "I err on the side of trusting them....to make the right decisions rather than not".

Career progress involved relationships beyond meritocracy and some behaviour was enabling and some less so. A WM under pressure without a deputy, the arrival of E-Rostering, balancing his shift times between family and studying for a master's degree said:

> "There's a bit of nepotism I suppose. It's a culture where I suppose you have to be part of something to be accepted. If you complain too much you're perceived as being useless basically. They don't listen to what you say anyway. They're happy to see new inventions provided they're generating good publicity. However if you question something like say the bank system, why are we paying the agency so much money ... this is the NHS, no one takes responsibility" (WM10).

Nevertheless he was clear where his satisfaction lay:

> "The pressures, the workload has become tremendous now. There's so many things going on, I mean there's too many, you're just fire fighting. I actually say to the staff, I actually enjoy looking after patients more than being the management, because I can get a sense of fulfillment. At least I have done something positive here. It's tangible whereas you know it's targets for this, targets for that. The most important thing is the patient" (WM10).

Of senior management he said "they filter down in terms of concerns...if they feel it's important" and of involvement: "No, no, no. In discussions about decision making, no". Management activity is generally perceived less positively than clinical care, not rewarding even if imposed targets are attained and not directly affecting patient care sufficiently to illuminate perceptions of fulfillment.

5.2.4.3 Distance and Autonomy of Ward Managers

The top down culture and distance of wards from the organisational centre was articulated by WMs. For example:

> "We're trying to, as much as possible, to meet the standard that we feel the patients should have with the limited resources that we have got and I do not believe that the Trust up there is realizing and recognizing the problems that we have" (WM5).

The sense of unfairness was common:

> "We could do more with a leadership which is there especially for managers, you know, for my role. I mean my main source of support is myself and colleagues outside. The very top, they should be in touch with what's happening, not only when there is a problem. They [should] want to know, say, that I exist. I mean I think we're kind of detached. I don't think it's a fair you know culture. Management is kind of detached from what I am doing as a ward manager. At the moment I feel this tiny bit. I'm not part of it ... you're isolated ... I'm on a boat somewhere" (WM8).

A ward manager for a specialized service was clear:

> "We're sort of quite separate from the Trust, we're off site. We are on our own, yes. We've got our own culture. If you're thinking about the identity it would be the [specialization] identity that we would have" (WM9).

So the sense of distance and lack of support confirm isolation, allowing local cultures and semi-autonomous behaviour by WMs and their charges. An acute ward manager felt his role was diminished and he was "micro-managing" upwards in a matrix whilst complaining of suppression and the duality of his role:

> "They're not there you know, they're not there. There's a danger you know that the ward manager is now the charge nurse. Your role is kind of, you're squashed down. You've got the service line and you got the professional line so you're kind of squeezed you know....your service manager can't make a decision that has a clinical flair because your professional lead is there" (WM11).

Being last in the managerial food chain and in a contained role were consistent themes. The unfair finger pointing behaviour of superiors was again mentioned:

> "The only time people know I'm the manager is when there is a problem. Then they are looking for someone to handle it. They need someone to hang it on. Whereas when things are moving smoothly it feels like you know, somebody somewhere is taking the accolade" (WM11).

From another comes the perception: "In my position you feel like ... in a dark house and things are happening out there. You're not too sure" (WM13). Other ward managers' perceptions reinforce these themes.

> "Top down approach, it's about who you know. It's not what you know. In this role it's been very much focused on do the task. There's no connection. It's a very large organisation, the organisation itself that sits on top, there are some connections but I think we should have had more, in terms of seeing what's going on and what changes have been happening" (WM12).

An older WM recounted this example of poor communication of organisational change, being squashed, expected to solve somebody else's problem, pushing a ward manager to adapt, no resources, imposed timelines and disregard for the WM's current priorities.

> "I had a phone call from somebody saying they would take over. *I'm taking over as your new General Manager.* Oh, are you? Right. *Can you make a bedroom out of another room?* What room? *It's the one, pick the one that's going to be the least dangerous that's* ... because none of them meet the minimum requirements, the rooms I could turn to bedrooms, because they haven't got sinks in them, but I said I could...I said when do you want it done by? ...*end of the week*...so today I think I might be getting a new admission, I don't know, I haven't been informed but I have created another bedroom" (WM14).

Under the overarching culture WMs are expected by higher levels to show initiative and resourcefulness within autonomy that is allowed by and sustains the distance of superiors.

This is the "can do" approach perceived by WMs as made necessary by the cultural positioning of their role, perceived limited resources and support, but encouraged by their professional values.

For example:

> "if you can justify what you are doing I think you can just get on and do it"(WM14); and "Within my remit I'm usually able to get them done and get them sorted" (WM6); and on running your own ship "I would love to believe so and I would love to think so"; and "It's part and parcel of my job to get things done".

Successful candidate WMs, almost always internals, are well aware of the local and overarching cultures in which they will operate. Therefore they are self-selecting and share characteristics that sustain them and their autonomous role.

5.2.4.4 A Vicious Circle for Ward Managers

WMs' perceptions illuminate a localized vicious circle with the WM inside. If the ward is below permanent headcount it must have agency staff which senior managers frown upon whilst funding; HR procedures impede permanent recruitment; E-Rostering allocates permanent staff to nights and weekends against WM views of clinical priorities; auto-roster struggles; new rostering and request policies conflict with local staff culture and practice. Accountability for transition has defaulted to poorly supported WMs. Communication is top down and not seeking feedback. Senior and service managers are distant, not resolving

permanent staff shortages and are complicit within the vicious circle sustained by their distance, budgeting and recruitment practices.

In response the WM is self-reliant, takes responsibility and adapts locally to unsolicited technology and policy changes through negotiations, leadership and compromise whilst limited by lack of support, low financial authority, and no formal incentives. In parallel, the finger-pointing and stressful circle continues.

Previous research showed perceived higher management motives influence responses of those impacted by change. Therefore motives of their superiors as perceived by WMs for E-Rostering were investigated and are discussed next.

5.2.5 Perceived Motives for the Adoption of E-Rostering

The Trust published information about E-Rostering through the Trust's intranet but interviewed ward and service managers denied any familiarity. Most WMs recalled a presentation at the DoN's monthly meeting by the supplier about system functionality and by the Project Team about phases, timing and training. Ward and service managers had not seen the business case but could recount the benefits rubric and attribute other motives to higher management.

5.2.5.1 Perceptions and Poor Communications

One ward manager after 49 weeks of E-Rostering said of higher management:

> "I don't really know what they are hoping to achieve. I'm a bit unclear about that ... Trust is trying to be more productive...could want E-Rostering to help reduce sickness by monitoring and reports" (WM1). Another after 24 weeks said "the pressure is always to save money... that's number one...E-Rostering will help to bring the budget down, to keep an eye on things...whatever you do is recorded..." (WM2).

Another ward manager 19 weeks in perceived the higher management agenda as "for us to ensure that we, you know, reduce overspending, reduce agencies" but also recalled:

> "When E-Rostering was about to be implemented you know we were not involved. We don't know actually what the primary objective was...everything is now going to be computerized and we were not very clear as to what their objectives were..." (WM3).

Another WM only 9 weeks post implementation said "I believe they want me to ensure that whatever budget I've got is being used more effectively" (WM5). A year post live, a pithy ward manager: "It is money" he said (WM6). Others also saw a financial theme:

> "They had to do something common to every unit and that way [senior] managers can actually monitor from their offices what is happening on a monthly basis" (WM7). Further on these themes: "...about efficiency isn't it...having transparency so that if anyone wants to look at how I'm doing with staffing, skill mix, sickness, annual leave...anyone at the click of a button, they can check that..." (WM8); and "...In terms of what senior management want, no, I don't think I'm any clearer as to what it is apart from a labour saving tool...high usage of agency staff, a way of trying to curb that and also about the retentions of internal staff...staff do not stay here long..." (WM9); and "...All to do with cost" (WM11).

The document search revealed a 40 page booklet, "Nursing Strategy, 2006-2008" by the contemporary DoN. Under "Improving Working Lives" it proposed an advanced Nurse Rostering System with the objective of "Contributing to initiatives that support a healthy work/life balance" with three outcomes:

1. "Reduction in the use of unnecessary agency staff";
2. "Opportunity for Trust staff to plan their lives better"; and
3. "Improved work/life balance".

This benign older strategy contrasts with WMs' perceptions of unsympathetic cost savings, efficiency and control as strategic motives for E-Rostering. The interviewees in their entirety did not reference this important booklet, implying limited distribution. WMs perceived greater control over staff, rather than control by staff, as the leading motive.

5.2.5.2 Ward Managers' Priorities

WMs' perceptions of their most pressing problems are a contextual factor that may influence their responses to E-Rostering. Figure 5.2 tables a summary of top problems. All wanted more permanent staff as either first or second priority.

Figure 5.2 Top Priority Problem Perceived By Ward Managers

Top Priority Own Ward Problem	Frequency
Shortages of permanent nursing staff	6
Uncooperative attitudes of ward staff	3
Ward physical environment	3
Struggles with E-Rostering	2
Sole provider of emergency staff cover to other site wards	1
	15

Two experienced WMs running "difficult" wards and a third, newly promoted from the Project Team, complained of uncooperative staff. "They attend rather than take it seriously...or attend and make sure they get a good package at the end of the month" (WM11). The second felt his unqualified staff (the majority on all wards) were low calibre and uncommitted. The third (new) manager said her staff escalated "things they could deal with" (WM15). Only two WMs mentioned struggles with E-Rostering as top priority.

Three WMs were focused upon physical environment: one in a converted church; another potentially unsafe; the third WM felt maintenance services were unresponsive.

These top priorities were not addressed in the E-Rostering implementation either to clear the technology pathway or as issues E-Rostering might mitigate. Their persistence means E-Rostering was perceived an unwelcome diversion and greeted with defensive responses.

The adoption of E-Rostering was organized by the NRB through the Project Team and the change management process represented in the theoretical framework by Box 2, Figure 5.1. How the factors in this process affected responses, as perceived by the four managerial groups, is presented and explained in the next section of this chapter.

5.3 CHANGE MANAGEMENT PROCESS (Box 2)

5.3.1 Introduction

The factors which the literature says may moderate successful change management were discussed in Chapter 3 (Mourier and Smith, 2001; Cameron and Green, 2004; Collerette et al., 2006). They may be instrumental in E-Rostering adoption and so were included in Box 2 in the theoretical framework (Figure 5.1) and covered in the interview guides for investigation (see Appendix Five).

The following sections examine stakeholders' views on design of the change management process and then change management practice in E-Rostering adoption. The practice and impact of training is discussed and then perceptions of the project team about behavioural changes associated with the innovation. Consultation and communication as part of the change management process is examined with its impact upon responses of interviewees. Finally, perceptions of the transition period following implementation are reviewed.

All these findings arise from the data collected to answer the second research question – how do the change management processes and skills influence what ward managers think of E-rostering and influence how they respond to its adoption?

5.3.2 Change Management Process Design

Interviewed senior managers referenced the PRINCE 2 project management standard when asked about the Trust's approach to change management for E-Rostering. There was little recall of discussions on change processes except who should be executive sponsor and who should be co-opted to the Project Team.

The software supplier advised on project management and how it would contribute was in the supply contract. The DSPD said "Hopefully everything is in the project and PRINCE stages because it's what we have agreed". However, as the Trust limited supplier consultancy to 80 man days the supplier's experts were gone immediately after the first of nine implementation

phases. This left the four-person dedicated, but not full time, internal project team to complete the remaining eight phases over the next year with no expert help. The supplier expressed frustration saying this was a short-sighted decision that would have dire consequences.

5.3.2.1 Over Optimism

E-Rostering adoption was viewed simplistically at executive level and this lead to a naïve approach to implementation. "It's just a change of practice and just using the rostering system...not something you would change your job description for" (SenM3). Senior management chose to use PRINCE 2, an NHS preferred project management tool, and appointed trusted insiders to the Project Team, recently trained to basic level in PRINCE 2.

The Project Manager (PT1) has values admired by the DoN and DSPD: cost sensitive; energetic; does not like slackers; knows wards well through long service; and was of clinical professional standing. The trainers (PT2 and PT3) were chosen as reliable, technophiles, knowledgeable about wards and rostering, known to the Project Manager and DoN and credible nursing professionals with empathetic personalities. The DoN was straightforward:

> "I don't think we thought about it as a change management process as such. We use PRINCE 2 as project management process because that is the NHS standard. PT1 is very good at picking up patterns and PT2 is very bright, non-threatening and will not make the ward managers feel stupid" (SenM10).

This change management team did not have history and skills in implementing technology. They were credible insiders thought to have politically safe hands and empathy with WMs. The DoN reflected the Trust:

> "didn't feel it was such a major change, which would be viewed with so much suspicion by the ward managers. We could have done better to help the ward managers manage the change programme with their staff...because that is where the resistance has come from...not the ward managers".

Nevertheless, to feedback from critical WMs, the DoN responded "This stuff is new. See the writing on the wall", an assertion quashing resistance. The DoN did reflect there was "An

opportunity to change the ward managers' job, we probably should do", recognizing the impact of E-Rostering on responsibilities. However, this has not happened.

5.3.2.2 Exclusion of Service Managers from Change Management Process

Neither service managers nor their WMs were involved in any discussion about change management or the approach to implementation for E-Rostering. They were not invited onto the NRB. The service managers' perceptions are to the point:

> "No, I got that in the house style" (SM1); "We were not involved in that" (SM5); "No, I was not consulted, no" (SM3); "Well, we were told it was coming in, don't know why..." (SM4).

In effect, service managers were excluded from the start, trained belatedly, perceived E-Rostering as imposed, reacted defensively and behaved to limit participation.

5.3.3 Change Management in Practice

A steering group intended to follow PRINCE2 practice was formed with the Director of Nursing (SenM10) as chairman, the Project Manager (PT1) and Project Stage Manager (PT4) as permanent members. This Nurse Rostering Board (NRB) was the senior authority responsible for implementing E-Rostering adoption. Its effectiveness is an important factor. Observations of the NRB in action are detailed below.

5.3.3.1 Nurse Rostering Board

The Nurse Rostering Board included members representing corporate departments. The researcher joined as a non-participating observer. Figure 5.3 below shows its composition.

Formal terms of reference, the first step under PRINCE 2, did not exist. The Project Board membership doubled in size to sixteen over 18 months. Arrivals seemed duplicates. Some members attended sporadically, like trainers and the WM representative (Senior User). Others often sent poorly briefed deputies.

Figure 5.3 Nurse Rostering Board Members [* = original: ** = incumbent changed]

Role on E-Rostering Project Board	Trust Department	Position in Trust
Senior Responsible Officer; Executive Sponsor; Chairman*	Executive	Director of Nursing and Governance
Project Manager*	Service Development	Service Development Lead: Inpatient
HR Representative**	Human Resources	Acting HR Manager
Training and Development Representative	Training and Development (HR)	HR Manager - Recruitment & Workforce Development
Finance Representative*	Finance	Head of Management Accounts
Finance Representative	Finance	Deputy Finance Director
Roster Administrator	Seconded as E-Rostering trainer to Project	Bed Manager
Roster Administrator	Seconded as E-Rostering trainer to Project	Deputy Ward Manager
Payroll Representative	Payroll and Pensions OHD	Senior Payroll Administrator
Payroll Representative	Payroll and Pensions OHD	Payroll and Pensions Services Manager
Project Stage Manager**	Service Development	Project Manager
Senior User**	Specialist Services Directorate	Ward Manager
Information Management and Technology Representative*	Information Management and Technology (IM&T)	Head of Information Management and Technology
Information Management and Technology Representative*	IM&T: Technical Support	IT Systems Administrator
Workforce Information Rep	Human Resources	Workforce Info/system Officer
Senior Management Rep	Overheads, Borough W	Clinical Nurse Specialist
[Observer]	[Kingston University]	[Doctoral Research Student]

Although E-Rostering adoption was different on each ward because of local rules, data quality variations and WM skills, apart from their representative WMs were not invited to NRB meetings to offer feedback. The NRB was always concerned with moving on to the next phase.

None of the NRB members were full time on the E-Rostering project. The Project Stage Manager and Project Manager prepared thoroughly for each NRB meeting, with the Chairman well informed and dominant. The Project Stage Manager kept minutes and produced risk and issue documentation seeking to administer to PRINCE 2 guidelines.

In the later phases the NRB realized that an extended transition period was emerging (see 5.3.7 for detail) but changes in rostering practice and staff behaviour were left with WMs.

A closure proposal paper was prepared by Project Stage Manager and Project Manager indicating the considerable work still needed and to whom it should be handed over. PRINCE 2 best practice does not condone closure unless all work owned by or on which the project depends is complete (Bentley, 2003). At the last NRB meeting those handover decisions were not taken. The DoN closed the E-Rostering project after the last implementation and disbanded the NRB. Further work on the unfinished adoption, for example, other system interfaces, was left hanging.

5.3.3.2 Roles and Practice

The core Project Team of four kept in close contact. The Project Manager focused on the training activities and the production line of phased implementations. The Project Stage Manager covered project office administration and arranged all training sessions.

The researcher in monthly NRB meetings could see key PRINCE 2 roles including Senior User and Senior Supplier were not covered effectively (Bentley, 2003). Defined work streams with clear leaders were not in place, except for user training. Project assurance was not defined or in process, configuration management and quality standards were not present (Bentley, 2003). There were no criteria for success other than implementation dates and holding the supplier contract costs. The principles and processes of PRINCE2 were not fully understood or deployed by the members.

There was no observed sanction beyond reputational threat and the DoN's sarcasm for those who did not complete their actions. There was an observed concern to keep problems from the membership; instead they were handled privately by Project Manager and Chairman. NRB meetings started at 16:00, limited to one hour, implying they were an encumbrance.

The supplier was not invited to the NRB once the contract was spent, rendering their experts unavailable. Service managers were not invited to the NRB and neither were their geographical directors. Therefore, apart from the WM ambassador who rarely attended, the NRB was free of end user and line management representation, essential under PRINCE 2 (Bentley, 2003).

To finish installation required interfaces between HR systems and E-Rostering and between payroll systems and E-Rostering; integration of ordering and scheduling of temporary staff into E-Rostering; and setting up permanent E-Rostering system administration plus manager and staff training. At the time of writing no further progress had been made.

5.3.3.3 Cost Management

Project cost accounting was rudimentary with no time recording, no overhead allocation or fully absorbed unit costs applied by resource. There were no formal work streams in the project structure to allocate costs against. Spend with the supplier was tracked against contract but was the only cost discussed at the NRB. There were no activity breakdowns, resource calculations or critical path planning. The project was driven by calendar dates for implementations without quality criteria. There was no benefits realization work stream. The likelihood of extended transition periods with costs post implementation was not recognized. The full costs of this E-Rostering adoption are therefore not known.

5.3.3.4 NHS Advice about E-Rostering Implementation

NHS Employers published a guide to implementing computerized rostering advising on key actions, on rostering policies for Trusts and detailed advice for implementing an E-Rostering system (NHS Employers, 2007). It listed suitable software suppliers with numbers of NHS installations (already 25 in 2007 for the supplier in this study) and likely procurement costs. This on line accessible guide offers 14 experience-based top tips (NHS Employers, 2007).

This guide was not used in any NRB meetings and the Trust unwittingly has embraced only three tips and partially one more (see items 2, 4, 11 and 1; Appendix One).

The software supplier organizes a customer user group to share experiences and influence software upgrades but the Trust has not yet joined. By 2010 this supplier claimed over 100 NHS Trust customers running its E-Rostering suite so external knowledge is extensive.

Training reception and how the trainers respond to feedback and help workforce managers navigate new ways of working and technology are important factors (Huq et al., 2006). Training by the project team was the dominant implementation activity and key factor of change enactment. Therefore the next section reviews the perceptions of those trained about their training and how it influenced their responses.

5.3.4 E-Rostering Training

5.3.4.1 Trainers' Roles

The Project Team trainers (PT2 and PT3) were anxious to secure their role post E-Rostering adoption. They saw themselves as seconded only and therefore limited their behaviour and contributions as change agents. PT3 expressed it clearly:

> "Once I have trained them I don't go back and audit. If my role is to go and check these things are actually working, nobody has told me that. I train people up to the point *where they are happy, the rules are all in there for them to their satisfaction* and they go and that's it".

Note the author's italics in this quote. This trainer is treating WMs as clients and not enforcing central policies. He has adapted his role to meet their needs.

5.3.4.2 Training Focus on Technology

The literature emphasizes the importance of the change management and organisational processes set up to adopt technology (Kotter, 1996: Davenport, 1998; Nah et al., 2001: Mourier and Smith, 2001). Training is a key element and said to moderate recipients' responses. Organizing staff to change working practices and realizing benefits from the

technology adoption were not the concern of the trainers. WMs all said E-Rostering training was focused upon system functionality. It was a new tool:

> "How to use it rather than what we are going to gain from it by using it" (WM1); "Here is the software and this is what it does" (WM3); "Training was not flexible enough. It wasn't focused on us as managers. My interpretation was we're just transferring paperwork into electronics but the downside was the electronics was more controlling, one size fits all" (WM7); "It just focused on the nitty gritty of how we can do rostering" (WM8); "I think we were just trained how to use the tool. I don't think it was tailored towards you know improving the way you work. I think it was just ensuring they were delivering the training" (WM10); "The training was just to give you an overview of what it is, how it works. I don't think it focused on individual needs of ward managers" (WM12).

These perceptions contrast with PT2's earlier articulation of his trainer's role as leaving WMs satisfied. WMs were not satisfied with training and wanted further support which PT2's role perceptions had foreclosed, after training "they go and that's it". WM8 summed up:

> "No, we were just told you know there's E-Rostering coming, 21st century stuff, management interest, so let's get on with it".

5.3.4.3 Service Managers' Late Training

WMs were trained to expect service managers to second approve E-Rosters. However, training for service managers was later than WMs by several months so this approval policy was disabled by the training sequence. Service managers were given systems access to sign off but without knowing what they were approving. Some 18 months after the last implementation formal considered approval is rare leaving WMs in control.

5.3.4.4 Lack of Formal Policies to Guide Training

As discussed in 5.1.1.6 new rostering policies were not published until nine months after E-Rostering implementation, meaning this important factor recommended by supplier and previous research was missing. Therefore trainers advocated their informal policy views to WMs, combined with local ward practices by negotiation during training. Agreed shift patterns and rules were set up ward by ward before each implementation. The service managers were excluded from these negotiations although supposed to approve rosters.

E-Rostering introduced on line entry of duty requests by staff, deadlines for requests and frequency limits. Training staff to make on line requests fell to the ambivalent and adapting WMs. Although supposed to replace request books, written logs and diaries, many wards kept them running in parallel.

WMs said they had prior experience of managing changes, for example ward relocations and care pathway improvements, but not of introducing new technologies. They had not received formal training in change management. Nevertheless, there was a common refrain amongst WMs on how to handle a change like E-Rostering. They would respond by "Being involved" (WM7); "Communicating with staff, getting them on board, guiding them" (WM9); and "Coaching" (WM11), in essence a professional ushering process.

5.3.4.5 Training on Success Criteria

A key element in applying computer technology is to have criteria for success and measurements and signals that confirm performance is moving as desired (Bentley, 2003). The E-Rostering system is rules driven and displays colour coded icons to show whether rosters meet the rules but rosters may show positive icons but not be economic or operationally sound. WMs provided examples: newly qualified staff without supervision; leave patterns conflicting with clinical needs; best clinical staff working nights when patients sleep; supervision of agency staff demands experienced permanent staff; staff working patterns conflict with rules.

When WMs were asked for perceptions of criteria for success for E-Rostering they all repeated variations of the training mantra about screen icons. Typical quotations are:

> "When the shift is green ... if it's pink or orange, a little click on it and it will tell you the warning" (WM1); "When you have less pink and more green, it shows that you are complying with the rules that you've input into the system" (WM3); "It will show you if you have broken the pattern you set up for an individual" (WM6); "For me when I see less red, less red on top, less shifts left, yes, when I see less of those, then it's effective" (WM11); "There are two ways – using so called electronic buttons to see whether...that's one way. Having done that, I use my own judgement. We weren't given any say in the criteria. Obviously one has to make a judgement" (WM10); and beyond the system using "Other criteria which systems won't have" (WM13).

WMs were clear they had not been trained in performance criteria beyond screen indicator warnings. Nevertheless, they responded to E-Rostering adoption by retaining control of rosters, overriding system criteria whenever they professionally judge it necessary.

The NRB members recognized behavioural changes were needed to achieve the desired outcomes from E-Rostering adoption. The means to these behavioural ends was partially vested in the technology itself (the "magic bullet" of Markus and Benjamin, 1997) alongside the mission of the trainers to deliver new rostering and requests policies to WMs and their staff. Therefore the Project Team's views of desired behavioural changes and what actually happened are important findings, examined in the next section.

5.3.5 Project Team Perceptions about Behavioural Changes

The Project Team felt more engagement and support was needed from service managers, WMs and their staff, and recognized their full cooperation was not secured. "It needs more buy-in from all of them" (PT3). They said WMs needed to adopt and enforce the rules. Similarly service managers were disengaged. PT2 expressed the higher ground succinctly:

> "Effective rostering is about each person taking responsibility, not just the person creating the roster. Behavioural change is owning the vision of the organisation and then looking at how you fit in".

The behavioural changes required of ward staff were clear to the Project Team.

> "The main thing is making a request earlier and being able to negotiate when you get annual leave periods well in advance so everyone knows what they are, changing the way you do personal planning and transparency for everybody" (PT2).

It was left to WMs to achieve these behavioural changes despite Project Team views that

WMs had not fully bought in. The Project Team reported that WMs perceived the change management approach as loading them with difficulties. They felt targeted and responded defensively. For example:

> "Some find it quite intense...issues around basic IT as well...not getting enough time to actually update the changes in time...most of them felt it was more work" (PT2) and ward managers reported as saying "This thing doesn't change anything, it's just given us more work. If it was shown the service actually needs this system to run better we might probably be more successful" (PT3); "A lot of them think it's just Big Daddy watching you" (PT3) and "The ward managers think this is targeting them" (PT1).

The Project Leader's view of the change management process was heroic and one size fits all, the lowest level of the organisational change maturity model (Paulk, 1999). She said:

> "Change management? What do you mean? I think the change management is me ... using a bit of a Ford production line ... because it's like bang, bang, productive ... yeah, I am repeating the model".

The literature describes this as *technology as artefact* delivery (Orlikowksi, 2000) which does not consider people's use in practice of technology, a key factor in acceptance models (Venkatesh et al., 2003) and does not follow through into transition stages, the social and organisational consequences post installation. Therefore the consultation and communication aspects of the Project Team's role may be factors and the next section looks at these.

5.3.6 Consultation and Communication

Consultation is an important element of change management and communication is a skill that enables effective consultation (Cameron and Green, 2004). Consultation needs to cover strategic reasons for the change and what is expected to happen to whom, how, where and when (Mourier and Smith, 2001). Therefore communications, discussed in Chapter 5.1.7, also needs consideration as a specific element of the E-Rostering change management process. Here phenomena overlap with context as communication is both event and cultural element, influencing the Project Team's role, stakeholders' inclusion and responses.

5.3.6.1 Project Team as Communicators

The Project Team approach to change management was predisposed by prior experience of changes at the Trust. They perceived that: culture was top down and changes were imposed; staff had to cope with disruption; communication was poor and one way, downwards. The "biggest problem is lack of awareness of change across the organisation by people who are directly affected" (PT3). On E-Rostering service and ward managers were "just catching up and finding they are in charge of it" (PT3).

The E-Rostering project did not have a communications work stream, as PRINCE 2 recommends (Bentley, 2003). The NRB focused upon calendar driven implementation. The Project Team had no training in change management techniques and communication became negotiation. The Project Team did not see its role as consultative. "This is the way we've always done it" was the perception of the most experienced trainer (PT3). He continued "We train them to go and train their staff. Any problem there has been dealt with by the ward managers". The trainers learnt from the supplier's system training and applied it as technology delivery.

The Project saw themselves as technology trainers in a self-confined role as described above (PT2 and PT3); implementation leaders (PT1 backed up by PT2); and project plan administration (PT4). The sufficient project plans were a timetable for phased training of groups of WMs. NRB minutes were circulated to members and the DSDP only. There was no visiting of implemented wards by managers in next phases to learn what had happened.

The Project Team communicated reasons for and benefits of the technology through training presentations and then conversationally. They used benefit slides co-opted from their own training and supplier manuals. There was no separate communications plan which the PRINCE 2 processes recommend (Bentley, 2003). E-Rostering plans on the Trust intranet timetabled training and live dates and offered statements about "What E-Rostering can do".

The Project Team fed back to the DoN and DSDP how E-Rostering was progressing, mainly outside the NRB. These closed communications did not reach service managers or other wards. They were motivated by the need to inform and escalate problems whilst controlling who knew about them. Communication within the Project Team was observed fast by the researcher but was primarily in service of the Project Team rather than WMs.

5.3.6.2 Lack of Consultation with Ward and Service Managers

The WMs gave a universal disclaimer to both questions when asked if they had pre-consultation about the decision to adopt E–Rostering and about the best change management and training approach. Most did not know what the NRB actually was or who sat on it beyond assumptions of Project Leader and DoN.

The baselining exercise recommended by the supplier and the NHS (NHS Employers, 2007) to review historical operational practices did not happen. Discussions about practice happened only at training. Trainers' enquiries exposed local working patterns and rules in so far as WMs declared them. These, the Project Team advised, were acceptable, or not. This limited consultation led to negotiated compromises between the trainers and each WM, legitimized by inclusion as local rules in each ward's system implementation. Each WM then had to sell, explain and negotiate the way forward with staff.

Service managers were similarly not consulted despite their higher rank about the decision to adopt E-Rostering or how to manage the changes. Some expressed annoyance because the project affected them, their wards and staff, so their involvement should have been early and deep. Their training was late and separated from their WMs. This excluded service managers from negotiations about local ward rules although line accountable for both rules and compliance.

The business case was a potential communicator of the benefits of E-Rostering and its accessibility a success factor in previous research (Cameron and Green, 2004). However the service managers and WMs had not seen it. This non-circulation seems dysfunctional, because it denied early feedback from those affected, although it was culturally consistent with senior managers' sensitivity about information control.

5.3.6.3 Negative Perceptions of Communications

The WMs' perceptions of the change management process reflect the low degree of their consultation, negatively influencing commitment and responses (Collerette et al., 2003a, 2003b). "They told us and we knew it was coming" (WM14). Others confirmed imposition:

> "E-Rostering is coming in. Make sure you are available [*for training*]. No annual leave to be taken, that kind of thing" (WM5); "We [*trainers*] are going to do training and you implement" (WM8); "They said this is the date and these are the ways we are going to be running and we will do this ward first, that ward second and the other wards after" (WM12); "It was all very much an imposed thing, wasn't any discussion about anything really" (WM14).

Pressure was a theme because project timetables meant some wards were implemented at holiday times, others independently of care workload, others when they had serious manpower shortages and others all three. This evoked a groundswell of negative reactions.

Some WMs delayed attending training. Some were unable to organize preparatory work on ward data and knowingly went live on imposed dates with serious data issues. Nevertheless, no implementation dates were missed. One WM speaking for his colleagues said:

> "I feel it was rushed. It wasn't much welcomed from a manager's point of view because it felt like another controlling tool. Are they saying we are not doing our job properly? So you tend to take it negatively" (WM7).

The WMs were not consulted, the technology was imposed under time pressures and was not welcome, leading to negative reactions and provoking resistance affecting delivery of benefits which lies with WMs after implementation. How transition from prior practice to settled new practices was perceived is considered in the next section.

5.3.7 Transition

The literature is emphatic that most technology adoptions have transition phases during which process and organisational changes settle in after technology arrival. Transition may be part of project responsibilities or fall to operational managers. These challenges can lead to unpredictability in outcomes (Collerette et al., 2003a, 2003b).

Transition illuminates differences between project based views of technology adoption and the broader approach of change management. The latter more thoroughly encompasses the process, organisational and people related aspects of the change which may continue long after installation of technology (Bridges, 1991; Kotter, 1995; Senge et al., 1999; Bridges and Mitchell, 2002). Therefore service managers, Project Team and WMs were asked for their perceptions of post installation progress to gauge the continuing change management practice and emergent responses of the WMs.

5.3.7.1 Lack of Support for Ward Managers in Transition

Service managers' said E-Rostering was a long way from being settled. System reports showed service managers were not approving rosters and wards were each going their own way. Only one service manager (SM3) appeared closer to what was happening but even she was not approving rosters. A colleague said "By the summer we should have people pressing the auto-roster button" (SM4), actually six months late. On settling down another said "No, it's too early to say" (SM5), again six months post implementation. Service managers recognized further attention was needed from themselves and the Project Team to help the system, WMs and staff to settle down. However, the trainers were disbanding and the line managers were left holding the can. This tirade from SM5 crystallized this view:

> "They implement, then they disappear. The support network is never available. Where is the promised users' network? Where is the managers' network and review promised by the Project Manager? Where are the meetings where service managers and general managers will share information?"

Nevertheless responsibility and risk had transferred by default to WMs.

PT2 moved into a WM's job but was not replaced in the Project Team. PT3 is in limbo still taking support calls but has not properly returned to his former position or been offered a new one. As PT2 said "It's mainly the responsibility of them to say I have a query and I need to put it forward, seeking support". PT3 distanced himself from the settling down question: "I can't say because you know I haven't been on the ward and worked it myself", although he has access to all the E-Rostering system signals and reports.

5.3.7.2 Visible Resistance by Ward Managers

Post the last implementation the (ex) Project Leader occasionally scrutinizes activities of service and WMs now that open ended transition is extant. She does not like some of what she can see or the stories WMs and others are telling. For example, she said:

> "It's typical. The most overspent ward in the Trust, the ward manager hasn't opened it [*E-Rostering system*] since December [*this quote is dated March*], since the training. We have numerous behaviours, complainers, system is too slow, cannot log in, different things. *Passive aggressive resistance* I call it. They're quite aggressive at not doing it. I have a log on the computer, what time they ring and what time we resolve it, so I know exactly who... Yes, they don't know but I do know" (PT1).

The Project Leader and trainers can see in the system what is happening across the Trust. She knows therefore when WMs and their staff are projecting misleading accounts about user activity and system processing. The trainers confirmed gaps to the researcher between what they wanted to see happening and the data processing logs. For example, when triangulating WMs' perceptions of system problems or of auto roster issues, the researcher regularly found technical system logs were accurate even if in dispute. The WMs and staff blamed the system or lack of training. The Project Team blamed WMs and staff. There was no joint initiative to investigate root causes and agree resolutions and the IT function kept out of the way.

The ward autonomous culture may legitimize the dissemination of misinformation as resistance to external controls or direction. Positioning information from lower levels was relayed without checking. Solutions to faults may not be sought when "faults" substantiate

defensive positions. Denials of functionality and processing were happening even though WMs know from training and responses to their own queries, that actual E-Rostering system usage records are visible to systems administrators.

5.3.7.3 Adaption Rather Than Adoption

Ward managers all perceived that E-Rostering and associated changes were settling down. Although they had had the system for periods ranging from 9 to 62 weeks before interview their views of transition were convergent and fatalistic: the changes were unavoidable; the system would not go away; it is always their role to manage the situation; difficulties were to be expected. They perceived changes were easier for those managers and staff with confidence and skills in information technology.

Seven interviewed ward managers (WM4, WM5, WM6, WM8, WM9, WM10, WM14) admitted required personnel data was incomplete in the system; for example, training records, though live for up to a year. The system was made live to calendar, leaving WMs with predicable problems caused by data quality.

All WMs took responsibility for what happened post implementation with common themes of effort to train staff and secure cooperation and managing transition locally in absence of guidelines. Interviewed 62 weeks after implementation, the ex-trainer new WM judged she was still in transition. She said: "I don't think it's gone very well"; summing up the problem as "It's just the digestion of the whole process" (WM15). Of her WM peers she judged: "They have not connected with the arrival of E-Rostering, with objectives or changing things, or doing things better". She was disappointed as she had trained them. The trainers believed pre-implementation training was sufficient but later recognized lack of early consultation led to problems post implementation that were hard to ameliorate because of lack of support.

The experienced WM4, 43 weeks post implementation, was effectively running the old manual processes, using E-Rostering only to store data and print rosters. He laughed at the idea of any settling down. He may be adapting but had not adopted E-Rostering.

5.3.7.4 Perceived Scale of Change

The bigger the change, the more extended the transition (Bridges, 1991; Collerette et al., 2006). All but two (WM5 and WM15) of fifteen interviewed WMs said E-Rostering was a major change for themselves and their staff, exacerbated by lack of support when training and negotiating with staff over new request methods, policies and E-Rosters.

WM5 said the changes were moderate but as a smart precaution she had two deputies trained up to run E-Rostering. WM15 the promoted trainer, thought it was not a major change but noted behavioural change was still needed from staff. Their colleagues perceived behavioural change as major, exacerbated by the need for confidence in using computers. WM13 was in a "grooming scenario" with his staff. Getting them to plan requests for leave up to 18 weeks in advance he said required "a major cultural change in attitudes to work". Achieving this major behavioural change had defaulted to WMs, increasing workload and stress, provoking defensive adaptive responses in context.

The implementation of information technology which changes practice and social interactions is an affective event and may change virtual organisational structures (Orlikowksi and Robey, 1991). Therefore the influence of the change management processes considered above upon the users' cognitive and affective evaluations and behaviour must be seen alongside their perceptions of the efficacy of the technology and outcomes. The next section illuminates technology efficacy and perceived outcomes, Boxes 3 and 4 in the research theoretical framework as salient factors alongside the primary research questions.

5.4 TECHNOLOGY EFFICACY (Box 3) & PERCEIVED OUTCOMES (Box 4)

5.4.1 Introduction

Previous research on technological adoption focused on factors which clear user paths for incoming technology. The Technology Acceptance Model (TAM) holds attention in publications by Davis (1989, 1993); Davis et al. (1989); Amoako-Gyampah and Salam (2004). The model initially spotlighted two attitudinal dimensions, perceived utility of the technology and its reported ease of use. Later variables recognizing social pressures augmented the predictive power of the model (Venkatesh and Davis, 2000). New information technology which changes practice and social interactions is an affective event, producing responses in stakeholders influenced by organisational factors and change processes (Orlikowksi and Robey, 1991). Recognizing the users' perceptions of the technology, its nature, the strategy behind its adoption and its efficacy are important considerations. The technology efficacy of E-Rostering is its fitness for purpose and is therefore a construct perceived by users in their contexts.

Therefore interviewees were asked about: their perceptions of expected benefits, key features and desired outcomes of E-Rostering technology; their perceptions of criteria for E-Rosters; their perceptions of how it works in practice, ease of use and actual outcomes; and the need for further developments, all factors indicated in the literature potentially influencing responses alongside organisational and change management themes. The following sections examine findings in these factor areas.

5.4.2 Expected Key Benefits, Features and Desired Outcomes

The Trust business case for E-Rostering describes aspirational benefits but does not detail their operational delivery although about 800 nursing staff are affected. It assumed current operations would be sustained although E-Rostering adoption was major change. Little consideration of people, lack of data cleansing and unconditional timetables suggest

sponsoring senior managers perceived the technology as a "magic bullet" which once fired by executive decision will inevitably hit the target (Markus and Benjamin, 1997).

5.4.2.1 Technology Supplier's View of Expected Benefits

The supplier declared generic benefits: improved utilization of staff; improved clinical governance; improved patient care; improved staff morale; reduced administration and better payroll accuracy. The supplier recommended steps for sound preparation and implementation to assure expected benefits. These were not taken seriously, the Trust releasing supplier experts after phase one on cost grounds.

5.4.2.2 Managers' Views of Expected Benefits and Desired Outcomes

5.4.2.2.1 Senior Managers

Interviewed senior managers referenced the same benefits rubric of reducing agency spend; controlling shift patterns; reducing favouritism; deploying correctly qualified staff; more transparency and fairness; and saving WMs and staff the presumed onerous task of manual rostering. These reflect the generic objectives of good staff deployment, now imprinted upon the "magic bullet" technology solution.

The DSDP (SeM1) who wrote the business case was expecting financial savings of about £300k per annum on agency spend and:

> "Mainly stopping team leaders having to spend hours and hours getting into fights with their staff, setting the rosters and arguing about them; have some savings; have some control over staff and agency usage; know what's going on".

He also had a concern for "equity" and wanted to tackle "Spanish Practices":

> "Old nurses or friends being given tasty shifts ahead of others; group scheduling; and one nationality always in charge of a certain shift".

The senior managers' knowledge about the selected software was limited but they attached positive attributes to E-Rostering. SenM2 (IMT Director) attributed:

> "reduce spend for agency staff, fairer rostering, meet nursing staff ratios...those are the main ones". SenM4 perceived "It's not about saving money it's about making sure we provide a safe and efficient service to our patients". SenM8 wanted to be able to "press a button that says here is a picture of the last few months, the highs and the lows".

SenM2, the IMT Director when asked if the Trust should roster at singular wards, by groups of wards, or by services (see Silvestro and Silvestro, 2008), he said: "I am not qualified to answer"; political distancing by the key technical NRB member. The Trust training manager (SeM1) hoped E-Rostering would mandate training through system reminders of skills' updates. Some resistance was anticipated:

> "I don't expect them to be enthusiastic to be honest. It adds to the agenda of corporate bureaucratic change. It suggests and implies an accountability ... you will be compliant with Working Time Directives, with effective and safe wards. This tool helps you meet all these and also we have the data" (SenM1).

The IMT director had a sales pitch for WMs on this technology artefact (Orlikowski, 2000):

> "They don't have to manage rosters which is a big selling point for them ... to do it by hand must be a complete nightmare ... they hate it ... but I suppose it's how it's sold to them. They should be enthusiastic ... if they're not, then it's been mis-sold to them" (SenM2).

On the contrary, most WMs showed nostalgia for manual rostering (see 5.1.2) and for the unfettered local control it gave them. The senior HR manager elliptically rationalized:

> "A lot of them will be very happy full stop because they are good managers and they don't have a problem. Those who do have a problem and have things to hide are not necessarily going to be happy and also will not like what comes out of it" (SenM5).

This bipolar classification ignores previous research which showed resistance can be stimulated by change agents through actions, inactions or insensitivity to local contexts and skill levels (Ford et al., 2008).

Imposed E-Rostering technology may seem regressive for a WM who perceived him or herself as an effective manual rosterer. The quality senior manager was pessimistic beyond her peers:

> "I would be amazed to find anyone who was terribly enthusiastic. There may be some who can see the value of it. They'll see this as a tool. However I think there is going to be utter fear and antagonism. I think there will be fear of the technology. There will be resentment at yet another imposition, people feeling de-skilled and showing suspicion" (SenM6).

Senior managers were not setting quantified targets. They saw E-Rostering as a tool to make service managers better informed and proactive and to give senior managers more information about wards. They also conceded resistance from WMs and their staff to perceived attempts to increase control with this technology. Conflict was seen likely to mitigate the desired outcomes.

5.4.2.2.2 Service Managers

The service managers' expectation of benefits was limited by their exclusion from the E-rostering adoption decision (see 5.3.4). After training they foresaw opportunities for monitoring ward activities:

> "I recognized that you would be able to analyze the variables in term of skills, time used ... it was highlighted that you could do sickness, absence analysis and annual leave planning and training planning" (SM1).

> "The key benefit is that you can see across at a glance if there is overspend, if people are not doing it properly, like allocating more shifts than required, pick up the holidays. So you can monitor all this. There are a lot of advantages to E-Rostering. I am quite keen on it. I don't need to go to the ward to check, which is a great thing" (SM3).

SM3 stands out as an engaged enthusiast and the only service manager in late summer 2010 trying to approve rosters for her WMs and ensuring requests are closed.

Service managers' perceptions of desired outcomes reflected supervisory and control ambitions rather than a user's view:

> "A system that minimizes the workload for the ward managers in terms of rostering, that enables them to put into practice policies and procedures we have to achieve in the Trust, on the back of that, work within budget" (SM4).
>
> "Help with financial balance, with fairness for the staff, transparency and honesty about rostering" (SM5) but who also added "I am not target setting. I am making sure they adhere to certain rules".

The only service manager with prior E-Rostering experience foresaw better data control:

> "It forces you to maintain people in terms of managerial supervision, qualifications and personal development, on top of statutory mandatory stuff as well" (SM1).

SM2 anticipated:

> "Better management of staff in relation to their sickness, annual leave ... make sure the wards run more efficiently at a lower agency spend".

Service managers were reifying E-Rostering, attributing the "magic bullet" system with some control elements of their own role (Markus and Benjamin, 1997).

5.4.2.2.3 Project Team

The project team leader and trainers (PT1, PT2 and PT3) learnt about expected benefits of E-Rostering during five days of training by the software supplier. PT3 rationalized his perceptions about users' requirements: "If I was a ward manager, it would meet mine". The Project Team expected the system to produce effective and workable E-Rosters although they had not formally tested the software or compared it with manual rostering. Dry runs in training were stalled by ward data issues.

The project team members recounted the benefits rubric as desired outcomes: efficiency, fairness, transparency, safety and saving agency costs. Prompts revealed more specific expectations from the Project Leader:

> "Actually use it as a management tool, in terms of sickness, rostering, fairness, the whole lot. I'd really like that to happen, so they can see the benefit of it. I think they can start doing that now, but are they? No they are not" (PT1).

PT3 put himself in the WMs' shoes:

> "I think ward managers don't want to see any changes to what they were getting from the manual roster. They wanted exactly the same result. They used to roster on a week by week basis with no regard for money...Under the E-Rostering system you're accountable, whereas under the old manual system no one will check it" (PT3).

The Project Stage Manager (PT4) said: "Cost is number one by a long mile" and recalled agency spend reduction as a key objective in the business case.

Desired outcomes articulated by the trainers' (PT2 and PT3) and Project Leader (PT1) came from the supplier's sales pitch and Trust's corporate themes: agency costs were too high and eliminating "Spanish practices" (SenM3) was a moral objective.

The Project Leader (PT1) predicted a lengthy transition period saying:

> "Two years down the road, as time goes by, the majority of them will like this system. Now people feel control has been taken away from them. The ward managers think this is targeting them".

PT2 was more focused on utility:

> "Some feel that it is extra work, others feel they have been given a tool able to manage day to day issues in rostering and staff".

Her colleague PT3 was cautious:

> "Difficult. I don't know to be honest is the plain answer. I work on the premise that if they don't tell me, if they don't moan and groan about it, things are going okay".

The researcher observed that PT3, an experienced WM himself, was reluctant to relay negative perceptions from trainees because that could reflect upon him.

5.4.2.2.4 Ward Managers

WMs' expectations of benefits came from a DoN's monthly meeting and trainers, reflecting the supplier's marketing. They rationalized this unsolicited technology and policies as there were always things to do well and it might help: use staff efficiently; be fair in allocating duties; keep track of staff skills; allocate the right staff; and use agency staff less.

WM2, WM3 and WM4 reported encouragement from the Project Leader (PT1) and her trainers (PT2 and PT3) to expect E-Rostering to improve their own and their wards

performance. WM1 recalled the caveat "Yes, but auto roster - you have to come back and change it" (WM1), setting the bar lower for auto-rostering than its name suggested.

WM10 had high expectations of auto-roster but the trainers cautioned him:

> "I was lead to believe that you spend less time, everything will be done for you, you press a button and things will be generated. However when we attended the training we were told no, this solves nothing, you have to go through it. So improve your job performance, no".

WM4 and others reflected the top down organisational culture saying it was:

> "Mandatory encouragement ... we were told we were going to be encouraged. It's a "Look guys, we are going to be doing this and actually it's not as bad as you all think it is" (WM4). "Sold this to us, yes, telling us it's going to make our life easier. I still hear it from [PT3] - if I was a manager I would welcome this tool" (WM12). "Yes, obviously that was how it was sold to us" but qualified the sales pitch with "I can't remember them making any suggestions about specific improvements" (WM6).

It was a desired outcome that nursing staff support the E-Rostering extended cycle and new request submission deadlines. However, they had not been consulted. E-Rostering was a major change for them. New longer roster cycle policies were undesirable.

Different ward contexts were evident in WMs' perceptions of their most pressing local problems, described in Chapter 5.2.6 above, alongside the fundamental issue of shortages of permanent staff. E-Rostering was not perceived by WMs as offering solutions to local pressing issues.

All WMs attributed saving agency costs in their perceptions of higher management motives. The rubric from training sessions resonated with the Trust culture of budgetary control. The strategy to enroll service managers in roster approvals was perceived by WMs as offering service managers more control. This was not a desirable outcome for WMs.

In summary, WMs' perceptions of desired outcomes were received through training as potential performance improvements: time saved when rostering staff; better allocation of appropriately skilled staff of right gender; savings in agency staff; control of days off

through on line requests; and system data as evidence in staff monitoring. WMs expected auto-rostering to produce largely complete, workable efficient E-rosters.

Their perceptions of how an unwanted E-Rostering solution might be judged acceptable are salient. What criteria would they and the service managers employ to judge an E-Roster efficacious? This is discussed next.

5.4.3 Operational Criteria for E-Rosters

System training identified screen icons, colour signals and certain data as indicators but service and ward managers were also asked for their perceptions of criteria in use to judge E-Rosters and progress towards benefits.

5.4.3.1 Service Managers' Criteria

The service managers admitted no criteria for E-Rostering, either carried forward from manual rostering or new for approval of E-Rosters. Their concerns were to avoid overspend and avoid deployments which may threaten patient or staff safety, concerns which pre-dated E-Rostering. The enthusiast (SM3) was explicit:

> "No, there is no such thing as criteria but ... if not right the colour will change. I can check lots of things". Her colleague (SM1), not a system user speculated: "It won't necessarily tell you if clinical situations have come up that require more staffing ... can happen in the middle of the night". SM5 said "The bible for me is my on-screen top bar" but on approvals: "If I do it correctly the way that PT2 and PT3 trained me, it actually takes a huge amount of my time". SM4 perceived usable criteria in the rose-like icons: "Well, if it meets the service needs basically, so if it's all green and not red ... and there are no flowers, not loads of flowers on it".

With up to five WMs each, service managers' perceptions about criteria for rosters crudely reflected training in screen icons rather than deterministic performance standards, confirming their distance from the Trust's strategic reasons for this technology.

5.4.3.2 Ward Managers' Criteria

The WMs' articulation of success criteria included screen warnings of rule infringements, but not measuring strategic business benefits. Nevertheless, all WMs said they were responsible

for ensuring rosters were operationally practicable and clinically safe. They exercised judgement, modified computer-produced rosters even if showing wholly "green" icons and expected endorsement for such professional action. They achieved roster acceptability and effectiveness autonomously on their own wards. Findings about E-Rostering technology in practice, its perceived utility and ease of use and perceptions of actual outcomes are discussed next.

5.4.4 E-Rostering Technology in Practice and Actual Outcomes

Trainers communicated that an eight week roster prepared four weeks in advance was the target. The NRB believed E-Rostering would deliver this new cycle through auto-rostering, with the assumed cooperation of ward staff making requests for off duty periods four weeks in advance. The next sections examine what actually happened.

5.4.4.1 Technology Acceptance

5.4.4.1.1 Ease of Use of E-Rostering System

Previous research advises ease of use is a strong factor in technology acceptance (Venkatesh et al., 2003). Ten of fifteen interviewed ward managers perceived E-Rostering was easy to use. However, only two of these ten responses were unqualified and one of those (WM15) was from a promoted E-Rostering trainer. Qualifications from the other eight included four (WMs 1, 2, 7, and 11) whose enthusiastic deputies were enabling; WM3 was positive but still training his staff; WM6 said cynically E-Rostering was good for printing rosters; WM8 reported local network issues but availability was 99.5%. WM10 perceived regular use necessary to sustain skills. More support and training was needed.

Of the five less than positive perceptions, WM14, a manual rostering fan, was hostile:

> "We tried to keep the rules that we implemented into the system very simple because apparently the more rules you put in the harder it is for the computer to do the rota. That is what we were told, so very basic rules we put in, so it was easier to do it" *but* "Now there's not enough rules in it".

Her deputy was positive and said problems were their legacy of long shifts (12.5 hours),

different from other wards, and data quality issues. Three shifts give a 37.5 hour week with four days off. This WM complained about correcting staff data in the system:

> "Half of all that information doesn't correlate with reality" and HR "had too much workload. They've told us how to do it, needs time you don't really have" (WM14).

Also less than positive, WM9 said "Well it doesn't really work in practice" but was still using manual rostering, had not persisted with the system or asked for support from the project team. On his new ward WM4 had found the E-Rostering system a struggle:

> "What was written into the rules of the roster did not reflect actually how the ward worked. The real establishment on the ward did not reflect the establishment that was put into the system, not even implemented the wrong way. It just wasn't implemented" (WM4).

WM5 after nine weeks of usage said it was tedious:

> "What I am trying to explain is on a manual one when someone wants to change shift you just cross it out or tippex it out, you swop the shift around. Takes two seconds. On this one you have to go and log in, get to the right page, you wait around, then you have to swop it around and then it shows – oh you've changed your mind – it's shown up as a sunflower [amber icon] and you keep on constantly".

The fifth less than positive WM was disapproving in two ways. He had "No choice but to use the system". His expectations had not been met:

> "At the moment all of the pieces of the puzzle are not completed so I would say if it's not completed, yes, I will say yes, send it back" (WM13).

He was referring to uninstalled electronic linkages from E-Rostering systems to the Human Resources systems and Payroll systems, system features recommended by the NHS (NHS Employers, 2007). These linkages save form filling and increase completeness, accuracy and timeliness of personnel records and introduce paperless payroll instructions. However when closing down, the NRB abrogated responsibility for installing these interfaces.

5.4.4.1.2 Utility of Auto-rostering

Auto-rostering is the functionality within E-Rostering software that processes required shifts and staff qualifications under configured rules to generate E-Rosters thus deploying staff. Although ten out of 15 WMs were positive about ease of use, the utility of the system for

generating workable rosters was not perceived acceptable by any of the fifteen interviewed. The auto-roster percentages in the last column of Table 5.4 on p172 ranging from zero (not used) to 60 per cent show a serious general failure in utility.

Higher percentages of auto-rostered shifts did not coincide with positive perceptions of ease of use. Neither did negative perceptions coincide with unusually low percentages of auto-rostered shifts. Four of the ten positive WMs (WMs 1,3,8,12) were showing figures ranging from 0 to 22.4 per cent for auto-rostered shifts, lower than the five less than positive WMs (WMs 4,5,9,13,14), who ranged from 29.4 to 60.7 per cent. This suggests perceived ease of use and perceived utility may be disconnected factors for WMs.

The other six positive managers (WMs 2, 6, 7, 10, 11, 15) ranged from 42.6 to 59.6 per cent of shifts auto-rostered. WM15 (ex E-Rostering trainer) delivered the lowest (42.6%) of this positive group reflecting (she said) local staff issues. She manipulates the computer generated roster for permanent staff, allocating experienced Trust nurses to supervise agency staff, because auto-rostering does not. She was intelligently using her clinical judgement to override generated rosters. The highest auto-roster percentage of 60.7 was achieved by the determined E-Rostering ambassador (WM4).

Positivity about ease of use may not relate to auto-roster utility because the system allows manual adjustments. WMs do not depend upon auto-roster utility in practice because E-Rosters can be worked around, an easement. The utility of auto-roster, a prime factor in technology acceptance (Venkatesh et al., 2003), was displaced for WMs by the important availability of easy flexible manual adjustments.

5.4.4.1.3 System Reports Usage

The E-Rostering system came with a suite of standard reports for ward and service managers for performance, exceptions monitoring and control purposes and administrative reports for

system supervisors. The author used this reports database for triangulating statements and perceptions of interviewees with system records.

All WMs said E-Rostering reports were not covered in training and they were not using them. Neither were service managers. Nevertheless, WMs liked having individual staff sickness, roster, off duty, training, leave, qualifications, requests and personal data available on line.

Holding agency staff personal data in E-Rostering system requires further action at the time of research. WMs ensure agency resources are ordered from approved sources and they are qualified for duty. Each local WM arranges agency staff names and duties are published alongside or annotated to E-Roster print-outs for permanent staff.

5.4.4.1.4 Variations in E-Rostering Practice

E-Rostering practices at ward level are visible in the reports suite. This includes when they close off requests; when the WM approves his roster; when (if) his service manager approves the roster; the weeks forward for assigned duties; and the percentage of the roster that was automatically generated for permanent staffs.

The table in Figure 5.4 overleaf shows rostering status across interviewed WMs. This snapshot is typical of the continuum visible since implementation and allows comparison with policies.

The reader can see nearly all the wards had left requests' submission open when it should have been closed. No WMs had approved rosters for the next eight weeks. A deputy had approved one ward for eight weeks. Two deputies had approved their wards for four weeks and so had one ward manager. No forward rosters for any period had been approved by service managers.

The percentage of shifts allocated by auto-rostering varied between none for one ward to 60.7 per cent, the highest. Nevertheless all interviewed WMs had assigned their staff to duties covering the next four weeks, as under historical manual practice.

Figure 5.4 Table of Rostering Activities Records on 30 Aug 2010

	Staff On Line Requests Closed		Has WM Approved Roster?		Has SM/MM Approved Roster?		Are Staff Assigned for Period?		%age of Hours Set by Auto Roster
Period	30Aug to 26Sept	27Sept to 24Oct	30Aug to 26Sept	27Sept to 24Oct	30Aug to 26Sept	27Sept to 24Oct	30Aug to 26Sept	27Sept to 24Oct	For Staff Assigned on 30Aug10
Ward Key	4 weeks	4 weeks	4 weeks	4 weeks	4 weeks	4 weeks	4 weeks	4 weeks	
4	No	No	No	No	No	No	Yes	No	48.2
12	No	No	No	No	No	No	Yes	No	0
7	No	No	21Aug Deputy	No	No	No	Yes	No	51.7
14	No	No	30Aug Deputy	30Aug Deputy	No	No	Yes	Yes	29.4
6	No	No	No	No	No	No	Yes	No	45
10	No	No	No	No	No	No	Yes	No	59.6
15	19July Ward Mgr	No	No	No	No	No	Yes	No	42.6
1	10Aug Deputy	26Aug Deputy	29Aug Deputy	No	No	No	Yes	Yes	13.3
8	No	No	No	No	No	No	Yes	No	20
2	No	No	No	No	No	No	Yes	No	51
9	No	No	No	No	No	No	Yes	Yes	60.7
5	No	No	No	No	No	No	Yes	Yes	34.2
13	No	No	No	No	No	No	Yes	No	37.3
3	01July Deputy	No	No	No	No	No	Yes	No	22.4
11	No	No	13Aug Ward Mgr	No	No	No	Yes	Yes	47.2

Five out of the 15 were showing staff assigned forward for a further four weeks, eight weeks in total. No wards were scheduled for 12 weeks to published policy.

Wide variation in auto-rostering percentages, widespread lack of formal approvals by WMs but firm assignment for the next four weeks shows that each WM is controlling his own ward, partially through or despite E-Rostering systems. As some WMs put it:

> "The onus is on me" (WM11); "We are very assertive...we're in control of the environment" (WM1); "I just take my jacket off and get on with it" (WM2); "Running your own ship" (WM7); "Within my remit I'm usually able to get...them sorted" ((WM6); "I know it's part and parcel of my job to get things done. I have to do it myself. I have to find ways" (WM8).

The seven ward managers (WMs 4, 8, 9, 10, 12, 13, and 14) who had caveats about outcomes offered perceptions that recounted problems and difficulties. After his predecessor had simply not run with the system, WM4 said of outcomes:

> "I don't think there are any. Basically the staff think it's just gone away, that they don't have to use the requests' system".

Similarly, WM9 allowed E-Rostering to fade in practice and used local manual processes followed by entry into the system of operational data. WM8, WM10 and WM14 perceived E-Rostering as time consuming, adding work and causing stress. WM12 and WM13 offered cautious perceptions:

> "If you are just going to use it for doing a duty roster and nothing else, no, it doesn't make a difference" (WM12); "The uptake of it has been quite poor [the requests' system]. With culture shift, staff attitude and commitment to work, hopefully they'll be able to commit more, so I think it's early days" (WM13).

These wards had been live with E-Rostering for ten months before WMs' interviews and therefore were not in "early days".

The operational cycle in the July 2010 new E-Rostering policy is reproduced in Appendix Two showing new approval processes. However, these are not practiced by WMs and service managers. Their behavioural responses mean the auto-rostering function is marginalized and overridden.

5.4.4.1.5 Utility of Local Rules and Policies

E-Rostering impact will be influenced by WMs' perceived utility of the system but this is affected by its rostering rules and policies content. Therefore managers of the selected wards were asked whether their local rules had been included; how they judged rules and policies were clear and acceptable to their staff; and how situations might arise not covered by rules and policies in the system.

Eleven out of the 15 interviewed ward managers were sure their local rules were in the system as agreed. Of the remaining four (WMs 4, 6, 7, 14) WM4 claimed incorrect set up by his predecessor. WM14 said only very basic rules were in E-Rostering for her ward. "There are not enough rules in it" she said and this was now causing problems. WM7 insisted his

staff knew the rules but could not confirm his system's set up was correct. WM6 said he could not answer on rules, as not the incumbent at implementation. With 52 weeks in post he had had enough time to discover them.

Eleven of the 15 interviewed WMs were sure their staff knew the rules and policies from practice and because they kept them informed. Examples of their perceptions included:

> "Oh yes, that's part of my responsibility" (WM7) and "I think they know the rules, I've told them" (WM9) and "We've had discussions with regard to E-Rostering and in terms of what can and can't be done with it, explained in terms of shift patterns, how decisions are made over shift patterns" (WM10) and "Some of the staff know the policies inside out and they want to play it for as much as they can get" (W11).

Of four other WMs (WMs 4, 8, 12, 14) who perceived their staff as uncertain about rules, WM4 believed his predecessor, when "cooperating" with trainers, had left out some local rules and agreed incorrect establishment and inaccurate local working patterns. The relatively new WM8 thought his staff did not know the "nitty gritty" rules but perceived ward work patterns in the system were "As they were before the implementation of E-Rostering". WM12's perception was that rules in the system were regularly broken because they were incorrect. However, his auto-roster percentage was zero, showing the rules in the system were playing no part and he was rostering manually.

WM14 was very adamant her staff did not know rules and policies saying:

> "No, no. At the end of the day they're not interested in that are they, they're interested in am I going to have Thursday afternoon off. It's how it affects their lives, isn't it?"

The system display of red, amber or green icons indicating whether rules have been broken, threatened or met can be used to communicate to staff. "We can say look, there you are. The system doesn't allow it. Blame the system" (WM1) and another "No, I can't change the rules" (WM2) whilst remarking sagely that *he could nevertheless break them.*

When asked how they could tell if rules in the system lead to good rosters, WMs' replies converged upon their judgement. Their perceived concern was not incorporated rules even when seen as needing revision (WMs 4, 12 and 14) or any system logic. They do not know how the software rules engine functions and neither do the trainers, the service managers nor the senior managers. As they could adjust E-Rosters they did not have to worry about rules, or how the "black box" system used them. The trainers endorsed this pragmatic approach, despite negotiation over rules, saying WMs should be "Making sure that you know all the shifts are covered" (PT3) and "Able to tell that everything had been balanced and a good roster has been created" (PT2). The trainers were endorsing autonomy.

The WMs provided situations E-Rostering could not roster automatically: avoiding people clashes because of personal issues and diversity; staff with unofficial work patterns; scheduling registered staff onto non-registered duties to use available people; deploying staff between wards. Patients leave or return temporarily to families so reducing staffing needs, but the E-Rostering system has no patient-based demand parameters. Budgeted staff establishment and mix is a proxy for service demands, which are constrained accordingly.

5.4.4.2 Perceptions of Responses and Outcomes

5.4.4.2.1 Perceptions of Senior Managers

The senior managers were asked what their knowledge was of actual responses of WMs to E-Rostering adoption. Most showed passive interest in E-Rostering and distance from FLMs:

> "I don't know" (SenM1); "I haven't noticed any problems. When I am out and about next time, I'll ask. I haven't been on the wards for a while" (SenM2, IMT); "Not at the moment. I could probably find out if I asked Matron but I'm not getting official feedback" (SenM5, HR); "I haven't heard. Immediately before, I heard lots of complaints. I haven't specifically spoken to people about it so I don't know" (SenM6); "Being blunt I'm not sure I care what they think on the ground" (SenM7); "I haven't asked" (SenM9).

The DSDP (SenM3) and the DoN (SenM10) who supplied the project team and chaired the NRB respectively both got feedback from the Project Manager (PT1) whilst the DoN had

professional links with WMs. However senior managers lacked specific knowledge of outcomes and were not using system reports. SeM3 recounted cautiously:

> "As far as I am aware the feedback I am getting is positive, managers suddenly understand what is going on in their services, good quality information at their fingertips about training and [duty] preferences". *Following the mysterious deletion of E-Rosters he wondered if:* "There might be people voting with their fingers".

Despite the failed strategy of enrolling service managers through second approvals nevertheless the DoN was optimistic:

> "In most wards there has already been an efficiency saving with one two notable exceptions. WM15's ward was being well run anyway, most other wards were looser. There'll be different quirks from these arcane ways of doing things ... and many of the savings that have come out have been at no real cost to the staff, so it's meant a very painless saving for both managers and staff" (SenM10).

These positive assertions are of doubtful provenance, without hard data, related to her earlier contention that "intuitively we felt there were a lot of things possible". The DoN and the DSDP, closest to pre-implementation filtering of ward practices, were optimistic in contrast to predictions from their HR colleagues. There was little observed assessment by the NRB or senior managers of actual outcomes from system reports, or by simply asking the service and WMs or by walking around.

5.4.4.2.2 Perceptions of Service Managers

E-Rostering had more impact on larger wards was the perception of SM5. "I know that anecdotally" he said, "They are feeling some benefit". He scaled a large ward as having 18 beds and over 20 staff. All WMs selected for interview had wards exceeding these criteria. In similar intuitive vein SM2 asserted "I feel that the wards are running a little bit safer in terms of skill mix and gender distribution".

The six interviewed service managers did not offer quantified outcomes of the impact of E-Rostering although implementation six months earlier had affected their large numbers of

nursing staff. For example, SM4 had over 200 people. SM4 was aware her wards were not using auto-roster and her WMs were rostering manually, doing shifts' data entry and on-line adjustments. She pointed out "E-Rostering is a tool that allows you to see how that's been managed, but it doesn't make you manage it". System reports showed her rare access, proving her own point. She was not approving E-Rosters. Interestingly she remarked: "The Trust were saying this is going to have major saving, it hasn't achieved that, most definitely not" accusing the system when records showed service managers were not approving E-Rosters and or accessing reports. Their inaction and distance allowed WMs to adapt locally around E-Rostering. Auto-rostering, approvals, on line off duty requests and roster cycle durations and advance planning were left to WMs.

The service managers recognized opportunities for improved control of absence and sickness but had set no targets for WMs. E-Rostering was a benign tool, optional for service managers whilst letting WMs behave autonomously, a cultural continuum with manual rostering.

The fragmented scenario predicted by SenM4, the senior HR manager, was visible to the author across all four interviewed management groups and in observations of outcomes. The diffidence of the service managers to E-Rostering and their collusion with WMs contribute to fragmented outcomes. Evidence for variations in practice and outcomes was triangulated with system reports and project team's views on outcomes, discussed in the next section.

5.4.4.2.3 Perceptions of the Project Team

This section examines the outcomes for WMs perceived by the Project Team. PT1 was blunt: "There are still people not doing it [E-Rostering]. The culture hasn't changed yet". PT2 felt "some will say it is more work". She felt systemized operations may help consistent practice and common terminology but earlier findings showed local ward rules had been accommodated. The senior HR manager's prediction of fragmented implementation was confirmed by system reports.

PT3 guided the researcher to system reports monitoring E-Rostering practice and rules breakages, thereby communicating indirectly what he was careful not to say explicitly. He was reluctant to commit and felt:

> "It's too early. It's difficult to gauge whether it's working. It should take at least another year before evaluating whether it is beneficial or not, whether it's been implemented properly or not". He then added "by which time I'll probably be out of here" perhaps anticipating future issues and indicating a personal strategy for avoiding them. About ward managers: "Don't see them enough to pick up anything".

In summary, the Project Team saw E-Rostering as a management tool but perceived it was not in full use. WMs were using it as a mechanized form of manual rostering. Cost reduction was a desired outcome but could not be confirmed. The desired elimination of "Spanish practices" was not a confirmed outcome. An unplanned transition period, possibly stalling, was an actual outcome in many separate ward contexts. The Project Team believed WMs perceived E-Rostering made extra work whereas the desired outcome was less work. Ward staff were resisting longer roster cycles and policies about requests. The Project Team thought cultural change had not happened.

5.4.4.2.4 Perceptions of Ward Managers

The WMs' interview questions covered: impact upon how they do their job and the ward's performance since adoption of E-Rostering; actual important outcomes and results for them, their staff and patients; what the effects are and their responses as WMs; has E-Rostering improved their job satisfaction and if so how. This section examines the WMs' answers for these four key aspects.

5.4.4.2.4.1 Impact upon how WMs do their jobs

Six out of 15 interviewed ward managers perceived their job had not materially changed. For example: "These are things which we were doing already ... I don't think it's changed our roles or responsibilities or efficiencies" (WM6). Paradoxically four out of these six WMs perceived the adoption of E-Rostering was a major change for their staff.

A different four of 15 interviewed WMs had warnings that with E-Rostering it was the same job but with problems although a major change for their staff. Time consuming work was an outcome (WM7 and WM10) and E-Rostering "introduced something that I already have but instead of paper, it's computer" (WM7). WM5 perceived E-Rostering impact as limited because she was well below permanent establishment. WM4 new to a ward with "no implementation" said he had moved from "a position of confidence to one of containment".

A further four WMs (WMs 3, 11, 13, 15) thought their job had changed. WM3 and WM11 perceived that E-Rostering could reinforce their power:

> "Quite a powerful tool. It has got some king of authority. It's not only me telling you to do this ...[it is] coming from top management. I'm endorsing that" (WM3).

Two were pleased with E-Rostering as a general management tool:

> "We are able to produce eight weeks' rota, you're able to pick up the trend of when changes have been made [to the current roster], so to work with an evidence base is quite good. It's there for you" (WM13); and "It helps you start at the core of management, balancing finance, understanding what the Trust as a whole is trying to achieve" (WM15).

The remaining ward manager (WM14) criticized E-Rostering throughout her long interview, as time consuming, unsolicited and a major change for her staff. However, the author observed her deputy was positive and quietly working on the system.

5.4.4.2.4.2 Easily Available On-line Information

When WMs were asked to describe important outcomes for themselves, staff, wards and patients, eight of 15 showed supportive perceptions about secure on line information:

> "a better overview of agency use, pre-booking of annual leave, study days are provable, no filing" (WM1); "You can monitor. At a glance people will see where they are. It saves everything that you have done" (WM2); "Information at my fingertips, that's quite key" (WM6); "My boss can have a quick look at E-Rostering while sitting in his office" (WM7); "They [staff] can't make any changes [to the E-Roster] on the system. That's one thing I love very much" (WM11).

These are administrative and control gains for WMs with more available if they start using roster central, the E-Rostering reports suite.

5.4.4.2.4.3 Perceptions of Effects of E-Rostering Adoption

WMs were asked to imagine presenting to a conference of peers and to relate how E-Rostering adaption has gone, its effects and their responses. They were polarized with a) positive views about E-Rostering or b) negative views, perceived issues and problems.

a) Positive Views

Six ward managers took the positive stance (WMs 1, 2, 3, 11, 13, and 15), but one (WM13) augmented his "early days" caution and perceived need for culture and staff attitude shift:

> "It's less time consuming; you can see all your staff requests. You can pick up who's got a lot of needs every week. E-Rostering is saying you've got a problem".

The other positive summaries included:

> "It's been good. I feel good about it. Our staff comprises different generations, young people are quicker with IT, but we managed to crack it" (WM1); "I would say it was a good idea, I wouldn't throw it out at all" (WM2); "It's the awareness of it. It's beginning to shift the thinking about past and manual rosters. Those days are gone. E-Rostering has come to stay. We are assembling it now" (WM11); and "Makes clearer: budgeting responsibilities on the unit; staff development and training anniversaries; qualifications renewal; ways of working; policies and rules, Trust and local; and consistency of practice, for example, roster prints" (WM15).

b) Negative Views and Functional Problems

WMs' issues included cultural obstruction and functional flaws in the system's applications.

WM7 took a negative view of on line requests and auto-rostering:

> "That doesn't work because when people are requesting certain days off or annual leave they're not sitting down negotiating [with colleagues] who gets what. They are doing it independently on line, so what comes to me, it's a mix of everything. When I put it together in an E-Roster it doesn't make sense and has to break down".

E-rostering allows staff on line access to only their own shifts and requests history, a configuration mitigating transparency and contradicting historical practice. Conflicting requests arise from many individuals, as WM7 claimed for his ward.

WM4 was fighting serious problems on his new ward. He felt isolated and blamed, without support from above or the Project Team, the downside of autonomy.

WM5 rolled with the imposed new technology and policies whilst adapting locally:

> "The difficulty is in the process. It's learning how to do it [E-Rostering] and speeding up and yes, preparing the staff. I've got to accept it. It's finding the best way - how to use it".

She is balancing the top down culture and her autonomous role as ward manager. WM6 distanced himself from E-Rostering objectives of efficient deployment and saving funds:

> "I don't see its benefits for patients. I think it is a Trust cost savings measure" *He ruled*: "If clinical needs arise ... I will just spend the money".

His autonomous stance reflected views expressed by SenM5 from her HR position, that some WMs had difficulty reconciling their dual line management and clinical leadership roles.

WMs 8, 9 and 10 shared the perceptions of their colleagues that they required more support for transition and Trust new policies were dysfunctional, causing flaws, allocating staff to long periods on nights, off duty, or irregular shift patterns, causing resistance, so they adjusted the rosters.

SenM7 mentioned from his prior external experience the need for tuning E-Rostering systems, competencies only present in the disbanded Project Team, the released supplier, external consultants and other Trusts. WM9 and WM10 felt they would benefit from "speaking to somebody who has it all working positively". However, the Trust consistent with its perceived culture was not seeking such external advice.

5.4.4.2.4.4 Effects upon Job Satisfaction

Whether WMs' perceptions of job satisfaction had been influenced by adoption of E-Rostering was discussed with interviewees. Five WMs (WMs 1, 2, 12, 13, and 15) had optimistic perceptions: WM1 was clear:

> "Yes, it has improved my job satisfaction. We work together on it with a meeting, we organize ourselves, then I also look at it before it actually gets released. I can change it manually. We're very positive, we've embraced it".

WM2 said "It has helped me in so many ways, but I would like it to be 100 per cent foolproof". WM12 conceded: "It's got potential, quite a lot". WM13 reflected:

> "So many requests. E-Rostering when it is fully implemented is going to reduce that traffic. So then the job you have to do is going to improve. So it could be a yes, if everybody follows it and there's a commitment, but it could be a no if people don't like the change".

He thought the historic culture of granting off duty requests, meant people were not thinking far enough ahead. He summed up his main transition task as "grooming people to think like this" to adapt behaviour to new longer cycles.

WM15 felt E-Rostering affected her job satisfaction positively:

> "because it will help me do my job well" with the caveat " I have to get the staff to accept the processes and cycle times. They think these are major changes".

These positive views all had caveats: manual changes were needed; it was not yet foolproof; it was not fully implemented; not everybody was committed; staff were resisting new cycles. Unfinished business dampened the satisfaction of positive WMs.

Ten ward managers (WMs 3, 4, 5, 6, 7, 8, 9, 10, 11, and 14) did not perceive that E-Rostering was likely to improve their job satisfaction. WM3 said:

> "In terms of satisfaction E-Rostering does not actually acknowledge what I do. You want to be acknowledged if you do something good for the ward, managing the ward efficiently ... to get praised ...just an email, oh well done, that's it".

WM4 was wrestling with "no implementation" on his ward. WMs 5, 6, 7, 8, 9 and 10 thought their job satisfaction held back as they were transitioning to new technology with perceived flaws and adapting to conflicting policies. WM10 felt isolated and not supported:

> "they will be satisfied when they've got something which they think is working but in reality they haven't been here to find out. They have not come to me to say what's your experience?"

WM7 claimed historically to have tasked all his qualified nurses with manual rostering, supervising them and authorizing the final rosters. His motive and adaptive response was:

> "so that people understand it is not an easy task" and "If you're the manager doing everything, it's easy for people to complain". However: "Now it only allows two people [WM and deputy] out of 18 to do the E-Roster".
>
> "I have continued involving them but manually so they don't lose that skill. Then [deputy] and I will do it electronically. Once done [manually] for this month, people can adjust for two or three days, then if they are happy I finalize it and [put] into E-Rostering".

WM7 was the hallmark for adaption, preserving his entire old rostering regime under the veneer of new usefully flexible E-Rostering technology.

5.4.5 Need for Further Developments

In technology acceptance theory the currency of technology influences the social status of adopters (Venkatesh and Davis, 2000; Venkatesh et al., 2003). If users discover theirs is an outdated version or reduced installation they feel short changed and respond adversely.

The Trust has not compared its adoption of E-Rostering to other Trusts, where the supplier reports there are now over one hundred E-Rostering installations. Therefore Trust managers' and users' perceptions reside within internalized contexts without the double loop learning that comes from sharing experiences externally (Argyris, 1977).

Interfaces to HR and Payroll systems were benefits and selection criteria for the purchased E-Rostering system. "Payroll ... was raised from the start" said WM8 but "Firstly they need to get this system to work properly and efficiently and to make it reliable". WM12, WM13 and WM14 knew of the planned Payroll and HR links but not "if anything was happening about them" (WM12). WM13 perceived the E-Rostering system was not as promised remarking "At the moment all the pieces of the puzzle are not completed, yes, I will say yes, send it back". WM14 saw these links would save payroll form filling and employee data entry.

WM9 and WM11 said they would prefer the Training Department put training records into E-Rostering until interfaces were commissioned. On some wards (WM6, WM9, WM14

confirmed) training records were incomplete in E-Rostering and most wards were continuing with local manual records.

The Project Team felt these interfaces were unfinished business which had left WMs short changed, negatively affecting their views of efficacy, engendering disappointment and defensive responses.

This chapter has presented the research findings using the theoretical framework to structure the contents of the chapter and guide the reader by focusing upon salient factors and responses illuminated through the words of the subjects with validity assured by triangulation and cross referencing.

The next chapter answers the research questions using the analysis of key findings presented in this chapter to identify possible causes, contingencies and effects relating the independent variables to the dependent variable in the theoretical framework, responses of WMs to the adoption of E-Rostering technology. Conclusions are drawn from the discussions to answer the research questions which are focused upon explaining the influences of factors in the key thematic areas of the case organisational background and the change management process.

CHAPTER SIX: DISCUSSION AND CONCLUSIONS

6.0 INTRODUCTION

This chapter discusses the findings in relation to the research questions and each salient factor within the theoretical research framework. Conclusions are drawn supported by the discussion.

The new E-Rostering system and accompanying new policies are phenomena, both change events and part of modified contexts. Therefore a brief review of E-Rostering technology in practice follows within this Introduction because this reflects the integrated theoretical framework but also helps set the broader case study context in which the focused research questions are then answered.

The success of innovations was connected in Rogers (1995) theory to *four variables.* This section compares this study's finding about E-Rostering in practice with each variable and draws conclusions. *First, the advantages of new technology over former solutions*: WMs and SMs did not see better rosters arising from E-Rostering in practice but responded more positively to the potential use of electronic records to manage staff. *Second, compatibility with current staff values*; E-R was not seen as compatible because of attributed control motives and new controlling policies, implying mistrust. *Third, complexity should not exceed capabilities of end users*; the PT and WMs did not know how E-Rostering logic worked, WMs mistrusted auto-rosters and wanted more training. However, they responded by rapidly assimilating skills in adjusting E-Rosters and manual data entry. *Fourth, the social visibility of the innovation*: WMs did not receive accolades or publicity within or outside the Trust for the adoption of E-rostering although paradoxically coping heroically was admired by peers. E-Rostering adoption falls short of each of Rogers (1995) perspectives supporting the conclusion that success is unlikely.

Moore and Benbasat (1991) listed *three other variables* for success to which the WMs responded as follows. *Social image arising from the adoption*: WMs did not see E-R adding to their dominant self-image of a clinical professional. *Tangible character of the results*: WMs saw the results of adoption as negative: extra work; poor rosters; unfair policies; default responsibility for transition; and therefore responded defensively. *Degree of voluntariness associated with adoption*: the WMs said it was mandatory, they had not been consulted and their response was grudging and defensive. In summary, the responses of WMs do not support Rogers (1995) or Moore and Benbasat (1991) conditions for success.

Against this context of difficulties with the technology adoption, the following sections answer the research questions which are focused upon the factors in the case organisation background and the change management processes.

6.1 DISCUSSION of RQ1

RQ1: How do the factors comprising the case organisation background influence what the ward managers think of E-Rostering and influence how they respond to its adoption?

6.1.1 Change Context

The case organisation background and change context underpin WMs' responses (Smollan, 2006; NHS Employers, 2007; Smollan and Sayer, 2009). The organisation size and complexity of the Trust contributed to perceived organisational and physical distance of front line WMs from senior managers. Therefore wards function as localized units with WMs' operating relatively autonomously. This professional autonomy was threatened by E-Rostering adoption because it carried and facilitated ambitions for increased central cost and bureaucratic control. This made resistance by WMs predictable.

6.1.2 Prior Roster Practice

The WMs believed they were competent at manual rostering. However, E-Rostering came with new corporate roster cycles and stricter request policies which conflicted with WMs'

autonomy and local practices. Earlier research defines "policy justice" as perceptions of fairness in policies and "procedural justice" lies in processes for decision making (Brown et al., 2010). WMs perceived new E-R policies as unfair, centralizing control, unnecessary and unpopular with staff. The adoption decision procedures excluded WMs, giving two counts of injustice, engendering resistance by WMs and staff.

Fortuitously for WMs, E-Rostering software came with flexible configuration. Senior managers, aspiring to more control, seemed unaware the chosen software accommodated different rules ward by ward. WMs as their first response negotiated with the Project Team for inclusion of their prior roster practices. They were satisfied their local rules were included, preserving assimilated knowledge, in effect the first stage in defensive adaption.

6.1.3 Strategy

The Trust's strategic thinking influences the WMs' responses (Truss, 2003). The strategic objectives were that E-Rostering adoption would improve efficiency; allocate duties fairly; save agency costs; deploy qualified staff; and improve patient care. This strategy was senior management's theory in use (Argyris and Schon, 1996) and E-Rostering implementation was to achieve it. WMs judged this aspirational rubric as rational thinking for senior management but WMs' alignment was fatalistic and superficial. Alignment of affected stakeholders with the organisation's goals and culture is a major facilitating factor (Mintzberg et al., 1998; Balogun et al., 2004) but WMs were not involved with the strategy or business case. The induced lack of security felt and experienced (Nelson et al., 1995; Bareil and Savoie, 2000) showed in WMs' perceptions that E-rostering was to take over and monitor their deployment of staff. Previous research advises those affected should be involved so this was an opportunity missed (Cameron and Green, 2004). E-Rostering was seen by WMs as a device to increase control from above, dissonant with their history of trusted local autonomy.

Theories in action visible in guidelines, training and procedures may be creatively adapted by practitioners to local circumstances and priorities (Argyris and Schon, 1996; Fish, 1998). WMs saw E-Rostering as unwelcome control and adapted defensively. They had other high local priorities influencing their behavioural responses and these issues framed more salient contexts (Change Management Learning Centre, 2008).

Service managers aligned with the rubric of strategic benefits and understood the control opportunity vested in E-Rostering, but they did not embrace approving provisional E-Rosters produced by WMs, thereby allowing WMs autonomy and discretion over E-Rosters.

Strategy was not congruent with WMs' priorities so their strategic alignment was superficial. They resented E-Rostering, were predisposed to displeasure with the system's utility and therefore responded defensively. Strategic alignment evidenced by familiarity with corporate rubric may not mean compliance by FLMs because of incongruence with local priorities.

6.1.4 Culture

Organisational culture influences responses to change (Marsick and Watkins, 2003). Despite Trust culture perceived as top down, WMs show professional autonomy (Ferlie et al., 2005), to resist and adapt to changes. Local cultures and their experiential history of many changes filter new ideas and innovations and support cautious responses (Greenhalgh et al., 2004).

The Trust corporate culture is hierarchical and internalized but wards are closer to developmental cultures which show adaptive and creative skills with leader as risk taker (Davies et al., 2007). However, perceived lack of power to discipline staff and low financial authority preclude a top down regime by WMs. Instead they worked with staff to negotiate changes over E-Rostering adoption thereby retaining status and power as local leaders.

The distance of senior managers from ward operations means E-Rostering changes, mandatory in theory, were discretionary in practice. Transformational skills were lacking

(Bass, 1999). Lack of sanctions for non-compliance and lack of criteria for success stimulated the "can do" culture at ward level and encouraged defensive adaptions.

6.1.5 Structural Effects

Important structural factors include the role of the HR function in technology adoption (Wright and Snell, 1998); professional occupational silos (Sheaff and Pilgrim, 2006); and the role of the IT department (Marks and Scholarios, 2007). Emotions arise during transformations and HR managers may moderate behaviour (Mossholder et al., 2000).

HR, Finance and IT functions, important influences in previous research, were perceived by SMs and WMs as offering bureaucratic poor support (Wright and Snell, 1998; Purcell and Hutchinson, 2007). Staff in these functions thought SMs and WMs resisted procedures and could be lazy. The IT function limited its exposure by contributing technical expertise but not its specialist project and data management skills. WMs perceive they have to fix things professionally within their resource and power constraints (Sheaff and Pilgrim, 2006).

Top down and mandatory was the WMs' view of E-Rostering strategy. Service managers were diffident about E-Rostering and did not offer WMs support. WMs were diffident about their service managers, not seeking their involvement.

The external view was the Trust including agency staff was over resourced (Audit Commission, 2006). Nevertheless' Trust managers all believed there are not enough personnel. SMs and WMs perceive E-Rostering is not addressing the top real problem, their shortage of permanent staff. Clarke and Wilcockson (2001) found institutionalized views of low resources inhibit innovation where resources are seen as enabling. However, WMs perceived agency staff readily available, potentially freeing them from resource based inhibitions and with their "can do" attitude, WMs adapt locally.

6.1.6 Organisational Politics and Policies

Deployment practices from manual rostering set local cultural contexts and form "deep structure", which may resist when disturbed by policy and control changes (Gersick, 1991). Organisational memory and legacy assimilated knowledge may be barriers to innovations and give rise to dialectic forces as old and new combine in unpredicted ways (Robey et al., 2002). WMs perceived new eight week cycles and second approvals by SMs as political attempts to centralize control with new policies (Eisenhardt and Bourgeois, 1988). They resisted and negotiated settlements including local rules in the system. Negative receptions of the eight week cycle, a culture change resisted as Gersick (1991) predicted, meant the succeeding twelve week policy was futile.

Lack of intervention from HR, SMs and senior managers allowed legacy behaviour to steer autonomous adoption (Robey et al., 2002), accommodating local rules and then transition responsibility defaulted to WMs. System flexibility allows WMs to disregard conflicting policies and adapt auto-rosters, dissipating senior managers' perceived control ambitions.

Purcell and Hutchinson (2007) found FLMs are key players in operational delivery of HR policies. Here WMs re-implemented the essence of manual rostering with its mostly four week cycles and informal policies into E-Rostering. New E-Rostering policies were ineffectual and new systems and adapted operations may have embedded old practices.

6.1.7 Managerial Qualifications & Skills

Previous studies emphasize qualifications and skills as influences upon behaviour during change (Smollan, 2006; Clarke and Wilcockson, 2001). WMs have a weight of educational qualifications and professional experience and want this recognized by involvement and consultation. They perceive lack of inclusion as lack of trust and change imposition implies low status, an affront to professionals. E-R was imposed and therefore resented.

WMs saw E-R as a cost controlling initiative from above, showing low regard for their financial skills. The E-rostering system displayed shift salary totals but not budgets, leaving WMs dysfunctionally unsighted on cost variances. They showed loyalty to clinical professions and caring objectives as higher motives than cost management and said they gave them preference. The arrival of E-Rostering, need for new skills and not enough training, reduced WMs to competent at best skill levels, a step backwards in status from experts in manual rostering (Clarke and Wilcockson, 2001).

Imposition was contrary to WMs' values but their received autonomy and "can do" professional ethos legitimized responses using pragmatic adaption as a joint compliance and resistance strategy, with localized objectives of retaining status and control. Roberts et al., (2009) notes "team functioning plays an important part in technological implementation and assimilation". WMs in their responses used teamwork on their wards to limit E-Rostering adoption, negotiating first with the PT and then with staff to control changes.

Technology skills, perceived and applied, are factors influencing the responses of those impacted by new technology (Rogers, 1995; Venkatesh et al., 2003; Tijdens and Stein, 2005; Sheaff and Pilgrim, 2006). Higher skill levels are positive factors and low skill levels lead to competency problems so WMs with higher IT skills were assumed enthusiastic (Venkatesh et al., 2003). New technologies are judged and relayed by opinion leaders (Brosius and Weimann, 1996). However, IT skilled WMs expected consultation but E-Rostering was imposed. This lead to resentment and so they deployed their IT skills in contrary behaviour: fault finding; resistance to adoption; and open criticism of E-Rostering software.

System user profiles and configuration decisions contributed problems. WMs were unable to differentiate between technology flaws and system configuration issues, inaccurate data and

rules, not helped by fading support as the Project Team disbanded. Therefore WMs blamed the system and adapted, routinely adjusting auto-rosters.

WMs' experiences of many imposed changes lead them to perceive that adaptive capability was a key skill for a WM. The empathetic Project Team encouraged them to find solutions congruent with professional autonomy. The WMs resisted E-Rostering rolling with adoption whilst negotiating and adapting as default transition managers. This adaptivity was perceived favoured in appointment and necessary for survival in the WM's job. Their affective response to mandated implementation of E-Rostering was resentment and their main behavioural response was to deploy adaptive skills to control impact upon their wards.

6.1.8 Main Responsibilities of Ward Managers

WMs perceived their main responsibilities as supervising operational staff and taking professional responsibility as clinical ward leader. This is consistent with recent research (RCN, 2009). Although feeling responsible for operational change, confirming views of Purcell and Hutchinson (2007) about FLMs, they felt their disciplinary powers were weak and inhibited by HR bureaucracy, leading to stress. WMs perceive they have to tread softly with staff, find work-arounds or resist changes and adapt at their own pace. This was their response to managing staff over E-Rostering adoption.

WMs were on average 25% under permanent staff budget, alleviated by agency staff. They blamed bureaucratic recruitment procedures for lack of permanent resources. WMs have become skilled at using agency staff, a facility service managers colluded with, thereby preserving permanent staff shortages and high agency costs.

Second level E-Roster approval by service managers threatened to take a main responsibility from WMs, passing it to unwilling SMs. WMs responded by not seeking approval and rostering autonomously.

6.1.9 Perceptions of Politics

Previous research showed organisational issues were more important than technical ones in systems adoption projects (Doherty and King, 2001) and imposed structural changes may not eliminate differences between occupational cultures (Sheaff and Pilgrim, 2006). The SMs' second approval role was a structural and political change, moving control upwards from WMs. WMs perceived adoption of E-R and perceived new roster cycles as a political increase in top down control, leading as the literature predicts to a negative reaction, admitted as resentment (Rosen et al., 2009). Their behavioural response was to organize adaption locally and not apply incongruent new cycle and request policies.

WMs gave their staff (and therefore themselves) time to adjust and learn. They allowed periods of grace without sanction from above and proceeded at their own pace. This pragmatic response to adaption and transition further demonstrates autonomy.

6.1.10 Unit Culture

Historically WMs had rostered idiosyncratically in autonomous local cultures, geographically spread. As professionals with self-perceived high competence and interest in their wards, WMs did not necessarily see managerial influence as directly driving them (Leonard-Barton and Deschamps, 1998). However the loss or lack of control of one's work may inhibit innovation (Sutton and Kahn, 1987; DiFonzo and Bordia, 1998). WMs rationalized the benefits rubric but perceived E-Rostering strategy not congruent with their needs, local cultures, or staff work life balance, threatening less control. Therefore WMs responded by adapting practice, negotiating in contexts and applying "can do" attitudes. Their autonomy was assisted by self-initiated change which allowed them to recover concepts of identity, recover control and maintain status. Local cultures moderated responses as previous research predicted (Rosen et al., 2009; Change Management Learning Centre, 2008; Cameron and Green, 2004).

6.1.11 Communications

WMs saw Trust corporate communication processes as bureaucratic, top down, with bland material, self-serving, with senior managers not necessarily caring about WMs within a care providing organisation. WMs did not feel included or engaged by either process or content.

Nevertheless, WMs feel they are good professional communicators, covering clinical and managerial aspects with their staff, competencies that are important factors in managing change (Meyer and Stensaker, 2006; Smollan, 2006; RCN, 2009).

The WMs were conscripted to take new policies, received verbally from trainers, back to their staff without support. As the medium each WM was part of the message (Purcell and Hutchinson, 2007). Their needs were not congruent with E-Rostering so their advocacy to staff was of the imposed nature of the adoption, inviting resistance and collusion in adaption.

Perceptions of a lack of or inconsiderate communication over E-Rostering, when WMs espouse that professionally, contributed to resentment, defensive and adaptive responses.

6.2 CONCLUSIONS for RQ1: On the Influence of Organisational Background Factors

The Trust complexity and merger history set the change context in which WMs, used to degrees of autonomy and local cultures, responded defensively to an unsolicited corporate technology innovation and unwanted new policies. The WMs could repeat the strategic benefits' rubric but their alignment was superficial. In practice the new cycle policies and E-Rostering functions were not congruent with their needs or priorities, again evoking resistance. The ward culture was historically developmental and adaptive with WMs displaying a "can do" ethos, solving their own problems in local and professional contexts. They could behave this way within a top down culture because the WMs' autonomy and defensive responses to E-Rostering were licensed by the operational distance of their

superiors, no incentives for compliance and a lack of sanctions for non-compliance with new policies. Corporate HR, training and finance departments were seen as bureaucratic structures, unsupportive and not assisting WMs with adoption.

The WMs were well qualified through education and experience and perceive themselves as health management professionals with values and skills that legitimize judgements giving priority to patient care, behavioural conclusions in line with previous research (RCN, 2009; Coombs et al., 2010). Problem solving and adapting with their teams are self-perceived professional competencies. They operate with received autonomy although constrained by financial and disciplinary authority limits and bureaucracy. They perceive their "can do" attitude is expected and paradoxically it is within the top down culture.

WMs believe their own communication skills are good but corporate communications are bland and politically self-serving, failing to sell E-Rostering and not demonstrating the caring ethos WMs believe in. These characteristics strongly influence their defensive cognitive responses to E-R adoption.

The imposition of E-Rostering was resented by all WMs. WMs with higher IT skills were annoyed at no consultation and rather than showing positive support as previous research (Venkatesh et al., 2003) predicted, they were negative opinion leaders and criticized E-Rostering as having technical flaws.

WMs have legacies of assimilated contextual knowledge about manual rostering, self-perceived as competencies which they will defend (Robey et al., 2002). E-Rostering technology and new policies threaten this knowledge and were imposed without consultation, a procedural injustice compromising WMs as local team leaders (Brown et al., 2010). The new cycle policies implied major cultural changes, a threat to their position and staff

relations. A further threat was second approval of E-Rosters by service managers, reducing WMs' power.

The imposition of E-Rostering was interpreted as a lack of trust in WMs and a negative reflection upon their history of local manual rostering. They expressed resentment at this affront to their professional skills and pride. They were frustrated, anxious and stressed because they were allowed no discretion over implementation timing or local states of readiness, so their behavioural responses were defensive and adaptive.

WMs' characteristics of professional values and skills, ownership of their ward, autonomy, team leadership and awareness of staff relations, legacy competencies and resilience were deployed to embrace mandated E-Rostering on negotiated terms. In their responses first, they negotiated to get local rules into the system; second, they adapted their use of the system to meet their needs; third, they considered with their staff to what degree new policies were to be used; fourth, they took control of transition on their wards proceeding at their own pace. Their leadership behaviour was to resist E-Rostering and respond using adaptive skills as a form of modifying compliance, a further example of how professionals can inhibit innovation in clinical settings (Ferlie et al., 2005).

Therefore the case organisation background factors and FLM characteristics in the theoretical framework strongly influenced the WMs' responses to E-R adoption, particularly by predisposing defensive responses to emerge.

6.3 DISCUSSION of RQ2

RQ2: How do the change management processes and skills influence what ward managers think of E-Rostering and influence how they respond to its adoption?

6.3.1 Change Management Process Design

The research of Davenport, (1998); Nah et al., (2001) and Mourier and Smith (2001) points to the importance of change management and organisational processes used to adopt new

technology. McNish (2002) emphasizes the need for guidelines to implement new technology. The senior managers chose PRINCE 2 project management methodology but SMs and WMs were not trained in PRINCE2. The Project Team members had only basic training and no prior experience. WMs felt things were being done to them and not for them. Therefore they were resentful and their responses were defensive.

The NHS Confederation published guidance on how to implement E-Rostering but this was not used by the Trust (NHS, 2007). The Project Team learnt from the software supplier about the technology. However, the supplier's early release by the NRB meant the NRB, PT and WMs were without expert help for eight out of nine implementation phases. The NRB did not insist the PT and WMs learn from the many E-R adoptions in other Trusts. Preparations recommended by the supplier were not done. There was no establishing the base line for ward operations, identifying and sorting people issues in advance, systematically cleaning up data or publishing policies in time as NHS guidelines advised (NHS, 2007). In each predicted area there were issues for WMs causing stress and anxiety, threats to technology efficacy and encouraging local resolutions.

E-R adoption was approached as installing a technology artefact at predetermined locations at fixed delivery times, the "magic bullet" approach (Markus and Benjamin, 1997). The people aspects, jobs, roles, social features and organisational impacts were not visible aspects in the change management approach of the NRB and Project Team, though stressed widely by previous research (Markus and Robey, 1988; Mourier and Smith, 2001; Collerette et al., 2003a, 2003b; Cameron and Green, 2004; Markus, 2004; Wainwright and Waring 2004; Collerette et al., 2006; Huq et al., 2006; Wainwright, 2008).

The change management process did not focus upon assimilation of knowledge of new business processes or removal of old ways and old knowledge, shown in previous research to

need attention for successful innovation (Robey et al., 2002). E-Rostering training focused upon the software tool. Change management responsibility defaulted to WMs post implementation leaving them in charge of operational transitions.

Trusted insiders were appointed to the PT, perceived by WMs as agents of senior management, envoys of E-Rostering. The response was mistrust in both directions despite acknowledgment by WMs that PT members were of their clinical professional cadre.

Setting up the system by the PT for each ward involved negotiation with each WM, after which WMs perceived their local rules were largely included. Therefore the PT through negotiation had engaged in adaption and compromise to secure implementations on time. Although the training process was one size fits all, because of local negotiations, implementations were not homogeneous. Furthermore, the ward level implementation process bypassed service managers, supporting WMs' autonomy. WMs accepted this and responded by showing no loyalty to their line superiors and not asking for their involvement.

6.3.2 Change Management in Practice & Nurse Rostering Board

Previous research emphasizes the role of the core project team in overcoming configuration and assimilation knowledge barriers. The core team should be high performers with incentives, managing expert consultants. The core team should contribute business process alongside technical training, provide lots of it and move from site to site (Cameron and Green, 2004; Robey et al., 2002).

In contrast, the E-Rostering core project team focused on technology, not business processes and consisted of four people of whom two were trainers. They were not incentivized and had no consultants after the supplier's early release. They gave training at one central location. E-R adoption was not managed as a synergistic intervention of IT with business process

changes, "technochange" as Markus (2004) advised for major changes. These shortfalls boded ill because they did not meet WMs' needs, confirmed by defensive responses.

The NRB aspired to PRINCE 2 methods but controlled with deadlines. The PT had to set up systems with negotiated local rules to achieve the phases' timetable. WMs had no effective voice in the NRB. The NRB received feedback only from insiders which limited double loop learning (Argyris, 1977). Stress elicited by changes influences success (McHugh, 1997; Ashford, 1998; Decker et al., 2001). However, WMs felt pressured by imposed innovation, stressed by extra work, fixed implementation deadlines, staff training, managing transition and fading of support. These factors left WMs feeling bullied, treatment not congruent with values they expected of their employer, provoking defensive responses.

The SMs were not represented on the NRB, not consulted, trained mainly last and were not invited into PT and WM discussions about ward rules. This confirmed their discounted status. The lack of inclusion and bypassing of SMs were political acts isolating them, in direct conflict with the strategic objective of enrolling them. Their response was to limit activity around E-Rostering, showing autonomy of their own.

The WMs thought both new and extended cycle policy changes were dysfunctional and showed frustration and resentment. They had not been consulted so the new policies were procedurally unjust (Brown et al., 2010). Nevertheless WMs all said after negotiation with the PT they got their own rules and practices included to their satisfaction, implying "Spanish Practices", a concern of senior management were carried forward. The premature disbanding of the NRB broke with PRINCE 2 practice (Bentley, 2003), placing HR and Payroll E-Rostering interfaces in limbo, not formalizing long term user support and leaving informed WMs feeling let down.

Roberts et al. (2009, p130) notes that "team functioning plays an important part in technological implementation and assimilation in an organisation". However, the core PT made few visits to sites and contact with WMs fell rapidly after implementation. The IT department took a back seat role, providing technical infrastructure services but not specialist IT project management expertise. The senior management remained distant. The HR department limited its role, did not engage WMs' concerns or stand up for them and failed to produce the (nugatory) E-R policy document in time. SMs were excluded except from belated training. The software supplier was released early removing experience. Despite burgeoning NRB membership there was never an integrated E-R adoption team, a predictor of success in previous research (Markus, 2004; Robey et al, 2002).

6.3.3 E-Rostering Training

Training communicated benefits of E-R to WMs but their alignment with the strategic rubric was superficial. E-R was a solution to unperceived problems and not congruent with their priorities. The degree of mastery of new skills will influence innovation success (Jimmieson et al., 2004; Bandura, 1991). The WMs' perceived training focused upon E-Rostering functionality, not needs in use of WMs. Benefits realization was not part of training. WMs were not trained to train their staff and resented this. Implementation immediately followed WM training therefore they struggled to prepare staff in advance. WMs and staff were bullied into going live, ready or not, evoking their own adaptive responses at ward level.

Training for the E-Rostering system as a tool was consistent with the "magic bullet" theory, the artefact including training, would result in desired outcomes (Markus and Benjamin, 1997). The training did not extend into criteria of success or performance, so WMs checked the pragmatic utility of auto-rosters using assimilated knowledge from manual rostering.

WMs were left owning the people side of implementation but perceived this consistent with their leadership role, responsibilities and autonomy. They responded by being involved,

coaching staff, getting them on board, pursuing an adaptive approach, adjusting policies and rosters consistent with maintaining their leadership and staff relationships.

6.3.4 Project Teams' Perceptions about Behavioural Changes

The PT knew staff behaviour needed to change work under the new off duty request system and new cycle policies. IT affects organisational life (Markus and Robey, 1988). However, the PT transferred the behavioural task with transition to WMs whilst the PT focused on the next phase. This was self-serving political behaviour which caused the WMs stress, diverted them from their main responsibilities and was therefore resented (Rosen at al., 2009). In response both WMs and staff resisted the behavioural changes implied by policies and system and proceeded with local adaptations and work-arounds.

The PT criticized SMs for not second approving E-Rosters even though their treatment contributed to this response. SMs were left out of the NRB, consultation, and ward rules discussions, treating SMs as politically and operationally unimportant. Therefore SMs did not support the PT or WMs whilst WMs subscribed to this disinterest because it maintained their autonomy. The SMs and WMs back to back defensive responses to E-R were stimulated by the flawed change management processes in which the PT did not bring both parties together at any time, essential in previous research (Mourier and Smith, 2001; Deloitte Consulting, 1998; Cameron and Green, 2004). The SMs behaviour confirmed the role of middle managers as an issue for policy implementation (McGovern et al., 1997; Edwards and Robinson, 2001, 2004).

PT members reported that WMs said E-R was difficult because of IT skills needed and additional work; it was a surveillance device, an intended technological panopticon and therefore resented (Timmons, 2003). PT members said WMs perceived attendance and duty records in E-R as useful but otherwise feedback was negative and responses defensive.

6.3.5 Consultation and Communication

Previous research on the NHS found that person-oriented skills in leaders meant they communicate need for change, mobilize others to support change and they evaluate change implementation (Battilana et al., 2010). The PT had professional empathy with WMs, but this study did not find evidence of a person-oriented approach. WMs were not consulted about the decision to adopt E-R or best ways to implement and did not perceive senior management as altruistic communicators with integrity (Parry and Proctor-Thomson, 2002). PT members were agents of senior management. Non-consideration of obvious people-oriented factors fueled WMs' defensive responses.

E-R adoption was seen as unfair, perceived as policy and procedural injustice by WMs because they were not consulted during over the adoption decision or planning (Sheppard et al., 1992; Harlos and Pinder, 2000; Brown et al., 2010).

Early implementation issues were suppressed in case WMs were sensitized, evidence they were not trusted. Communication was perceived poor in advance of training and implementation. Published implementation dates were enforced. These meant training problems, data issues and dissonant policies fell upon WMs and their staff at implementation. The distance of SMs encouraged WMs to behave and adapt autonomously, not communicating upwards or anticipating consultation. The responses of the WMs were convergent upon this form of adaptive compliance.

SMs felt consulted over E-R even less than WMs despite their higher rank. E-R was imposed upon them too and they resented this. However, they were not pressured to accept duties to second approve E-Rosters and in practice they largely opted out. SMs could have been instrumental in the change management process, but those interviewed had not demanded the participation that befitted their managerial rank.

6.3.6 Transition

Previous research showed when technology adoption favours software configuration and implementation, accompanying assimilation of new business processes and practice will be dialectical learning, with many conflicting interests (Robey et al., 2002). Legacy ways of WMs resisted the new and adaption happened incrementally in contexts. As Fish (1998) noted theories of action are adapted creatively by practitioners to local circumstances.

Recognition of a transition period happened late for both PT and WMs, during training and realization at implementation. It was not planned. Collerette et al. (2006) suggest for technological changes, probability of success significantly increases with rigorous transition management centred upon people-related issues. However, the PT was focused on technology and policy changes. They did not help with transition and were disbanded. Interviewed WMs said they perceived E-R adoption as unavoidable. They complied partially with the corporate agents, the PT, but it was their self-perceived role to manage the situation, to overcome difficulties by leadership and adaption locally. Unsupervised transition gifted the WMs control and they responded by taking it.

Paradoxically "top down" senior management was acquiescent with the autonomous adaptive behaviour of WMs. They made little attempt to audit or intervene but nevertheless advertised success in the Trust annual report, showing the complicity noted in previous research, of informal collusion so as not to face or address failure (Maylor et al., 2009).

Wards entered transition with data gaps, maintaining manual records because implementation deadlines overrode achieving system data standards. WMs felt bullied, without sufficient resources. Therefore transition is open-ended with respect to data accuracy and completeness, issues now reliant upon operational priorities of WMs who have to balance transitional changes with running normal operations (Meyer and Stensaker, 2006).

WMs face a learning curve in transition (Robey et al., 2002), managing roster rules (antecedents and causes) and user acceptability (success factors and effects).

PT members believed WMs had not connected with E-R's objectives, or the PT's view that E-Rostering was betterment. Nevertheless, the PT recognized both the affective resentment by WMs and the WMs' cognizance of E-Rostering's lack of fit with their own priorities.

Improving work and life balance is Trust policy. Maintaining this policy in the face of E-Rostering falls upon WMs as previous research warns (Purcell and Hutchinson, 2007). E-R was seen by WMs as a major change for their staff because behavioural changes are needed for new extended cycles and request policies, demanding significant time in transition, amounting to a perceived difficult cultural change (Gersick, 1991). The WMs response is open-ended transition by adaption at their own pace, to maintain local leadership, their control and staff cooperation.

6.4 CONCLUSIONS for RQ2: On the Influence of the Change Management Process

E-Rostering, a major IT adoption, was not project managed by IT specialists. The senior management did not promote an integrated E-Rostering adoption team with strong incentivized performers, expert consultants and fully engaged corporate departments. The NRB, PT and WMs displayed only superficial knowledge of project management techniques and software implementation processes. This meant an empathetic training group was the change agency rather than a skilled experienced change management team, a weak approach which invited defensive adaptive responses.

The NRB and project team did not consider business process design or changes. They focused upon technology introduction, leaving people and process issues by default with WMs. The NRB's priority was meeting calendar deadlines for technology delivery. Ignoring

previous roster practices, the implementation process was one size fits all but undermined by PT negotiations with WMs ward by ward over rules and customs. WMs defended their local rules which meant the PT had to compromise to achieve phase deadlines.

WMs were left with transition responsibility without support after change processes in which poor consultation and communications were routine shortfalls. They perceived this treatment indicated lack of trust, reflecting a wish to control them more. This affronted their professional values whilst adding to their work load through implementation preparation, training staff and managing transition. They felt their treatment was not congruent with the values of a health care organisation, values they espoused. Unsympathetic change management left them feeling bullied with their status threatened, prompting resentment.

Therefore WMs' responses were defensive. When negotiating local rules with the PT they largely got their own ward's needs included. They expressed satisfaction at this, having resisted and adapted E-Rostering rather than adopted it. Change management processes were not robust enough to ensure Trust strategy and policies prevailed over WMs' local needs. Withdrawal of the PT from transition support and closure of the NRB meant the change management processes did not span delivering the whole strategy. These actions dissipated the control threat to WMs' autonomy whilst allowing local needs to displace strategy.

The WMs perceived staff behavioural changes necessary to adopt new cycle policies but had no incentives for achieving this and no targets as E-Rostering corporate strategy was not calibrated at ward level. Responsibility transferred from PT to individual WMs at implementation but with no methodologies or criteria for success. WMs could adapt or disregard new policies whether using E-Rostering technology or not.

The treatment of the SMs and lack of inclusion in change management processes appeared political. The NRB did not consult with SMs about their second level approval of E-Rosters

or involve them in assessing their WMs' needs. The change management process was therefore dissonant with the declared strategy of enrolling the SMs. It achieved the opposite, defensive responses and very limited participation. WMs accepted this emasculation of the SMs and did not seek their inclusion, itself a political response.

This study concludes that change management processes and practice at the Trust fell well short of NHS guidelines on E-R adoption (NHS, 2007); those communicated by the supplier; those written into PRINCE 2 methodology (Bentley, 2003); and recommendations in previous research for consultation with affected FLMs, their inclusion in decisions and consideration of their local needs, cultures and contexts. These four shortfalls predicate a high likelihood of unsuccessful and incomplete adoption, confirmed by the consequent defensive and adaptive responses from WMs in their local contexts.

6.5 LIMITATIONS AND BOUNDARIES OF THE STUDY

The case study research strategy, reliability and validity of data and good practices to aid validity were discussed in Chapter 4, sections 4.3.4 and 4.5. This section augments those discussions by examining further the limitations and boundaries important in this study.

Qualitative case study limitations: This study was a critical case, important because it examines a general problem affecting many NHS Trusts. The single case study is not a barrier to generalization (Eckstein, 1975; Flyvbjerg, 2004; Denzin and Lincoln, 2005). Nevertheless, the author was wary of assertion beyond propositional deduction. This case study about E-Rostering adoption is a pathfinder with contributions to learning and the force of example in its transferable factors and findings (Flyvbjerg, 2004).

Data reliability: Qualitative semi-structured interviews capture participants' voices (Marcus and Fisher, 1986; Holstein and Gubrium, 1995; Kvale, 2009). With careful opening and

closing, interview guides, familiarity with material, digital recording and professional transcription, these recommended steps assure reliable data (Kvale and Brinkman, 2009).

Data validity: The researcher sought and used good practice from literature (Stiles, 1993). His modes of compliance (see Figure 4.8, p87) support the trustworthiness of the data to yield valid answers to research questions.

Validity of interpretations: The researcher used multiple methods (Yin, 2009) and extensive triangulation (Stake, 2005; Denzin and Lincoln, 2005). He has already discussed his further actions to ensure consideration of six other forms of salient validity (see Figure 4.9, p89).

Workload: The research workload was substantial and time-consuming because of rich and voluminous qualitative data, as King (2004) warned. Purposeful sampling directed those subjects had to be pursued and data collected, transcribed and analysed whatever the effort.

Research elapsed time: NHS ethical clearance took five months and difficulty in securing interview appointments with shift-working subjects dragged out data collection. However, this allowed analysis in parallel with data collection, refinement of interview guides and time to prepare well and be reflexive.

Depth of access: Case study is assisted by deep access so the researcher became an honorary employee and "worked" on site for two days a week for two years. This embedding was good for observation, document search, acquiring lingua franca and cross referencing. It facilitated testing meanings and getting feedback, strengthening testimonial validity.

Reciprocal reflexivity: The interviewees were all well qualified and experienced. WMs had years of caring for MH patients and high verbal skills. They wished to contribute their views and said the questions made them think, indicating catalytic validity. The outcome was rich

data arising from reflexive discourse with experts and focused dialogue. Repeating the collection process may require a similar researcher and subjects.

Informants: The researcher met regularly with key informants who triangulated findings and added new information. Some informants, reluctant to associate with uncomfortable findings about the Trust, were observed to limit their discussions.

Single case does not mean simple or small: The scale and complexity of the Trust expands the single case classification. Each ward, each of the four managerial groups interviewed, the different professions involved and the different physical sites could all have had case status. The singularity was at Trust level. Interpretations and propositional deductions within the Trust may be strong and valid but extending them to other Trusts, complex in different ways may be less supportable.

Role of theoretical framework: The role of the theoretical framework in positioning research questions and focusing investigation was important to keep the study within boundaries. There was a balance to be struck between the scope of the framework (theory in use) and its utility (theory in action) to support this qualitative form of research.

Pathfinding: This is the first qualitative UK case study of E-Rostering adoption. It therefore has important contributions to knowledge and practice, discussed in the next section.

6.6 CONTRIBUTIONS TO KNOWLEDGE AND PRACTICE

This section summarises the contributions to knowledge and practice made in this study. They may be valid learning and transferable findings but should not be taken as generalisations in this single case study. Their real value is in their application to E-Rostering in the NHS.

As discussed in Section 3.1.1 the literature suggests alignment with strategy by the change agents and by those affected is a positive factor for change (Nadler and Tushman, 1980; Mintzberg, et al., 1998; Argyris and Schon, 1996; Balogun et al., 2004). In the health care sector alignment may be difficult to establish because of competing factors (Pettigrew et al., 1992). Whilst FLMs acknowledged E-Rostering was in line with their perceptions of corporate strategy, it was not seen to contribute to priorities at their local level. Alignment by FLMs with strategy may not drive their behaviour (see Section 6.1.3) or be the positive factor asserted by previous research. Therefore in business practice relying upon FLMs' expressed strategic alignment could lead to incorrect predictions of responses to technology adoption if their local needs are different.

Cultures may influence responses to change (Davies et al., 2007; Harris and Ogbonna 1998; Marsick and Watkins, 2003; Smollan and Sayers, 2009). In this study wards show aspects of developmental cultures in contrast to the hierarchical corporate culture (see sections 3.1.1.2 and 6.1.4). WMs have operational autonomy, may place clinical priorities above cost control, and are responsible for maintaining current operations whilst absorbing new E-Rostering technology and policy. This study adds to the body of knowledge that these ward and corporate cultural differences seem to give resilience to the Trust organisation. In business practice they support checking and filtering by FLMs of new technologies and policies when they arrive at their wards. These responses may save the organisation from incongruent policy, mismanaged technology adoption and also defend important local needs.

Experts in manual rostering, WMs were reduced to competent status at best through the arrival of flawed E-Rostering technology and dissonant policies (Clarke and Wilcockson, 2001; Smollan, 2006; Roberts et al., 2009). Adaption by WMs was normal behaviour in the Trust change continuum. For E-Rostering adaption rather than blind adoption is legitimised by the need to sustain staff cooperation and deployment; to maintain autonomy and a "can

do" ethos; and to keep daily operations running whilst absorbing E-Rostering. This adds to a body of research that FLMs may demonstrate both compliance and resistance to technology innovation through adaptive behavioural responses which recover their control and status.

Previous research shows innovative thinking and problem solving may be inhibited by the belief that such activities demand unavailable resources (Clarke and Wilcockson, 2001). However, the availability of agency staff frees WMs from the constrained resources beliefs of their bosses and so innovative thinking and problem solving may be facilitated.

Previous research suggests poor communication and consultation by management is associated with negative responses to change by those affected (Cameron and Green, 2004; Meyer and Stensaker, 2006; Smollan, 2006; Smollan and Sayers, 2009; RCN, 2009). This study confirms that poor communication practice about E-Rostering strongly contributed to defensive attitudes and influenced WMs' responses accordingly.

Previous research suggests that FLMs with self-perceived higher technical skills are more likely to be receptive of technology innovations (Davis, 1989, 1993; Davis et al., 1989; Rogers, 1995; Venkatesh et al., 2003; Amoako-Gyampah and Salam, 2004; Sheaff and Pilgrim, 2006). This study contributes to knowledge that technically skilled FLMs may respond with contrary behaviour if they do not like their perceived treatment, in this case a lack of inclusion in consultations and decisions, implying low status. They showed fault finding, resistance to adoption and open criticism of new technology and influenced their peers and staff as negative opinion leaders. In business practice such key people need identifying and their treatment and roles given more attention by those planning technology adoptions because technological skills may not lead to positive attitudes and outcomes.

Previous research (Polanyi, 1962; Geertz, 1983; RCN, 2009) and discussion in section 6.1 about WMs' experiences showed adaptive capability was a key skill for a WM. However, in

business practice the WMs' propensity to adapt as a professional behavioural norm means there is a risk strategic innovations never happen. To harness adaptive skills managers should be consulted and involved at all stages of a transformation (Kotter, 1995).

In this study the formal change management process was cut short and did not span delivering the whole strategy (Bridges and Mitchell, 2002; Bentley, 2003; Cameron and Green, 2004; Collerette et al., 2006). The Project Team was disbanded early and management of transition fell on FLMs (see sections 3.2.6 and 6.3.6). Planned change became informal emergent change for the technology adoption. In business practice when a project is followed by transition under FLMs, congruence with FLMs' needs alongside efficacious technology is crucial for purposeful transition and benefits' realisation.

This study confirms that perceived utility and perceived ease of use of technology are important as previous research indicates and can have both negative and positive elements at the same time (Davis, 1989, 1993; Davis et al., 1989, Venkatesh et al., 2003; Amoako-Gyampah and Salam, 2004). However, negatives and positives may not offset each other, particularly affective responses. In business practice issues, like auto-roster flaws in this study, may be sufficient to cause acceptance failure but there is a risk the issues may be cloaked from higher management through adaption and work-arounds.

The Technology Acceptance Model's main shortfall is to stress technology attributes (Davis, 1989, 1993; Davis et al., 1989; Venkatesh et al., 2003; Amoako-Gyampah and Salam, 2004). However, elements like social and organisational factors, context and attitudes may have influence (Legris et al., 2003). Therefore in this study the efficacy of E-Rostering technology was represented by FLMs' perceptions of fitness for purpose. Interviews allowed the collection of information in context and this study shows that method was effective. This

study adds to the body of research that technology efficacy may be a viable qualitative dependent variable for examining technology innovations.

The theoretical research framework combined key themes from previous research (Weiss and Cropanzano, 1996; Collerette et al., 2006; Smollan, 2006; Purcell and Hutchinson, 2007; Rosen et al., 2009). It was successfully used to investigate responses of FLMs to an important technology adoption through case study research strategy with multiple methods of data collection. The theoretical framework adds to the body of research by virtue of its combination of conceptual themes and empirical validity shown by this study. Its utility as a research guide has the force of example for the investigation of technology adoptions.

The empirical validity and coherence of the framework was endorsed by participants who said during interviews that the questions based on the framework had covered their concerns and interests thoroughly. Therefore it is a feasible tool for use by managers when conceiving and organising the adoption of technology and associated changes. It helps navigate their thinking towards salient factors which should be considered individually and in combination to organise for success.

The next and final chapter presents recommendations for future research and business practice which may further the likelihood of success in the adoption of E-Rostering.

CHAPTER SEVEN: RECOMMENDATIONS

7.1 INTRODUCTION

This chapter makes recommendations arising from the study's findings which may further success in the adoption of E-Rostering technology. The first section discusses future research to develop theory and extend the study findings. The second section makes recommendations, based upon the transferable factors and findings of this case study, on what such organisations and the Trust could do in business practice to make a success of E-Rostering. These recommendations draw as well from good practice based on the literature. For the Trust this involves reconsidering the strategy and using consultations with FLMs to achieve re-implementation. In essence the Trust is advised on how to start again. Careful assessment of these recommendations for a re-start, and the literature discussed in this thesis, indicate that organisations wishing to implement such a system should follow these processes, and the Trust will need to follow the same procedures to re-implement their adoption of E-Rostering.

7.2 RECOMMENDATIONS FOR FUTURE RESEARCH

7.2.1 Autonomous Adaptive FLMs in Hierarchical Organisations

In this study WMs perceived adaptive skills as key professional competencies, exercised with received autonomy. The Trust organisation was hierarchical and bureaucratic but tolerated and depended upon the cell like functioning of the wards, metaphorically resembling a living organism, rather than a centrally directed machine. It seems capable of defense, evolution and change at cellular level where FLMs' adaptive capability and local developmental cultures contribute stability and resilience. In this study the cells lead by WMs resisted the new technology and policies and may have saved the Trust from an IT disaster. This study has shown adaptive skills may be deployed as legitimate defenses in context, rather than the

facilitating factors of previous research. These findings may be transferable to other NHS Trusts with technology innovations and are worthy of further research.

7.2.2 The Efficacy of Auto-Rostering Functionality

The installed E-Rostering technology had shortfalls in delivering the expected complete and workable E-Rosters, which legitimized defensive responses by WMs. How and why these "flaws" occurred was not investigated but this software is a commercial success, installed in over 120 other Trusts, accessible sources of experience. Therefore further research is recommended to identify successful E-Rostering adopters and to learn from them. The supplier should be the first port of call on route to other Trusts.

7.2.3 Recommendation for Theoretical Framework Development

The theoretical framework was broad from an academic perspective and required a stretching effort for a single researcher to collect and analyse the data. Nevertheless, it could be further developed through multiple case studies and longitudinal data collection over the full time span of transitional changes. The theoretical framework was supported strongly by the Trust as an empirical tool to assist contextual management thinking. Businesses may see additional factors relevant like pace of change, time spans, cost management, benefits realization and competitive outcomes. Researchers may apply the theoretical framework in further studies either more deeply in narrower academic areas or into the wider gamut of business factors in different organisations to predict responses of FLMs to innovations.

7.3 RECOMMENDATIONS FOR BUSINESS PRACTICE

7.3.1 Introduction

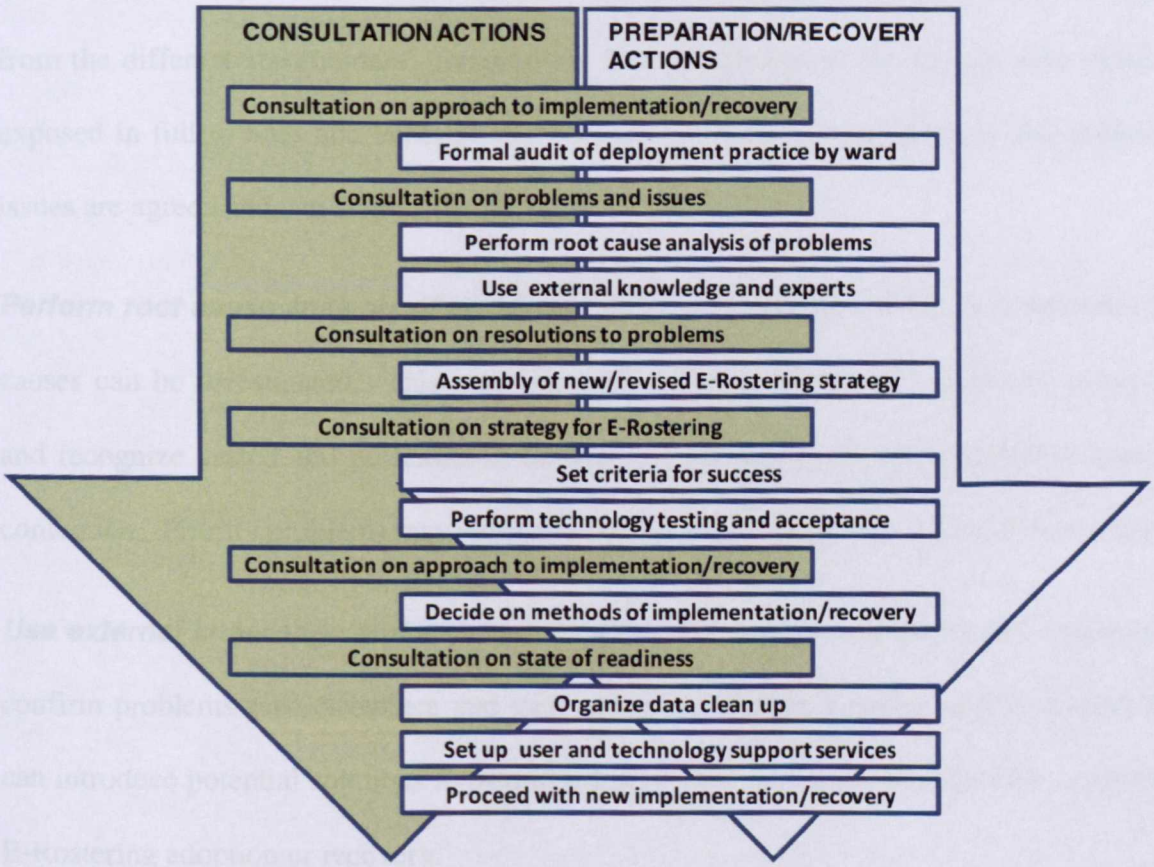
In this study WMs resented their lack of inclusion in E-Rostering strategy formation and implementation planning, leading to defensive responses. The E-Rostering adoption strategy was dissipated by the cognitive, affective and behavioural responses of SMs and WMs. Therefore their recommended inclusive consultation is a necessary condition of any recovery

programme at the studied Trust or similarly struggling Trusts and for any new adoption of E-Rostering at green field Trusts.

7.3.2 How to Succeed with E-Rostering Adoption

Work is needed on the trinity of people, processes and technology to achieve new implementation in green field organisations or re-implementation to recover the situation at the case Trust. The following paragraphs outline the high level ***actions*** the researcher recommends Trusts undertake to succeed with E-Rostering implementations. These recommendations are also designed to apply to a new green field implementation and would help a new adopter avoid the problems discussed in this thesis by preparing thoroughly. Figure 7.1 charts two interwoven work streams, essential consultations and preparation or recovery actions. A new adopter takes these actions in preparation whilst a re-implementing organisation takes them to achieve recovery.

Figure 7.1 Recommended Actions to Succeed with E-Rostering Adoption



Consultation on approach to implementation/recovery: A new strategy and implementation approach should link the importance of efficient staff deployment for Trusts with the importance of control of deployment for WMs' authority. SMs and WMs should be specifically consulted in strategy formulation so they can contribute and align. Their incentive is the opportunity for participation and growing influence. Close two way consultation has to be a sincere feature throughout and beyond implementation and recovery and may amount to a difficult culture change for some NHS organisations.

Formal audit of deployment practice by ward: The current situations ward by ward need to be investigated in detail to establish the local operational baselines for implementation or recovery. This will avoid assumptions about local contexts and recognises that the path to successful adoption may require variations for each ward. This may require external experts to carry out a neutral investigation at speed.

Consultation on problems and issues: Problems need to be evidenced and understood from the different stakeholders' perspectives. The discoveries of the formal audit should be exposed in full to SMs and WMs so that contextual, human factor, process and technology issues are agreed and can be prioritised.

Perform root cause analysis of problems: Once problems have been confirmed then their causes can be investigated. This exercise must embrace people, processes and technology and recognize vested and professional interests which may exist legitimately but appear in contention. Priority problems may require solutions first to clear the path for E-Rostering.

Use external knowledge and experts: Experts from experienced Trusts and suppliers can confirm problems seen elsewhere and their solutions. Experts working with SMs and WMs can introduce potential solutions to prioritised problems and issues as part of the strategy for E-Rostering adoption or recovery.

Consultation on resolutions to problems: The SMs and WMs should be encouraged to challenge and modify potential solutions until agreed fit for purpose with respect to corporate strategy and their local needs. When this stage is reached senior management will have confirmed solutions to known problems and can build a strategy to meet corporate ambitions and SMs' and WMs' needs.

Assembly of new/revised E-Rostering strategy: The strategy should cover: objectives; policies; business processes; tasks and roles to make business processes operational; selected technology; and confirm the executive sponsor. The strategy document for green field organisations or recovering trusts should include the business case.

Consultation on strategy for E-Rostering: Consultation ensures transparency of strategy and business case for the SMs and WMs who will make it operational. This action ensures the consultation theme continues as a key and positive business practice.

Set criteria for success: Criteria should be in performance terms that SMs and WMs understand, with quantitative and qualitative measures they are happy to apply to themselves. The supplier and other Trusts may be sources of advice on success measurements.

Perform technology testing and acceptance: The E-Rostering technology and its configuration with agreed operational processes must be tested with selections of real data to prove the real world efficacy of the technology and policies. Interfaces with HR and Payroll systems must be working. This study recommends setting up a virtual model ward in the test system to investigate variations in rostering rules on auto-rostering efficacy. Testing sensitivities to data quality would assist defining operational data standards.

Consultation on implementation/recovery options: The implementation approach must organise a substantial change programme affecting perhaps a thousand people in most Trusts.

Options on best accomplishing this should be discussed with the SMs and WMs. Ward level rules and customs must be discussed to secure support of WMs and staff and ensure generation of workable E-Rosters. There are two key aspects: first the need to keep ward operations running smoothly whilst implementation or recovery occurs; and second considering how much change will be project team led and how much change is longer term transition in WMs' hands.

Deciding upon methods of implementation/recovery: The change management approach needs to be considered formally in order to succeed with executing the strategic business case. Options arising from earlier consultations and expert advice must cover change leaders; plan; resource estimates; system data standards; user support; test and training systems environments; training modules on policies, business processes, roles, tasks, and technology.

Consultation on state of readiness: The SMs and WMs should be shown the plans and resources, data standards and revised business processes, roles and tasks, and their feedback considered until criteria for readiness have been agreed. These consultations ensure engagement of affected FLMs and that they know how to be ready ward by ward.

Organise data clean up: Existing system data and paper records must be checked against new data standards and all variations made good. This will be a substantial task involving ward staff and HR staff, and systems experts because all systems environments need synchronising (development, test, training, shadow and live computer system environments). This data clean up task also applies to policies, rules and customs in the system.

Set up user and technology support: The support processes (ITIL) and human (service desk staff) and technical resources (supplier contracts, help system, IT technicians, system administrators) must be set up in advance. This is essential practice and evidence of good faith. System users must be supported during implementation or recovery and long term.

Proceed with implementation/recovery of E-Rostering: If all the high level steps above have been completed then the new implementation or recovery can be planned and proceed as organisational changes (people, culture, and jobs), and business processes and technology changes, with endorsement from consultation processes substantially increasing the likelihood of success. These recommendations will help ensure that new or re-implemented E-Rostering strategy endures and delivers benefits for all stakeholders. Consultation and inclusion should become visible cultural features and continue post new implementation or recovery in all adopting organisations.

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APPENDICES

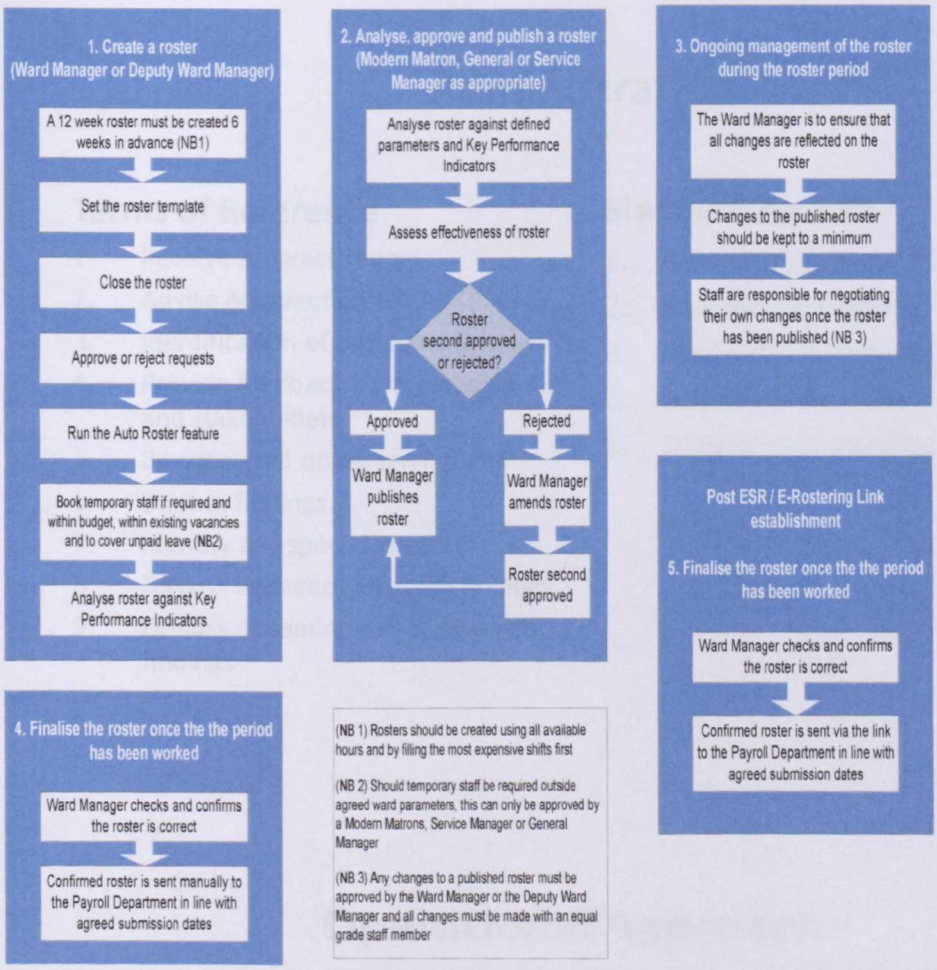
Appendix One: HFMA Guidelines on Implementation of E-Rostering

(HFMA briefing, July 2008, p9)

Top tips for trusts considering E-Rostering

- Get the executive board fully engaged from the outset. Ideally, the directors of nursing and HR should be joint project champions.
- Set priorities and needs before embarking on the project and make yourself aware of the range of products on offer.
- Understand the many benefits available from each rostering software solution provider, identify the parts of the systems that you feel will generate the benefits your organisation requires.
- Visit organisations that have successfully implemented rostering systems and learn from their experiences.
- Appoint a dedicated project team and manager with input from finance, IT, payroll and recruitment. This should be costed into the business case.
- Agree a set of standards before concentrating on the parameters for each ward.
- The simpler the shift patterns, the easier the production and management of the system. Prior to implementation, HR needs to undertake a full review of contracts and working practices to maximise the opportunities for automatic shift population.
- It may better suit your organisation to purchase only enough licences to pilot in a small area first, monitor progress and fix problems before expanding the project.
- Involve counter-fraud and internal audit teams on the project group if you are linking the e-roster to the ESR.
- Engage clinical managers and matrons so they support their clinical managers to use the system.
- Maintain project documents, such as risk registers and action logs.
- Engage staff – some will be nervous about using IT and will need one-to-one support to boost their confidence.

Appendix Two: Operational Cycle from E-Rostering Policies Document



(NB 1) Rosters should be created using all available hours and by filling the most expensive shifts first

(NB 2) Should temporary staff be required outside agreed ward parameters, this can only be approved by a Modern Matrons, Service Manager or General Manager

(NB 3) Any changes to a published roster must be approved by the Ward Manager or the Deputy Ward Manager and all changes must be made with an equal grade staff member

Version:	V1.0
Ratified by:	Joint Consultative Committee (JCC)
Date ratified:	22 May 2010

Appendix Three: Terms of Reference for Advisory Board

Administration

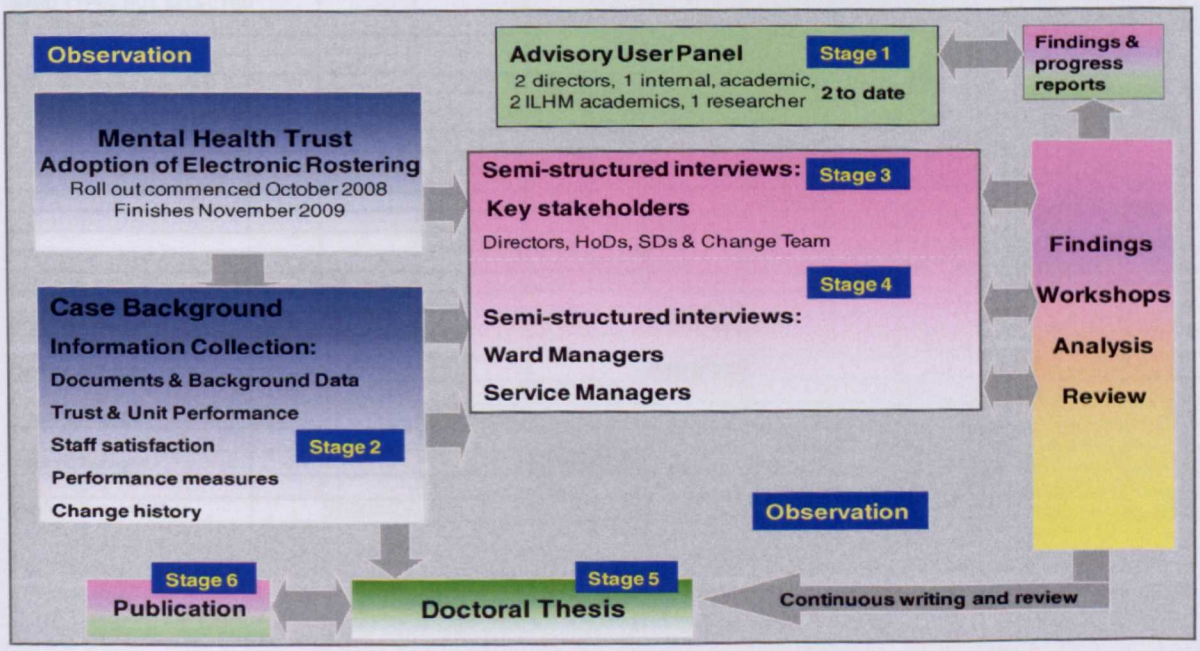
Terms of Reference

1. Receive progress report
2. Advise on direction
3. Identification of problems & issues
4. Provide feedback from participants and stakeholders
5. Be consulted on research plans
6. Discuss findings
7. Identify any special interests
8. Discuss impact of research findings
9. Discuss dissemination of research findings

Standard Agenda

1. Research progress report
2. Stakeholders advice
3. Next actions and plan
4. Any other business
5. Date of next meeting

Operational Approach



Appendix Four: Table of Data Illustrating Purposeful Sampling of Ward Managers and Service Managers

SELECTED WARDS	SERVICE DIRECTORATE/LOCATION/WARD LAYOUT							09/07 - 06/09	04/08 -06/09	PHASE	
CLINICAL SPECIALTY	*No of Beds*	*Borough A*	*Borough B*	*Borough C*	*Specialist D*	*All Single Rooms*	*Single Sex F/M or Both*	*Bed Usage %*	*Av'ge Stay [Days]*	*#*	Order of Interview
AA = adult acute											
AA-1	30	Location - 1				Yes	M & F	90.00%	45	5(1)	6
AA-2	23	Location - 1				No	Mixed	92.00%	39	5	10
AA-3	23		Location - 2			No	Mixed	85.41%	39	4	8
AA-4	23			Location - 3		Yes	M	100.59%	47	1	1
AA-5	23	Location - 1				No	Mixed	90.36%	55	5	3
AA-6	23			Location - 3						1	15
AA-7	18	Location - 1				Yes	Mixed	88.73%	79	6	WM moved
OA = older adult acute											
OAA-1	22		Location - 4			No	Mixed	93.27%	125	7	LT sickness
OAA-2	22		Location - 4			No	Mixed	90.73%	125	7	5
OAA-3	21	Location - 2				No	Mixed	75.91%	74	1	2*
OAA-4	14	Location 6				No	Mixed	78.55%	71	4	Ward closed
0AA-5	21		Location - 2			No	Mixed	92.32%	N/A	4	*shared
AED = adult eating disorders											
AED-1	20				Location - 1		Mixed	55.55%	N/A	2	4
F = forensic											
F-1	17				Location - 1	Yes	Mixed	95.23%	236	3	13
F-2	16				Location - 1	Yes	Mixed	147.64%	502	3	12
PICU = intensive care											
PICU-1	10			Location - 1		Yes	Mixed	N/A	82	6	11
D = deaf											
D-1	16				Location - 5	Yes	Mixed	62.73%	96	2	9
Addiction = drugs/alcohol											
A-1	20	Location - 1				No	Mixed	N/A	30	5	7
Learning Disabilities = adults											
Jasmines		Location 2								4	14
WARD TYPES NOT SELECTED											
RH = rehabilitation						Live Dates & E-Rostering Phase Number					
LS = low secure						10 October 2008				1	
C = children						08 December 2008				2	
CED = child eating disorders						19 February 2009				3	
CD = child deaf						10 April 2009				4	
HH = hospital hostels						20 May 2009				5	
H = hostel						23 June 2009				6	
CH = community houses						05 August 2009				7	
						17 September 2009				8	
						11 November 2009				9	
Service Manager					Location - 2						5
Service Manager					Location - 1						1
General Manager			Location - 2								3
Service Manager				Location - 1							4
Modern Matron/GM		Location - 1									2

Appendix Five: Interview Guides for Each of Four Managerial Groups

Group One: **Senior Managers**

Group Two: **Project Team**

Group Three: **Service Managers**

Group Four: **Ward Managers**

Group One: *Senior Managers*

INTERVIEW GUIDE – SENIOR MANAGERS		
1.1	**Introductions**	
1.2	Brief explanation of purpose of evaluation research (use Abstract)	
1.3	Confidentiality promise	
1.4	Recording consent form	
1.5	Demographics form – make part of consent form What are your: name, gender, age, job title, years in job, years at Trust, education, professional qualifications, relevant training?	
	Interview Questions	
2.1	What are your main responsibilities? Who works for you? Who do you respond to?	
2.2	Do you have particular responsibilities for e-rostering or a strong interest in its success?	
2.3	What aspects of the Trust's strategy lead to the e-rostering adoption decision? [Prompt: Seeking cost savings; retaining staff; better use of mature staff; patient care improvement demands this; more control sought; staff have been under managed; we want more technology; DoH insist etc?]	
2.4	How would you describe the main features of organisational culture at the Trust? [Probe: for example is it clan: developmental, hierarchical, rational; internal or externally focused; relational or mechanistic processes...?]	
2.5	Do you think success for e-rostering adoption requires cultural changes? [Probe; How is innovation usually regarded? Where do new ideas come from, older or younger staff, within the hospital or from the DoH? Is technology seen as threatening?]	
2.6	Do the reward policies and procedures identify what is good performance for managers and individuals?	
2.7	Are training and development policies aligned to innovation and changes?	
2.8	How are resources levels planned and then achieved? [Probe: what is the resource planning cycle timeline? Is it policy to have spare staff and in what key areas?	

INTERVIEW GUIDE – SENIOR MANAGERS		
2.9	How is communication to the various levels and parts of the organisation achieved and by whom? [Probe; How do you know it was successful? Do you think it is two way and balanced?	
2.10	How are job changes and new jobs designed and agreed? [Probe: How long does this normally take? Do you think that is fast or slow?]	
2.11	What work tasks and people do you expect to be managed by the e-rostering processes? [Probe: should part time staff be scheduled this way; should doctors be rostered this way; should any exclusions be allowed; should ward staff be able to adjust e-rosters?]	
2.12	What limitations and constraints do you expect may be placed upon or may need to be placed upon the e-rostering adoption? [Probe: standard working hours must be followed; all rosters should be published to ensure fairness; there is no appeal against a roster; pay should reconcile with the e-rosters; bank and agency staffs are treated differently?]	
2.13	What social and managerial pressures do you think might be applied to the ward managers as the e-roster leads? [Probe; are more senior nurses likely to receive preferential treatment?]	
2.14	Do you know how the e-rostering software application and supplier was chosen? [Probe: Do you know how the e-rostering calculations are performed and what variables are optimized?]	
2.15	Do you know what specific key benefits and features are expected of the e-rostering technology solution? [Probe: Can you give examples of them from within the Trust or elsewhere? Are they in and did you approve the original business case? What would the ward managers say?]	
2.16	Was the change management process chosen (how to implement e-rostering) and agreed by you and your colleagues, and what is it? [Probe: Can you describe its main strengths and weaknesses? Did you take advice from change experts and what was that advice? Who set what criteria for change manager selection? Who chose the change managers and how were they trained? How will you know if they are doing a good job?]	
2.17	Do you see the changes as mainly the introduction of new computerized rostering tools or mainly significant changes in ward managers' (rostering leads') jobs, controls and	

INTERVIEW GUIDE – SENIOR MANAGERS		
	responsibilities? [Probe: Do you think e-rostering could be done for many wards by a central rostering office?]	
2.18	Do you expect ward managers to be enthusiastic about e-rostering and if so why and what managers would you expect are most likely to be supportive? [Probe: Do some managers have doubts about e-rostering and if so why and what are those doubts?]	
2.19	From what you know of the various clinical staffs do you expect different groups to have different expectations for and responses to the adoption of e-rostering? [Probe: Can you give examples of expectation by staff types, say junior and senior, professional grades, part time, long service?]	
2.20	Do you know what ward managers and their staff actually think of e-rostering? [Probe: Before and after: How do their emotions and behaviours reach you and what are they?]	
2.21	What in your view are the desired outcomes from the e-rostering technology adoption programme? [Probe: Short term, longer term: for example at the levels of the Trust, wards, for staff, for managers, and for patients? Are there agreed and published success criteria at these levels? Are you planning for continuous improvement?]	
2.22	What actual outcomes are you aware of from the adoption of e-rostering so far and are these in line with the desired outcomes at these levels? What explanations would you offer for the differences? [Probe: At Trust level, wards, for staff, for managers, and for patients? What unexpected outcomes have you seen and how are they explained?]	

Group Two: Project Team

	INTERVIEW GUIDE – PROJECT TEAM	
#	**Interview Questions**	**Factor?**
A	Introductions	
B	Brief explanation of purpose of evaluation research (use Abstract)	
C	Confidentiality promise	
D	Digital recording consent form	
E	Demographics form – part of consent form. What are your age, gender, education, professional qualifications, position, and tenure?	Demographics
1	How would you describe your main responsibilities within the E-Rostering project?	Managerial competence
2	What main skills and competences of yours do think lead to your being asked to do this job?	Managerial competence
3	Did you do manual rostering yourself in your earlier job experiences at the Trust? How did you learn how to do rostering? What criteria did you apply then to judge if a roster was a good or bad one?	Managerial competence
4	What sort of pressures did you feel under when doing rostering then? Where did they mostly come from and how did you deal with them? [Probe: Service Mgr/Gen Mgr; from the nurses, from certain nurses or groups; from resource levels v demand; time pressure; patients/the job]	Unit climate & case background
5	In your view how generally are large changes handled at the Trust?	Unit climate & case background
6	How would you describe the main features of organisational culture at the Trust as seen from your perspective and how do they affect you in your job? What does it feel like to work here? How do you think things get done round here? How do you get things done? [Probe: fair; open; care for patients' priority; trustworthiness; politics; clinicians rule.]	Unit climate & case background
7	What do you think in your own mind the higher management levels want from the e-rostering project? How do you know this? [Prompt: Seeking cost savings; retaining staff; better use of mature staff; patient care improvement; more control; we like technology; DoH insist etc?]	Unit climate & case background

	INTERVIEW GUIDE – PROJECT TEAM	
#	**Interview Questions**	**Factor?**
8	How were you trained in the use of the E-Rostering software? Do you think the training focused successfully on your needs as a lead systems trainer or have you learnt more by actually doing the training? Did you have any training in data clean up and systems testing procedures? Prompt: technology skills level; how to get the best rosters from MAPS; how to get the best from your staff; how to get benefits from the changes]	Training
9	How was the training programme for Ward Managers aligned to the particular needs of the individual SWLSTG Trust ward managers? Did you take part in designing the training programme?	Training
10	How has the training programme been changed during the implementation phases? Has your delivery of training and emphases during training changed, in what way? [Prompt: Is the training programme "one size fits all" or tailored to different wards? Has data clean up emerged as a key activity?	Training
11	How much of your training work and implementation support has been about ensuring proper rostering practices and use of Trust policies, rather than just how to use the new technology? How do you feel about this? Was this foreseen? Is this really part of the trainers role do you think? [Prompt: How often have different shift patterns have emerged on individual wards which need to be changed; what poor practices appeared?]	Training
12	How do you think service managers have responded to the arrival of E-Rostering? Can you describe what actions are they taking now E-Rostering has been rolled out? Are the wards doing their e-rostering activities autonomously, that is generally without intervention or guidance from above? [Probe: Do the SMs authorize finalized rosters on time and raise queries? Do they discuss system reports with ward managers or the change team?]	Unit climate & case background
13	Do you think all the right rules and up to date policies are included and used by the e-rostering system and its administration? Do you think they are clear, well communicated, fair and widely applied by the ward managers? Should there be separate training on policies? [Probe: Across all wards? Local exceptions are needed on my ward/other wards? The policies are out of date? The WDT is causing trouble? Is it policy to have spare staff and in what key areas?]	Unit climate & case background
14	What is your experience of managing changes involving technology and new ways of working apart from E-Rostering? How were you trained then and how did you learn how to make effective changes?	Experience of change

	INTERVIEW GUIDE – PROJECT TEAM	
#	**Interview Questions**	**Factor?**
15	How do you think the project planning and communications side of the project has been handled and difficulties overcome? What have ward managers said about this during training? [Probe: WM was not consulted; timing was bad locally etc]	Experience of change
16	Do you think success for E-Rostering adoption requires changes in the behaviour of service managers, ward managers and nurses? What sort of behavioural changes do you think would help most and how can they be best achieved? Do you think the change team should have a role in achieving behaviour changes after implementation?	Experience of change
17	Were you and your colleagues trained in any change management techniques – for example risk management; business process re-engineering; negotiation skills; conflict resolution, or even Prince II?	Change Mgt Process
18	How would you describe the feedback from ward managers about their experiences of the way the changes around E-Rostering adoption have actually been planned and managed? [Prompts: Was it done to them or for them? Was the timing right? Lessons learned? Are the change managers credible and effective?]	Change Mgt Process
19	How were the effects on staff on the wards and how the technology should be used considered in advance by the change management team including you? What aspects were included in the training as a result? [Prompt: Local rules, data clean up, who would be most affected and how – WM, older nurses, older HCAs? Who would be least affected... etc?]	Change Mgt Process
20	How do you think the various aspects of the changes introduced with e-rostering will settle down on the wards? Who should be responsible for this transition activity? How is it going so far?	Change Mgt Process
21	Did you know in advance what features, functions and processes E-Rostering was supposed to deliver and support? How do you think the E-Rostering technology works in practice now you have worked with it? Do the features meet WMs needs? [Prompt: Did you see a systems specification, demonstration or any documentation before being trained as a trainer? Do the reports from the system meet your needs? Have you seen it in use elsewhere – other hospitals outside the Trust?]	Technology Efficacy
22	Is E-Rostering easy to use after training? Are the systems' responses fast enough? Are the WMs' terminal screens big and clear enough? Do WMs, nurses and HCAs need more training, in what and from whom? [Prompts: Wider screens, colour printers, clean keyboards, remote access, better	Technology Efficacy

	INTERVIEW GUIDE – PROJECT TEAM	
#	**Interview Questions**	**Factor?**
	security....?]	
23	Do you know of further developments building on E-Rostering which are in the pipeline? What would you recommend as a priority and why? [Prompt: ESR and HR systems interfaces; new management information via Pulse?]	Technology Efficacy
24	What criteria have you trained the ward managers to apply to judge whether or not a roster generated by the system is acceptable and efficient?	Technology Efficacy
25	What do you think are the main desired outcomes from E-Rostering? What would you say senior management want from it? What would you say ward managers want most from E-Rostering? Were you encouraged to train them to deliver any particular benefits?	Desired Outcomes
26	Have you seen or are you aware of the Business Case for E-Rostering and the benefits the Trust stated in the Business Case that it might expect?	Desired Outcomes
27	What do you think ward managers perceive and understand is actually happening to them with the implementation of E-Rostering?	Actual Outcomes
28	What evidence have you observed that would point as to whether WMs think it is good or bad for them, for their staff (and for the Trust)?	Actual Outcomes
29	What have you observed about the WMs behaviour following their adoption of E-Rostering~? How do you think they feel about it?	Actual Outcomes
30	What observations can you make about the changes to rostering effectiveness now that E-Rostering has been rolled out? What evidence is there in the systems' reports about changes in performance and trends?	Actual Outcomes
31	What do you think has happened to how ward managers do their jobs since the adoption of E-Rostering? Can you describe the main actual outcomes and results so far for the WMs, staff and patients and give examples of evidence? What impacts would you say are the most important for WMs, ward staff and the patients? [Prompt: WMs say their job is easier; ward staffs don't like the changes; we can be sure of staff qualifications; service managers are closer]	Actual Outcomes
32	What recommendations would you make for further actions to ensure the success of E-Rostering to the benefit of the staff and patients?	Actual Outcomes

Group Three: Service Managers

		Factor?
	Introductions	
	Brief explanation of purpose of evaluation research (use Abstract)	
	Confidentiality promise and recording consent form	
	Demographics form – part of consent form	Demographics
	Interview Questions	
1	What are your main responsibilities? Who do you respond to and who works for you? What is your budget and financial authority?	Managerial competence
2	Do you have particular responsibilities for e-rostering or a strong interest in its success?	Managerial competence
3	Can you tell me what aspects of the Trust's strategy lead to the e-rostering adoption decision? How do you know this? [Prompt: Cost savings; retaining staff; better use of mature staff; patient care improvement; more control sought; staff have been under managed; we want more technology; DoH insist etc?]	Unit climate & case background
4	How would you describe the main features of organisational culture at the Trust? What is the climate like on your various wards? [Probe: for example is it clan: developmental, hierarchical, rational; internal or externally focused; relational or mechanistic processes…?]	Unit climate & case background
5	Do you think success for E-Rostering adoption requires cultural changes? Where and how should such cultural changes happen? [Probe; How is innovation usually regarded? Where do new ideas come from? Is technology seen as threatening? Are training and development policies aligned to innovation and changes?]	Unit climate & case background
6	How are the staffing resources levels for your wards planned, budgeted and then achieved? [Probe: How are the ward managers involved? What is the resource planning cycle timeline? Is it policy to have spare staff?]	Managerial competence
7	How is communication to the various levels and parts of the organisation achieved and by whom? How do you know it was successful? Do you think it is two way? [Probe: How often do you see each of your ward managers? What do you discuss? Can you give examples of subjects you would raise regularly and	Managerial competence

	examples of subjects the ward managers raise regularly?]	
8	Do you think vacancy approval and recruitment processes meet yours and the ward managers' needs? How should things be done differently? [Probe: How long does this normally take? Is that fast or slow?]	Managerial competence
9	What effects do you think running below budgeted permanent headcount has upon ward managers' attitudes and behaviour?	Unit climate & case background
10	What was your previous involvement with the manual rostering of ward staff on your wards? How would you have known how well it was done? How did you set criteria for successful rosters? [Probe: Did you instruct your ward managers on how to assemble the staff rosters? Did you approve rosters before they were applied?]	Managerial competence
11	What work tasks and other people would you expect to be managed by the E-Rostering processes beyond the ward managers and their staff? [Probe: Should part time staff be scheduled this way; should doctors be rostered this way; should any exclusions be allowed; should ward staff be able to adjust e-rosters?]	Change Mgt Process
12	How do you judge if all the right rules and policies are included and used by the E-Rostering system and its administration? How do you know if all local rules for your various wards been included? Were they changed from what they used to be, in what way and by whom? [Probe: Local exceptions are needed on my ward/other wards? The policies are out of date? The WDT is causing trouble? Is it policy to have spare staff and in what key areas?]	Technology Efficacy
13	Do you think all the rules and policies are clear to your staff and are fairly applied by the ward managers when finalizing E-Rosters? [Probe: standard working hours must be followed; rosters should be published to ensure fairness; no appeal against a roster; pay driven by the e-rosters; bank and agency staffs are treated differently?]	Managerial competence
14	What social pressures do you think get applied to the ward managers and their deputies as the E-Roster leads? What issues do they report? [Probe; Will staff cooperate with timely requests for leave? Are more senior nurses likely to receive preferential treatment?]	Unit climate & case background
15	a) How were you and your colleagues (other SM/GMs) consulted about the decision to adopt e-rostering? b) How were you consulted about the ways changes should be managed and organized before, during and after implementation? [Probe: Were you consulted in advance about possible rostering practice and	Change Mgt Process

	rule changes? Do you know what the NRB is and does?]	
16	Do you know what specific key benefits and features are expected of the E-Rostering technology solution? [Probe: Can you give examples of them from within the Trust or elsewhere? Do you know how the e-rostering calculations are performed and what variables are optimized]	Technology Efficacy
17	Have you seen the Business Case for E-Rostering and the sort of benefits the Trust might expect as stated in the Business Case? [Probe: Better work/life balance for all; savings in agency staff; other cost savings; time saved doing rosters; better way of handling staff requests; more certain method of allocating staff with right qualifications]	Unit climate & case background
18	Do you see the changes as mainly the introduction of new rostering tools for your ward managers or do you also see changes in the roles of SM/GMs as an outcome of the adoption of E-Rostering? [Probe: Do you think e-rostering could be done for many wards by a central rostering office?]	Change Mgt Process
19	How do your various ward managers and their staffs actually think of e-rostering? Are they using auto-roster or why not? How do their emotions, behaviours and responses reach you and what are they?	Actual Outcomes
20	From what you know of the ward managers which of their characteristics are most likely to assist adoption and what ward manager characteristics are most likely to impair adoption? [Probe: Competence with manual rostering: training; experience of change; technology skills; age; seniority; skills of deputies] What characterizes the doubting ward managers?]	Change Mgt Process
21	What sort of behavioural changes by service managers, ward managers and nurses do you think would help ensure success for E-Rostering adoption? What actions have you taken in your role to help achieve these behavioural changes after implementation?	Change Mgt Process
22	What criteria do you apply to judge whether or not a roster generated by the system is acceptable and efficient? How were you advised on this during training? Have you been advised on this by your Service Director or other senior or functional managers?	Technology Efficacy
23	Were you encouraged to think that e-rostering is likely to improve your job performance and or ward managers' job performances? Who encouraged you? What performance improvements were expected?	Desired Outcomes

24	How do you think the various aspects of the changes introduced with E-Rostering are settling down on your various wards? Do you feel responsible for this and what actions have you taken? [Probe: How is it going so far? Do you as SM/GM have any plans yourself for further changes as a result of having E-Rostering?]	Change Mgt Process (Transition)
25	In what ways did the training meet the needs of your ward managers? Were there any shortfalls reported to you or additions that would have been welcome?	Change Mgt Process
26	How did your training in the E-Rostering system meet your needs and was the timing of the training appropriate? How are you now using the system? How often and what information in it do you look at and what actions do you take as a result?	Change Mgt Process
27	What in your view are the desired outcomes from the e-rostering technology adoption programme? Are you setting targets? [Probe: Short term, longer term: levels of the Trust, SM/GMs, wards, and for patients? Are there agreed and published success criteria at these levels? Are you planning for continuous improvement?]	Desired Outcomes
28	What actual outcomes are you aware of from the adoption of E-Rostering so far on your wards and elsewhere? Do you have visible and measured performance changes since the implementation? Can you explain actual v desired outcome differences? [Probe: At Trust level, wards, for staff, for managers, and for patients? What unexpected outcomes have you seen? How are they explained?]	Actual Outcomes

Group Four: Ward Managers

	INTERVIEW GUIDE – WARD MANAGERS (After)	
#	**Interview Questions**	**Factor?**
A	Introductions	
B	Brief explanation of purpose of evaluation research (use Abstract)	
C	Confidentiality promise	
D	Digital recording consent form	
E	Demographics form – part of consent form. What are your age; gender; education, professional qualifications; position and tenure?	Demographics
1	What are your main responsibilities? What services does your ward provide? What sort of problems do you commonly face as the ward manager of a "TYPE" ward and how do you deal with them?	Managerial competence
2	What is your allocated budget? What is your financial authority limit? What sort of financial reports do you get from either your boss or Finance Dept? How do MAPS reports help you manage costs?	Managerial competence
3	Do you or did you do the manual rostering yourself (if not who does or did it and who approves)? How long did it take and how often was it done? How did you publish the old manual rosters? How did you learn how to do rostering?	Managerial competence
4	What sort of pressures do you feel under when doing rostering now? Where do they mostly come from and how do you deal with them? [Probe: Service Mgr/Gen Mgr; from the nurses, from certain nurses or groups; from resource levels v demand; time pressure; from patients/the job]	Unit climate & case background
5	From your perspective what is the most important problem you would like to see resolved on your ward? Is this known to management and is any action agreed? Would you have put this above E-rostering in priority?	Unit climate & case background
6	How would you describe the main features of organisational culture at the Trust as seen from your perspective and how do they affect you in your job? What does it feel like to work here? How do you think things get done round here? How do you get things done? [Probe: fair; open; care for patients priority; trustworthiness; politics]	Unit climate & case background
7	What do you think in your own mind the higher management levels want from the e-rostering project? How do you know this? [Prompt: Seeking cost savings; retaining staff; better use of mature staff; patient care improvement; more control; we like technology; DoH insist etc?]	Unit climate & case background
8	Have you been trained in the use of the E-Rostering software? Do you think the training focussed on your needs? [Prompt: technology skills level; how to get the best rosters from MAPS; how to get the best from your staff; how to get expected benefits from the changes]	Training
9	Is your service manager interested in E-Rostering, supporting you and doing what is required to make it work well for you? [Probe: Does he authorise finalised rosters on time and with interest and queries? Does he discuss system reports with you? How often are you asked what resources you need by the managers above you?]	Unit climate & case background
	Do you think the right rules and policies are included and used by the e-rostering system and its administration? Do you think they are clear, understandable, well communicated, fair and widely applied? [Probe: Across all wards? Local exceptions are needed on my ward/other wards? The policies are out of date? The WDT is causing trouble? Is it policy to have spare staff and in what key areas?]	Unit climate & case background
10	What is your experience of managing changes involving technology and new ways of working? How were you trained or how did you learn how to make effective changes?	Experience of change
11	Do you have much contact formal and informal with other ward managers to exchange experiences and discuss problems and solutions? What experiences of E-rostering have you discussed with your peers? What experiences of E-rostering have you discussed with your Service Manager (General Manager/Modern Matron). Can you give me some examples of those discussions and outcomes? How do those discussions make you feel?	Experience of change
12	Do you think success for E-Rostering adoption requires changes or changes in the behaviour of service managers, ward managers and nurses? What sort of behavioural	Experience of change

	INTERVIEW GUIDE – WARD MANAGERS (After)	
#	**Interview Questions**	**Factor?**
	changes do you think would help? What do you think is you role in this after implementation?	
13	How were you and your colleagues (other ward managers) consulted about the adoption of E-Rostering and how the changes should be managed and organized before and after implementation? {Prompt: Do you know what the Nurse Rostering Board is and does?	Change Mgt Process
14	How would you describe your experience of the way the changes around E-Rostering adoption have actually been planned and managed? [Prompts: Was it done to you or for you? Was the timing right? How would you do it differently in future? Are the change managers credible and effective?]	Change Mgt Process
15	Do you think the effects on people on your ward and how the technology could be used were considered enough by the change management team with yourself in advance? How was this discussed? [Prompt: Who would be most affected and how – WM, older nurses, older HCAs? Who would be least affected... etc?]	Change Mgt Process
16	How do you think the various aspects of the changes introduced with E-Rostering will settle down on your ward? Who is responsible for this? How is it going so far? Do you as WM have any plans yourself for further changes as a result of having E-Rostering?	Change Mgt Process
17	Did you know in advance what features, functions and processes it is supposed to deliver and support? How do you think the E-Rostering technology works in practice now you have it? [Prompt: Did you see a systems specification, demonstration or any documentation before attending training? Did your service manager explain what it does and how in advance? Do the reports from the system meet your needs? Have you seen it in use elsewhere – other wards before yours, other hospitals outside the Trust?]	Technology Efficacy
18	Is E-Rostering easy to use after training? Are the systems' responses fast enough? Are your terminal screens big and clear enough? Is more training needed? Do WMs, nurses and HCAs need more training and from whom? [Prompts: Wider screens, colour printers, clean keyboards, remote access, better security....?]	Technology Efficacy
19	Do you know of further developments building on E-Rostering which are in the pipeline? What would you recommend? [Prompt: ESR and HR systems interfaces; new management information via Pulse?]	Technology Efficacy
20	Were you encouraged to think that E-Rostering is likely to improve your job performance (1-5) and or the ward's performance? Who encouraged you and how were these desired improvements described?	Desired Outcomes
21	Have you seen or are you aware of the Business Case for E-Rostering and the benefits the Trust stated in the Business Case that it might expect?	Desired Outcomes
22	What you think has actually happened to how you do your job and the ward's performance since the adoption of E-Rostering? Can you describe actual outcomes and results for you, your staff and the patients? What impacts would you say are the most important for you, your staff and the patients? [Prompt: My job is easier because...; the ward staffs don't like the changes because...; can you be sure of staff qualifications..... and therefore for me...:]	Actual Outcomes
23	How would you summarise what you think about the E-Rostering project? What do you perceive and understand is happening? What do you think is good or bad about this for yourself, your staff, the patients and the Trust? How does all this make you feel? How do you want to behave as a result? How are you actually behaving and what outcomes is that supporting?	Actual Outcomes
24	Do you think e-rostering is likely to improve your job satisfaction (1-5)?	Actual Outcomes

Appendix Six: Briefing Email, Consent Form and Demographic Data Request Form

A6.1 Briefing Email

Introductory Note from Researcher

Dear Name,

Here is a brief note to introduce myself if we have not met already and to explain the purpose of the meeting which I am trying to arrange.

I am a mature doctoral level researcher at the Institute of Leadership in Health Management (a partnership between the Trust, Kingston University and Royal Holloway University) and have been given access to conduct a service evaluation for the E-Rostering project as part of my DBA research. To that end I am sponsored by the Service Development department and YYYYY and you may have seen me observing proceedings in some of the training sessions and E-Rostering project meetings.

The research activity involves interviewing key managers to get their views and collect information. Fourteen senior managers have already been interviewed. All interviews are confidential and the responses of individuals will not be disclosed in any manner that might identify the source. The meeting should have about 10 minutes of introductory and explanatory discussion followed by roughly a one hour semi-structured interview and then 10 minutes or so to summarize and wind up. Previous interviews have taken between 40mins and 1 hour 15 minutes. With your permission the interview will be recorded so the content can be professionally transcribed which then makes the text suitable for qualitative analysis alongside other interviews.

An abstract which summarizes the fuller research picture is included (page 2) and a brief CV to give you some of my background. This is quite a long research programme so I would hope to have the benefit of your advice and expertise more than once over the next 12 months or so.

When I am on site at XXXXXX I have a desk in the Service Development area on the first floor in the Main Building although my mobile is the best way to get in touch and you are welcome to call at any time.

I look forward to meeting and talking with you.

Kind regards, David.

David Jobson
Tel: Nnnnnnnnnnn Mobile: 07545 114906 [best]

PA: Aaaaaaaa
Email: Emmmmmm
Email personal: d_jobson@sky.com
Email Kingston University: k0230590@kingston.ac.uk

A6.2 Consent Form

Consent Form - Interviews

Thank you for agreeing to participate in this research/evidence gathering project. I am carrying out this research/evidence gathering for the **purpose** of my doctoral research into the adoption of Electronic Rostering and the responses of those impacted.

The purpose of the interview is to explore what you know and have seen and heard and to gain your understanding of events. There are no 'correct' answers, your own opinion and experience is being sought. Please feel free to say if you do not know the answer to certain questions or you have only limited information. Interviews are likely to take about XX minutes and but you will not be restricted.

Please note that all information from this exercise will be treated in strict **confidentiality,** and will be **anonymous**. If the information you have provided is needed in some way that means it will no longer be anonymous then your further explicit consent to the release of specific information will be sought in advance.

All records will be marked with numbers rather than names. All information concerning interviews will be kept in a safe place, with access controlled by myself. Any reports for my/your organisation may offer findings and even recommendations but will not disclose names or individual detail unless your further consent has been obtained. Similarly the information I produce for the purposes of this research/evidence project and any publications arising from this will use a pseudonym for your organisation and for participants. All wording will be carefully checked to ensure that none of the parties can be recognized. If you would like to have copies of your interview transcripts, or interim reports without prejudice to the rights of other people regarding the research/evidence gathering progress, please feel free to let me know at any time.

It is difficult to keep up with the note taking of free-flowing speech, making it very likely I would miss important information. Therefore I would like to record this interview. If you do not wish to be recorded please say so. If you are willing to be recorded, I will show you how to operate the pause button so that if at any time you wish to speak 'off the record' you can switch the recorder off yourself. Although most people actually find the interview process interesting and enjoy expressing themselves, I want you to know that you have the right to withdraw from this research/evidence gathering project study at any time unless the law requires your participation, in which case you will be so informed in advance.

If any aspect of the evidence gathering, research or my questioning is unclear, or if you require any further information, please let me know. Should you change your mind about participating in the research/evidence gathering, you can contact me to inform me at any stage, and your data will be removed from all files and destroyed unless there are legal reasons for not doing so in which case you will be so informed.

I have read and understood the ethical considerations outlined above.

Name: .....Signed.....

Dated.....

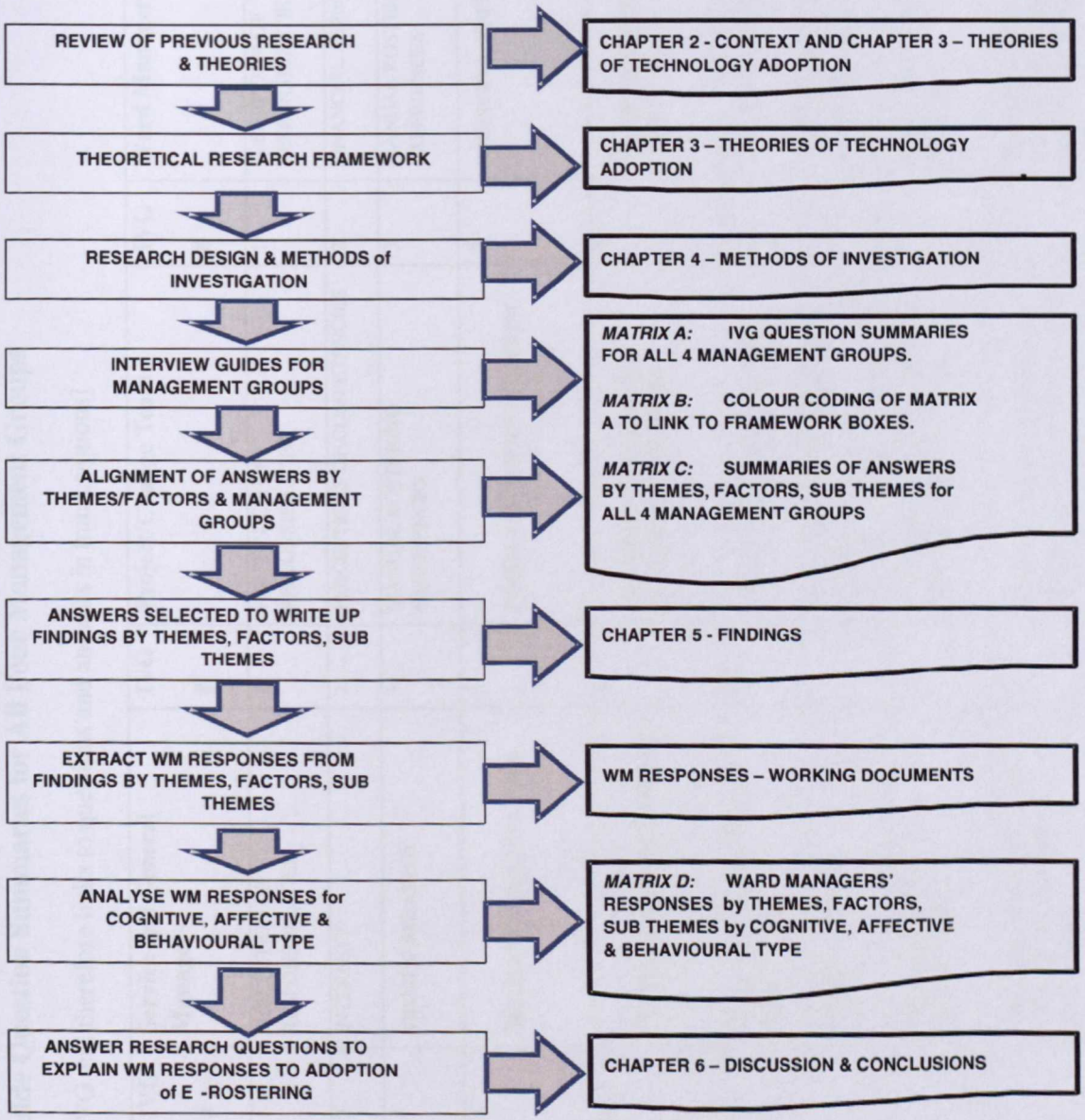
Appendix 6.3 Demographic data request form

	Confidential Demographic Details
Name	
Gender	
Age	
Job Title	
Years in job	
Years at Trust	
Role in E-Rostering project (or executive interest)	
Education	
Professional Qualifications	
Training	
Other	

Appendix Seven: Workflow Chart and Extracts from Four Matrices Used in Analysis

A7.1 STUDY WORKFLOW

[See Figure 4.10, page 99]



A7.2 Matrix A: Interview Guide Question Summaries for All Four Management Groups

[IVG# is number of question in IVG and therefore links to questions and answers in transcriptions]

IVG #	Senior Managers	IVG #	Service and General Managers	IVG #	Project/Change Team	IVG #	Ward Managers
1	PERCEPTION OF RESPONSIBILITIES	1	PERCEPTION OF RESPONSIBILITIES	1	PERCEPTION OF RESPONSIBILITIES	1	PERCEPTION OF RESPONSIBILITIES
2	INTEREST?	2	INTEREST?	2	PERCEPTIONS OF COMPETENCIES	2	FINANCIAL ASPECTS
3	TRUST'S STRATEGY	3	TRUST'S STRATEGY	3	MANUAL ROSTERING EXEPRIENCES	3	MANUAL ROSTERING EXPERIENCES
4	ORGANISATIONAL CULTURE?	4	ORGANISATIONAL CULTURE	4	PRESSURES WHEN E-ROSTERING	4	PRESSURES WHEN E-ROSTERING
5	CULTURAL CHANGES NEEDED?	5	CULTURAL CHANGES NEEDED?	5	PERCEPTION OF CHANGE MANAGEMENT IN TRUST	5	TOP PROBLEM ON WARD – WMs' VIEWS
6	PERFORMANCE RELATED "PAY"	6	STAFF LEVELS PLANNING & BUDGETTING	6	ORGANISATIONAL CULTURE	6	ORGANISATIONAL CULTURE
7	TRAINING & CHANGE SKILLS?	7	COMMUNICATION	7	PERCEPTION OF MANAGEMENT MOTIVES	7	PERCEPTION OF MANAGEMENT MOTIVES
8	RESOURCE PLANNING	8	VACANCY APPROVAL & RECRUITMENT	8	PERCEPTION OF E-ROSTERING TRAINING FOR TRAINERS	8	PERCEPTION OF E-ROSTERING TRAINING
9	INTERNAL COMMUNCIATION?	9	BELOW HEADCOUNT EFFECT ON WM'S ATTITUDES & BEHAVIOUR	9	PERCEPTION OF E-ROSTERING TRAINING FOR WARD MANAGERS	9	PERCEPTION OF SERVICE MANAGER'S INTEREST IN E-ROSTERING & PROGRESS

10	JOB DESIGN & CHANGES?	10	EXPERIENCE OF MANUAL ROSTERING	10	CHANGES IN TRAINING	10	RULES & POLICIES COVERAGE BY E-ROSTERING?
11	ROSTERED STAFF?	11	EXPECTATIONS FOR E-ROSTERING BEYOND WMS	11	POLICIES ELEMENT IN TRAINING DELIVERY	11	EXPERIENCE OF CHANGE MGT AND TECHNOLOGY ADOPTION?
12	LIMITATIONS OF E-ROSTERING?	12	KNOWLEDGE OF RULES & POLICIES WITHIN E-ROSTERING [Trust and local]	12	PERCEPTION OF RESPONSES OF SMs TO ARRIVAL OF E-ROSTERING	12	CONTACT & EXCHANGES WITH PEERS?
13	SOCIAL & MANAGERIAL PRESSURES ON WMs?	13	RULES & POLICIES – CLEAR TO WMs AND STAFF?	13	RULES AND POLICIES COVERAGE BY E-ROSTERING?	13	DESIRED BEHAVIOURAL CHANGES?
14	SUPPLIER SELECTION PROCESS?	14	SOCIAL PRESSURES ON WMs & DEPUTIES WHEN ROSTERING	14	PREVIOUS CHANGE MANAGEMENT AND TECHNOLOGY IMPLEMENTATION EXPERIENCE	14	PRE-CONSULTATION? a) Decision b) Change management approach
15	EXPECTED KEY FEATURES & BENEFITS?	15	a) CONSULTATION ABOUT E-ROSTERING DECISION b) CONSULTATION ABOUT CHANGE MGT FOR E-ROSTERING	15	PERCEPTIONS OF INTERNAL COMMUNICATIONS	15	EXPERIENCE OF E-ROSTERING CHANGE MANAGEMENT?
16	CHANGE MANAGEMENT PROCESS DESIGN?	16	KNOWLEDGE OF EXPECTED BENEFITS?	16	BEVIOURAL CHANGES NEEDED FOR SUCCESS	16	PRE-CONSULTATION ABOUT EFFECTS IN USE ON WARD?
17	TECHNOLOGY ARTEFACT or BEHAVIOURAL CHANGE?	17	BUSINESS CASE KNOWLEDGE including BENEFITS?	17	TRAINING IN CHANGE MANAGEMENT TECHNIQUES?	17	SETTLING DOWN OF E-ROSTERING
18	EXPECTATIONS ABOUT WM'S RESPONSES?	18	E-ROSTERING AS TOOL FOR WMs AND/OR	18	FEEDBACK FROM WMs ON THEIR TRAINING AND IMPLEMENTATION AT WARDS	18	ADVANCE KNOWLEDGE

			CHANGES IN SM/GM ROLES?				
19	EXPECTATIONS ABOUT OTHER GROUPS' RESPONSES	19	KNOWLEDGE OF WMs RESPONSES (THINK, FEEL, BEHAVE)	19	DEGREE OF CONSIDERATION OF WMs & NEEDS OF THEIR STAFF	19	PERCEPTIONS IN PRACTICE AND EASE OF USE
20	KNOWLEDGE OF WM'S RESPONSES?	20	WMS' CHARACTERISTICS – FOR & AGAINST E-ROSTERING?	20	SETTLING DOWN AND TRANSITION	20	KNOWLEDGE OF FURTHER DEVELOPMENTS
21	DESIRED OUTCOMES?	21	BEHAVIOURAL CHANGES TO ENSURE SUCCESS - SM/GMs AND WMs?	21	ADVANCE KNOWLEDGE OF E-ROSTERING SYSTEM FUNCTIONALITY AND TRUST REQUIREMENTS? DOES IT WORK IN PRACTICE?	21	E-R CRITERIA FOR SUCCESS
22	ACTUAL OUTCOMES?	22	CRITERIA TO JUDGE IF E-ROSTER IS ACCEPTABLE & EFFICIENT	22	PERCEPTIONS OF EASE OF USE AFTER TRAINING	22	ENCOURAGED TO THINK E-R WOULD IMPROVE WM & WARD PERFORMANCE
23		23	EXPECTATIONS ABOUT JOB PERFORMANCE IMPROVEMENT FROM E-ROSTERING ADOPTION FOR SMs AND WMs	23	KNOWLEDGE OF FURTHER SYSTEM DEVELOPEMENTS	23	KNOWLEDGE OF BUSINESS CASE?
24		24	IS E-ROSTERING SETTLING DOWN ON THE WARDS? ACTIONS TAKEN?	24	GOOD ROSTER CRITERIA TRAINING	24	CHANGES TO YOUR JOB & WARD PERFORMANCE SINCE E-R
25		25	VIEW OF WMs' TRAINING	25	EXPECTED AND DESIRED OUTCOMES	25	ACTUAL OUTCOMES FOR WM & WARD

26		26	VIEW OF SMs' TRAINING	26	KNOWLEDGE OF BUSINESS CASE	26	SUMARY OF THOUGHTS, FEELINGS AND BEHAVIOUR?
27		27	VIEW OF DESIRED OUTCOMES FROM E-ROSTERING	27	WMs' EXPECTATIONS OF OUTCOMES	27	OUTCOMES FOR JOB SATISFACTION?
28		28	VIEW OF ACTUAL OUTCOMES	28	EVIDENCE FOR WMs' VIEWS – GOOD FOR THEM	28	
29		29		29	PERCEPTIONS OF WMs' BEHAVIOUR POST IMPLEMENTATION	29	
30		30		30	PERCEPTIONS OF EFFECTS OF E-ROSTERING SO FAR	30	
31		31		31	PERCEPTIONS OF CHANGES IN HOW WMs' DO THEIR JOBS POST IMPLEMENTATION – VISIBLE IMPACTS?	31	
32		32		32	RECOMMENDATIONS FOR FURTHER ACTION TO HELP ENSURE SUCCESS	32	

A7.3 Matrix B: THEMES & IVG SUBJECTS FOR FOUR MANAGEMENT GROUPS

CH 6 FINDINGS: ANALYSIS by HIGH LEVEL THEME [FRAMEWORK BOX] *IVG# equals number of interview question*
Colour Code: BOX 1.1 Case Background; BOX 1. 2 FLM/Unit; BOX 2 Chg Mgt; BOX 3 Tech Efficacy; BOX 4 Desired/Actual Outcomes

Box	THEMES	IVG #	Senior Managers	IVG #	Service Managers	IVG #	Change Team	IVG #	Ward Managers
1.1, 2, 1.2	PERCEPTION OF OWN RESPONSIBILITIES	1	PERCEPTION OF RESPONSIBILITIES	1	PERCEPTION OF RESPONSIBILITIES	1	PERCEPTION OF RESPONSIBILITIES	1	PERCEPTION OF RESPONSIBILITIES 2, (b)
						2	PERCEPTIONS OF COMPETENCIES	2	FINANCIAL ASPECTS
1.1, 4, 1,2	INTEREST IN E-ROSTERING BY SMs	2	INTEREST?	2	INTEREST?	12	PERCEPTION OF RESPONSES OF SMs TO ARRIVAL OF E-ROSTERING	9	PERCEPTION OF SERVICE MANAGER'S INTEREST IN E-ROSTERING & PROGRESS 2, (l)
1.1, 1.2	TRUST STRATEGY	3	TRUST'S STRATEGY	3	TRUST'S STRATEGY	7	PERCEPTION OF MANAGEMENT MOTIVES	7	PERCEPTION OF MANAGEMENT MOTIVES 2, (l)
	PERCEPTION OF MANAGEMENT	11	ROSTERED STAFF?	11	EXPECTATIONS FOR E-R BEYOND WMs				
		14	SUPPLIER						

Box	THEMES	IVG #	Senior Managers	IVG #	Service Managers	IVG #	Change Team	IVG #	Ward Managers
			SELECTION PROCESS						
1.1, 1.2	ORGANISATION CULTURE	4 8	ORGANISATIONAL CULTURE? RESOURCE PLANNING	4 6 8 9 20	ORGANISATIONAL CULTURE STAFF LEVELS – PLANNING & BUDGETTING VACANCY APPROVAL & RECRUITMENT BELOW HEADCOUNT – AFFECT ON WM'S ATTITUDE & BEHAVIOUR WM'S CHARACTERISTICS – FOR or AGAINST E-R?	6	ORGANISATIONAL CULTURE	6	ORGANISATIONAL CULTURE 2, (1)

Box	THEMES	IVG #	Senior Managers	IVG #	Service Managers	IVG #	Change Team	IVG #	Ward Managers
1.1, 2, 1.2	PERCEPTION OF BEHAVIOURAL CHANGES NEEDED	5	CULTURAL CHANGES NEEDED?	5	CULTURAL CHANGES NEEDED?	16	BEVIOURAL CHANGES NEEDED FOR SUCCESS	5	TOP PROBLEM ON WARD – WMs' VIEWS
		6	PERFORMANCE RELATED PAY	21	BEHAVIOURAL CHANGES TO ENSURE SUCCESS - SM/GMs AND WMs?			13	DESIRED BEHAVIOURAL CHANGES? 2, (d)
		10	JOB DESIGN & CHANGES						
2, 1.2	PERCEPTION OF E-ROSTERING TRAINING 1. SMs 2. WMs	7	TRAINING & CHANGE SKILLS?	25	VIEW OF WMs' TRAINING	8	PERCEPTION OF E-ROSTERING TRAINING FOR TRAINERS	8	PERCEPTION OF E-ROSTERING TRAINING
				26	VIEW OF SMs TRAINING				2, (f) tech skills
						9	PERCEPTION OF E-ROSTERING TRAINING FOR WARD MANAGERS.		2, (e) e-rostering
							CHANGES IN TRAINING		

Box	THEMES	IVG #	Senior Managers	IVG #	Service Managers	IVG #	Change Team	IVG #	Ward Managers
						10 18	FEEDBACK FROM WMs ON TRAINING & IMP'N AT WARDS		
1.1, 2, 1.2	COMMUNICATION 1. GENERAL 2. ABOUT E-ROSTERING 3. CULTURE – PROCESS V CONTENT	9	INTERNAL COMMUNICATION	7	COMMUNICATION	15	PERCEPTIONS OF INTERNAL COMMUNICATIONS	14 16 12	PRE-CONSULTATION? a) Decision b) Change management approach Box 2 2, (m) PRE-CONSULTATION ABOUT EFFECTS IN USE ON WARD? Box 2 2, (m) [BOX 5] CONTACT & EXCHANGES WITH PEERS? [BOX 5] [ALL BOX 2
2	MANUAL ROSTERING EXPERIENCES - LOCAL SUB-CULTURES			10	EXPERIENCE OF MANUAL ROSTERING	3	MANUAL ROSTERING EXEPRIENCES	3	MANUAL ROSTERING EXPERIENCES 2, (j)

Box	THEMES	IVG #	Senior Managers	IVG #	Service Managers	IVG #	Change Team	IVG #	Ward Managers
1.1, 1.2, 2 3	RULES AND POLICIES 1. IN E-ROSTERING • TRUST SUPPORTING • LOCAL SUPPORTING 2. ROLE IN CULTURE 3. FROM WHO [HR]	12	LIMITATIONS OF E-ROSTERING?	12 13	KNOWLEDGE OF RULES & POLICIES WITHIN E-ROSTERING [Trust and local] RULES & POLICIES – CLEAR TO WMs AND STAFF?	11 13	POLICIES ELEMENT IN TRAINING DELIVERY RULES AND POLICIES COVERAGE BY E-ROSTERING?	10	RULES & POLICIES COVERAGE BY E-ROSTERING? 2, (k)
1.1, 1.2	PRESSURES WHEN ROSTERING 1. SENIOR MGT 2. SERVICE MGT 3. WARD MGRS 4. ROSTERED STAFF	13	SOCIAL & MANAGERIAL PRESSURES ON WMs?	14	SOCIAL PRESSURES ON WMs & DEPUTIES WHEN ROSTERING	4	PRESSURES WHEN E-ROSTERING	4	PRESSURES WHEN E-ROSTERING 2, (g) 2, (l)
1.1, 3, 1.2	TECHNOLOGY EFFICACY 1. EXPECTED BENEFITS 2. ACTUAL BENEFITS 3. EASE OF USE	15 17	EXPECTED KEY FEATURES & BENEFITS? TECHNOLOGY ARTEFACT OR BEHAVIOURAL CHANGE	16 22	KNOWLEDGE OF EXPECTED BENEFITS? CRITERIA TO JUDGE IF E-ROSTER IS ACCEPTABLE & EFFICIENT	21 22	ADVANCE KNOWLEDGE OF E-ROSTERING SYSTEM FUNCTIONALITY AND TRUST REQUIREMENTS? DOES IT WORK IN PRACTICE? PERCEPTIONS OF EASE OF USE AFTER TRAINING	19	PERCEPTIONS IN PRACTICE AND EASE OF USE 2, (k) [BOX 4]

Box	THEMES	IVG #	Senior Managers	IVG #	Service Managers	IVG #	Change Team	IVG #	Ward Managers
							KNOWLEDGE OF FURTHER SYSTEM DEVELOPEMENTS		
						23	GOOD ROSTER CRITERIA [TRAINING]		
						24			
2, 1.1	CHANGE MGT PROCESSES 1. PERCEPTION OF 2. DESIGN OF a. Technology adoption 3. CONSULTATION a. Consideration of WMs 4. EXPERIENCE 5. LEVELS - Sen Mgt, SMs, CMs, WMs	16	CHANGE MANAGEMENT PROCESS DESIGN	15 a)	CONSULTATION ABOUT E-ROSTERING DECISION	5	PERCEPTION OF CHANGE MANAGEMENT IN TRUST.	11	EXPERIENCE OF CHANGE MGT AND TECHNOLOGY ADOPTION?_____
						14	PREVIOUS CHANGE MANAGEMENT AND TECHNOLOGY IMPLEMENTATION EXPERIENCE.		2, (d)
				15 b)	CONSULTATION ABOUT CHANGE MGT FOR E-ROSTERING				PRECONSULTATION
							TRAINING IN CHANGE MGT TECHNIQUES?	14	b) Change Management Approach
									[BOX 2]
							DEGREE OF		EXPERIENCE OF E-

Box	THEMES	IVG #	Senior Managers	IVG #	Service Managers	IVG #	Change Team	IVG #	Ward Managers
						17	CONSIDERATION OF WMs & NEEDS OF THEIR STAFF	15	ROSTERING CHANGE MANAGEMENT? [BOX 2
						19			ADVANCE KNOWLEDGE
								18	
4, 1.1, 2, 3	DESIRED OUTCOMES 1. SENIOR MGT 2. SERVICE MGT 3. WARD MGRS 4. ROSTERED STAFF 5. JOB PERFORMANCE 6. JOB SATISFACTION ACTUAL OUTCOMES 7. SENIOR MGT 8. SERVICE MGT 9. WARD MGRS 10. ROSTERED STAFF 11. JOB PERFORMANCE 12. JOB SATISFACTION	3 15 18	TRUST'S STRATEGY EXPECTED KEY FEATURES & BENEFITS? EXPECTATIONS ABOUT WMs' RESPONSES EXPECTATIONS OF OTHER GROUPS'	3 17 23 24	TRUST'S STRATEGY BUSINESS CASE KNOWLEDGE including BENEFITS? EXPECTATIONS ABOUT JOB PERFORMANCE IS E-ROSTERING SETTLING DOWN ON THE WARDS? ACTIONS TAKEN?	20 25 26 27	SETTLING DOWN AND TRANSITION EXPECTED AND DESIRED OUTCOMES KNOWLEDGE OF BUSINESS CASE WMs' EXPECTATIONS OF OUTCOMES [DESIRED]	17 20 21	SETTLING DOWN OF E-ROSTERING [BOX 2] [BOX5] FURTHER DEVELOPMENTS FOR E-R E-R CRITERIA FOR SUCCESS

Box	THEMES	IVG #	Senior Managers	IVG #	Service Managers	IVG #	Change Team	IVG #	Ward Managers
4, 5, 3		19	RESPONSES		VIEW OF DESIRED OUTCOMES FROM E-ROSTERING	28	EVIDENCE FOR WMs' VIEWS – GOOD FOR THEM	22	ENCOURAGED TO THINK E-R WOULD IMPROVE WM & WARD PERFORMANCE [BOX 5]
			KNOWLEDGE OF WM'S RESPONSES?	27					
		20	DESIRED OUTCOMES?		VIEW OF ACTUAL OUTCOMES		PERCEPTIONS OF WMs BEHAVIOUR POST IMPLEMENTATION		KNOWLEDGE OF BUSINESS CASE?
		21	ACTUAL OUTCOMES	28		29	PERCEPTIONS OF EFFECTS OF E-ROSTERING SO FAR	23	[BOX 5]
		22				30	PERCEPTIONS OF CHANGES IN HOW WMs DO THEIR JOBS POST E-R		CHANGES TO YOUR JOB & WARD PERFORMANCE SINCE E-R
						31	RECOMMENDATIONS FOR FURTHER ACTION TO HELP ENSURE SUCCESS	24	ACTUAL OUTCOMES FOR WMs AND WARDS [BOX 5]
						32		25	SUMMARY OF THOUGHTS FEELINGS AND BEHAVIOUR

Box	THEMES	IVG #	Senior Managers	IVG #	Service Managers	IVG #	Change Team	IVG #	Ward Managers
									[BOX 4]
								26	OUTCOMES FOR JOB SATISFACTION
									[BOX 4]
								27	

A7.4 Matrix C: Summaries of Answers by Themes, Factors, Sub Themes for all Four Management Groups Related to Research Questions

[Sample four pages out of 22 …]

RQ	FACTORS	*Sub themes*	*RESEARCH QUESTIONS*
Q1			**How do the characteristics of the case organisation influence what the ward managers think of E-Rostering and how they respond to its adoption?**
	Change context	*Post mergers* *External pressures* *Foundation* *process*	*Description and explanation of the case organisation background requires information about the change context (Smollan, 2008) at the Trust. The organisation size and complexity post the mergers that formed the Trust increased the organisational and physical distance of front line WMs from senior managers. This contributed to WMs local autonomy which they perceived E-R as threatening. Although aware of external pressures upon the Trust over costs and quality of care and senior management's fear of adverse publicity as the broader context, WMs rationalised E-Rostering adoption as an internal cost control and WM control decision. The contemporary process of seeking foundation trust status whilst occupying senior management was not mentioned by WMs as any sort of influence in their own contexts.*
	Strategy	*Alignment* *Lack of alignment* *Control*	*Evidence of the Trust's strategic thinking (Truss, 2003) influences the ward managers' responses. This theory in use (Argyris and Schon, 1996) for E-Rostering was: improve efficiency; fairer duty allocation; save agency costs; qualified staff deployed; better patient care. The ward managers aligned with this aspirational rubric of the Trust's strategy behind E-Rostering adoption, as communicated during training. Theories in action visible in guidelines, training and procedures may be creatively adapted by practitioners to local circumstances Fish (1998). However when it came to E-Rostering in practice WMs had other higher local priorities.* *Service managers were aligned with the rubric of strategy and understood the control opportunity vested in E-R on line deployment data, but they were not taking action in practice to support adoptions by WMs or to take on their new mandated role to second approve E-Rosters. They were by inaction allowing the WMs local autonomy.* *The business case did not involve the ward managers in either its formation or distribution and so had no direct influence upon their responses other than resentment at their lack of inclusion. Previous research advises those affected should be involved so this was an opportunity missed (Cameron and Green. 2004). Across and up and down the complex organisation E-Rostering was seen as a mandatory device to increase control from above, dissonant with the history of local perceived autonomy and local interests and therefore something to respond to locally by resisting but adapting.* *The Trust's received strategy for E-Rostering was accepted by ward managers as rational thinking for the senior management but at the ward manager level alignment was fatalistic and superficial. Other operational*

RQ	FACTORS	*Sub themes*	*RESEARCH QUESTIONS*
			local issues commanded prior attention and E-Rostering was not seen as a solution to them or demanded by ward managers. *The alignment of affected groups and individuals with the organisations goals and culture has been identified in previous research as a major facilitating factor (Balogun et al, 2004; Mintzberg et al., 1998). However this case study shows that perceptions of strategic alignment evidenced by familiarity with the corporate rubric do not necessarily indicate that direct supportive action for the strategy or even compliance by ward managers in context will happen in practice. Perceived alignment of ward managers with corporate strategy may not mean that strategy has accepted fit or congruence with their local objectives and priorities.*
	Culture	*Mandatory change* *Lack of WM power* *Distance*	*The nature of the Trust culture will influence the responses to change (Marsick and Watkins, 2003).* *Although the ward managers perceive the Trust culture as top down they are prepared to resist as semi-autonomous managing professionals and to adapt the changes E-Rostering brings with a modifying form of compliance. They perceived their local sub cultures and history support such an approach.* *The distance of senior managers from actual ward operations means changes, mandatory in theory, may be aspirational in practice. The lack of sanctions for non-compliance and the lack of criteria for success may allow local interpretations and adaption, a peer admired aspect of performance that reflects the dominant "can do" culture at ward level.* *Although the corporate culture is hierarchical and internally focussed the ward cultures are closer to the developmental features in previous surveys (Davies et al., 2007) showing adaptive skills with the leader as risk taker.* *Ward managers do not reflect a top down regime on their wards. A lack of power to discipline staff and low financial authority constrain that approach. They have to work with their staff to negotiate changes and interventions arising from E-R adoption whilst retaining their status and power as local leaders.*
	Structure	*Lack of alignment* *Lack of support* *Lack of resources*	*Benign alignment decision processes at the top horizontal level did not translate into the vertical organisational dimension or extend to service and ward managers in the context of E-Rostering adoption, where top down and mandatory was their view of the strategy. Nevertheless service managers were able to be diffident about E-Rostering and did not offer their ward managers line support over it. The ward managers' responses were to be diffident about their service managers and not seek their involvement or support.* *Corporate functions, HR, Finance and IT, were perceived by SMs and WMs as offering bureaucratic and poor levels of support. However these functions thought the service and ward managers did not follow procedures and could be lazy or self serving. The outcome is ward managers perceive they are left carrying the can and have to fix things to the best of their ability within resource and power constraints. The ward managers' responses are to adapt and cope. The senior management's encouragement of ideas, despite perceived lack of progression across the organisation, nevertheless gives ward managers some cultural headroom to adapt operationally.*

RQ	FACTORS	*Sub themes*	*RESEARCH QUESTIONS*
			Although internally agency staff is fully budgeted for, the external view is the Trust including agency staff is over resourced. Nevertheless the Trust managers at all levels believe there are not enough personnel. The adoption of E-Rostering is intended to make more efficient use of resources. Its application primarily to permanent staff (agency staff must fill the permanent roster gaps) is a reflection of such thinking. At SMs and WMs levels the view is that efficiency gains may be limited above manual rostering and that E-Rostering is not addressing the real problem, namely shortage of permanent staff. *Clarke and Wilcockson (2001) noted that an institutionalised view of low resources inhibits innovation where resources are seen as enabling. This may be why at the Trust ideas flower but may not be harvested at the higher levels. Although subscribing to lack of permanent resources, ward managers admitted that agency staff were readily available to fill gaps, perhaps freeing up any inhibitions about local innovation. Ward managers with their "can do" attitude and creativity set out to adapt locally because operational failure is not a perceived option in healthcare.* *Silvestro and Silvestro (2008) suggest the theoretical optimum roster should be calculated against service demands before staff sourcing in practice is considered to populate that roster. However demand at the Trust is formulated by using budgeted headcount as a proxy for demand and then figuring out how to deploy actual resources, permanent and agency to meet it. Therefore demand is constrained by available resources rather than used to drive deployment forecasts. In which case all WMs and E-Rostering can do is allocate constrained available resources efficiently within rules.*
	Policies and procedures	*Lack of support from HR* *Senior mgt distance* *Lack of formal policies*	*There is a legacy of organisational memory and assimilated knowledge which may be a knowledge barrier to innovations and gives rise to dialectic forces as the old and new combine in unpredicted ways (Robey et al., 2002). The manual rostering history meant ward managers and their staff had well evolved views of policy and practice in their local contexts. Their responses to new global policies and eight week roster cycles as presented by the Project Team were to negotiate settlements that accommodated their own needs and included local rules in the system. There was no overarching set of documented roster policies as reference. These were eventually produced by HR, with roster cycles extended to twelve weeks, beyond those peddled by the Project Team, six months after the twelve month implementation had finished.* *Purcell and Hutchinson (2007) found that front line managers are key actors in the operational delivery of HR policies. In this case the response of the ward managers was to implement with E-Rostering only those policies that were workable with their staff and did not lead to intractable arguments. In essence they carried forward most of the manual rostering history with its four week cycles and informal policies into the ward level implementations of E-Rostering. As a result the new corporate E-Rostering policy is nugatory and the new systems and adapted practice may have embedded old practices.* *The lack of engagement and intervention from HR and service managers has contributed to this and so has the distance of senior managers above them. Also the ability of the ward managers to respond to auto-rosters they deem unacceptable by overriding them allows them to disregard conflicting policies.* *The responses of the ward managers were to pragmatically represent their own interests and autonomy as line managers, which the implementation process largely accommodated. The outcome is that the senior*

RQ	FACTORS	*Sub themes*	*RESEARCH QUESTIONS*
			management's control ambitions beyond the effect of cumulating electronic records have not yet been realised.
	Communication	*Professional values* *Ineffective* *Lack of inclusion*	*Ward managers saw themselves as the professional clinical nursing lead on the wards, a view endorsed strongly by their profession (RCN, 2009). Their values were reinforced by the inclusion in and affinity for their own pan Trust professional monthly meeting organised by the Director of Nursing. Therefore perceptions of not being treated in considerate communicative ways, which they believed they espouse professionally, may lead to resentment and resistance. Perceptions that corporate communications at the Trust were ineffective and self-serving were aligned with the ward managers' perception that senior management were not necessarily caring about them within a care providing service organisation.* *Ward managers saw Trust formal communication processes as bureaucratic and top down, largely one way with poor bland content and intended to meet senior management political needs. The WMs did not feel included or engaged by either process or content or that communications reflected their values. Perceived poor communications and the corollary, lack of inclusion in decisions that affect WMs, contributed to resentment and resistance.*
	Business case	*External pressures* *Alignment* *Lack of inclusion*	*Although external factors influenced the decision to adopt E-rostering and are mentioned in the business case, ward managers did not get to see this. Part of their response to E-Rostering strategy was to rationalise it by replaying the justifying benefits rubric communicated by the trainers. This displayed superficial alignment whilst their lack of inclusion in the decision and E-Rostering's perceived lack of congruence with their own local priorities motivated their resistance and adaption in practice.*

A7.5 Matrix D: ANALYSIS of WARD MANAGERS' RESPONSES by COGNITIVE/AFFECTIVE/BEHAVIOURAL TYPES

Sample of 4 pages out of 23 in full matrix

	Ward Managers' Responses				
Ref	Case Background – Box 1.1		Cognitive/Cause	Affective/Effect	Behaviour/Effect
Ch 5	Theme/ Factor	Sub Theme/ Factor			
5.1.1.3	Strategy	Lack of Alignment Culture Control	Ward managers accepted the service managers' distance and lack of interest	Were disapproving of their enrolment by second approval of rosters.	Did not involve SMs
		Lack of Alignment Control	Ward managers' perceptions of Trust motives were to save money (agency), increase control of WMs and provide an efficient rostering tool.	Resented more control	Resistance and adaption
5.1.1.7	Business Case	Lack of Inclusion	They had not seen or been briefed on the business case.		Ward managers had no response other than general acceptance of PT communicated rubric.
5.1.1.4	Culture	Culture Mandatory change	E-Rostering was taken by WMs in spirit of existing culture of top down one way communication, mandatory change	Seen as limiting ward managers' formal powers to discipline and sanction staff	Fix-it-yourself autonomy on wards
		Lack of fit Lack of WM power Control Culture Resistance Status Adaption	Ward managers were reluctant to enforce E-Roster and new policies. They did not see the point of them and were fearful of staff negative reactions.	Resistance Fear	WMs did not enforce E-Rosters and new policies Ward managers responded with periods of grace working in local contexts to achieve behavioural change or perhaps legitimize that changes would be slow in happening. Adapted locally to use technology where it met needs and work around it where it did not.
5.1.1.5	Structural Effects	Lack of Alignment Lack of support Power distance	WMs had accepted the service managers' disablement by the adoption procedures.	Ward managers had low expectations of the service managers (self-fulfilling).	Ward managers did not involve or ask for help from service managers in the E-R adoption.
5.1.1.6	Policies	Control Leadership	The Trust's control ambitions had been reduced to (historic) ward		Ward managers negotiated the rules and patterns for their wards with the project team. They

	Ward Managers' Responses				
Ref	Case Background – Box 1.1		Cognitive/Cause	Affective/Effect	Behaviour/Effect
Ch 5	Theme/ Factor	Sub Theme/ Factor			
		Adaption	autonomy and practice.		represented their staff and had what they agreed embedded in the E-R system so retaining control
		Culture Power Control Leadership Adaption	The system allows ward autonomy and practice as did superior management by standing off and not exercising second level E-Roster approval.		Ward managers overrode or ignored auto-roster if they did not like the rosters it produced and were free to do so.
5.1.1.7	Communication	Professional Values	WMs saw themselves as the clinical nursing lead on their wards	Ward managers had an affinity for their own professional group monthly gathering	
		Ineffective Lack of inclusion	WMs saw communication processes as bureaucratic and top down, largely one way with poor content.	Otherwise felt formal communication processes told them little.	Formal communication seen as intended to meet senior management political needs rather than Trust's needs overall.

	Ward Managers' Responses				
Ref	FLM Characteristics – Box 1.2		Cognitive/Cause	Affective/Effect	Behaviour/Effect
	Factor/Theme	Sub Theme			
5.2	Managerial Qualifications & Skills	Professional Pride Lack of Inclusion Resistance	WMs have a weight of qualification and experience in clinical service delivery.	They want this to be recognized by involvement and consultation.	Their autonomy and "can do" ethos means they used adaption as a resistance strategy to retain control.
		Lack of trust Status Threat Adaption	However E-R was imposed.	Resented as it suggests they cannot be trusted. Imposition confirms low status.	They appear cooperating but in fact have devised coping strategies
	Age. Gender and ethnicity [NOT USED]	Generation differences	Younger WMs tend to be more academically qualified	… and more confident with their IT skills,	…less resistant to computer based tools.
		Professional pride Lack of Inclusion	WMs confident with IT expected to be consulted about technology in advance and when not showed their feelings	Resentment	They found fault with the technology: negative opinion leaders with more credence because of their known IT skills.
		Control Power Resistance Prof pride	Management interventions perceived as having primarily control and blame motives. E-R was seen in this light and continuum as more of same.	… were not sympathetic to	WMs showed loyalty to clinical professions and to care objectives
	Financial mgt skills	Lack of Alignment Status	Saw E-R as another control initiative from above	Confirmed low status and lack of trust	Added to the already severe limitations on their financial firepower.
		Lack of alignment	The second level E-R approval was not seen as a benefit by WMs	Resistance	Therefore they are happy to work without it or around it
	Technology Skills	Lack of Training	WMs said more E-R training was needed and more practice required.	Even WMs self-confident with IT wanted more training	Anxiety and difficulty in training own staff
		Lack of Confidence		Some (5 out of 9 over 40 yrs) ward managers blamed the technology	They were relying on deputies who were sound with IT for E-R activities (may mean loss of status).
		Mandatory Lack of Alignment Resistance Adaption	Profile and set up decisions carried out by the implementation team caused problems (rather arising from the technology functionality).	E-R system blamed	By passing system and overruling auto-rosters
		Lack of Training	Knowledge of system not deep - they did not know enough	Anxiety	Ward managers were not wholly able to differentiate over the cause of these perceived flaws

	Ward Managers' Responses				
Ref	FLM Characteristics – Box 1.2		Cognitive/Cause	Affective/Effect	Behaviour/Effect
	Factor/Theme	Sub Theme			
		Status Anxiety	Such cognitive perceptions …		Lead to their attacking the system as faulty and unfinished
		Professional Pride		Resentment It was the IT confident WMs …	… Who were most critical
	Prior experience of change	Adaptive Capability	Adaptive capability was perceived to be a key extant skill by WMs - with the encouragement of the PT.	Probably an aptitude factor in appointment and for survival in the job.	Its deployment was their main response to the implementation of E-R. The WMs rolled with it whilst negotiating above and below and adapting.
	Common themes in ward managers' experiences	Mandatory Change Lack of Inclusion	Mandatory changes seen as a continuous feature of WMs' working lives	Resentment Professional pride (coping)	Determination to cope: adaption within autonomy is mode of compliance. Willingness to talk to staff and own problems
		Adaption	Cannot rationalise E-R as meeting their own needs but have to comply	Motivated to adapt	Adapt in context Be seen to comply as far as practical
5.2.2	Main Responsibilities	Power Control Adaption	Lack of disciplinary powers to control and deal rapidly with staff means…	Stress	WMs have to tread softly, find work arounds or resist changes themselves to preserve control and status and adapt at their own pace.
		Resource Levels Adaption	Material shortages of permanent staff, availability of agency staff and bureaucratic recruitment procedures		Have made WMs skilled at making do by deploying agency staff.
		Lack of Alignment	The second level E-Roster approval was not seen as a benefit by WMs	Resistance	So they are happy to work without it or around it.
5.2.3	Perceptions of Politics	Mandatory Control Lack of Congruence	Knowledge of new roster cycle policies	Resistance	Response was to organize adaption locally and largely not follow them. These responses demonstrate their adaptive capability and informal autonomy.
		Lack of Alignment	Policies do not meet their or their staff needs, dissonant	Resistance	Therefore has been worked around.
		Clinical Skills Win	Ward managers use their clinical judgement above all else	Professional pride	They will change rosters accordingly in pursuit of patient care and safety.

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