THE POLICY- PRACTICE NEXUS OF ELECTRONIC HEALTH RECORDS ADOPTION IN THE UK NHS: AN INSTITUTIONAL ANALYSIS

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Abstract
This paper reports the findings from a seven-year study on the UK National Health Service on the introduction of an electronic health record for 50 million citizens. Using a longitudinal research method, data is collected on the policy-practice nexus. We apply institutional theory using a conceptual model by Tolbert and Zucker on the component processes of institutionalization. Our findings suggest that institutional forces act as a driver and an inhibitor to introducing enabling technologies in the health-care environment. A process analysis shows that as electronic health records force disruptive change on clinicians, healthcare managers and patients, culturally embedded norms, values and behavioural patterns serve to impede the implementation process. This research contributes to the theoretical literature on institutionalism by addressing the dichotomy between institutional and technical environments. We suggest that while technology is often discussed in isolation of an institutional process, it either becomes embedded in organisational practices reaching a process of sedimentation (institutionalization) or fails to take hold and fades from view.

1 INTRODUCTION
The drive towards modernising public health through the adoption and diffusion of enabling technologies is a key policy initiative for international governments and policy-makers. However, translating policy on eHealth into practice remains a major challenge, particularly as stakeholder groups (i.e. clinicians, healthcare managers and administrators and patient support organisations) are unlikely to embrace healthcare technologies without a convincing case for improved clinical decision making and patient safety (LeRouge, Manzana, Wilson, 2007). The UK National Health Service (NHS) was established over 50 years ago to offer free health-care at the point of delivery to all citizens. Health-care now accounts for the largest portion of public expenditure after social security, with total NHS spending now exceeding £100 billion and rising (Currie and Finnegan, 2009).

As a monolithic organization, the NHS provides healthcare on a national basis, yet it is a highly fragmented structure, which is regularly restructured by central government. For example, strategic health authorities (SHAs) were until recently reduced from 28 to 10, with healthcare executives having to manage large scale restructuring while continuing to deliver healthcare services to citizens. Tensions between government, hospital managers, health-care professionals and patients are regularly reported in the media with endless negative stories about policy issues, performance, service delivery and occasionally, patient deaths in hospitals caused by human error (Mohan, 2002). One of the more contentious debates surrounding global healthcare providers is the escalating costs of public healthcare with in relation to actual and perceived performance enhancements to service delivery (LeRouge, Mantzana and Wilson, 2007). In the context of the UK NHS, the critical concern is whether a large-scale investment in an IT-enabled change program will significantly enhance health-care services, or repeat the failures of past public sector IT projects (Currie and Guah, 2007). This concern is reflected in the broader literature on introducing IT in health-care, with many studies pointing to barriers to adoption, particularly among clinicians (Bhattacherjee and Hikmet, 2007, Jensen and Aanestad, 2007, reardon and Davidson, 2007).
In the late 1990s, the NHS Executive embarked upon an ambitious scheme to transform IT-enabled health-care services by establishing a target for all NHS hospitals to have electronic patient records (EPR) with an implementation timetable for around 2005 (Department of Health, 2002). By the spring of 2002, only 3 per cent of participating hospitals were set up to meet this target. The Treasury’s Wanless Report (2002) suggested two main reasons for this. The first was that budgets for IT, allocated locally, were being used to relieve financial pressures. The second was inadequate setting of central IT standards. The report recommended ring fencing and doubling the IT budget (Hendy et al, 2005). The UK government responded with £2.3 bn for a new National Program for Information Technology (NPfIT) in the NHS, which would become the ‘world’s largest civil IT program’ (Connecting for Health, 2005, p. 33). The development of an Electronic Health Record (EHR) called the National Care Record Service (NCRS) was the largest part of the NPfIT. This programme was intended to modernize public health, ‘to put in place through the use of new technology, information systems that give patients more choice and health professionals more efficient access to information and thereby ensure delivery of better patient care’ (Connecting for Health, 2005, p.2).

Against a background of change programs in the public sector, the UK health-care industry exhibits contradictory forces. On one hand, politicians, health-care professionals, managers and patients hope the NPfIT will ‘help deliver a better NHS that gives public and patients services that fit the twenty-first century’ (Ibid p.2). The NPfIT is not only perceived as a large-scale IT project, but a major long-term, root and branch change program to transform clinical working practices within the national health-care system. On the other hand, rapid change is not usually a characteristic attributed to health-care, as hospitals, for example, display highly institutionalized structures and practices, which, by definition, are more amenable to incremental rather than discontinuous change (Scott et al, 2000). However, when existing structures and beliefs are undermined or severely challenged, profound change may occur rapidly and produce mixed results, some of which are unintended (Greenwood and Hinings, 1996). For the NHS to fulfil the ambitious vision of the NPfIT, institutionalized clinical working practices will have to undergo major change, or de-institutionalization (Oliver, 1992). Yet this may produce unintended outcomes.

In this paper, we adopt an institutional analysis to investigate IT-enabled change in health-care. Our study began in late 2001 when the UK government had commissioned the Wanless Report (2002) to review long-term trends affecting the UK health service. Our research interviewed 123 health-care professionals, managers, clinicians, patients and IT service providers to elicit their views on the NPfIT and health-care services more generally. We interpret our data by adapting Tolbert and Zucker’s (1996) model on the component processes of institutionalization, which employs key concepts of habitualization, objectification and sedimentation. An institutional perspective offers a vantage point for conceptualizing the NPfIT as an emergent, evolving, fragmented and transformational modernization program for health-care that is shaped as much by cultural and structural forces as by technical and economic ones. A process-oriented analysis enables us to identify, delineate and digest the various regulative, normative and cultural cognitive changes that occur in conjunction with, and as a consequence of, the NPfIT. The main findings of our research suggest that, despite the political will to drive through the NPfIT, deeply rooted institutionalized structural conditions, cultural norms, and behavioural patterns continue to challenge the fulfilment of aims and objectives of the program.

This paper is organised as follows. First we give a brief overview of the fundamental concepts we deploy from an institutional analysis. We discuss the theoretical underpinnings of institutional theory and explain why it is a useful lens for analysing longitudinal and large scale IT change programs. Next, we introduce our component process model from the work of Tolbert and Zucker (1996). We discuss how and why this model is relevant for a process analysis of the NPfIT, which is being implemented across the UK NHS. We then introduce our research method, and data collection and analysis techniques. We discuss the shortage of process-oriented, longitudinal case-based studies both in terms of using an institutional analysis and for wide-ranging IT-enabled change programs. Following this, we present the data from interviews across 10 NHS hospital sites, all of which were introducing the NPfIT. We analyse our data using an institutional theory perspective. Finally, we conclude with a brief section on limitations and suggestions for future research.
2 THEORETICAL UNDERPINNINGS

The central theme of institutionalist theory is how social choices are shaped, mediated, and channelled by institutional arrangements (Scott, 2001). An institution is defined as ‘recognised practices consisting of easily identifiable roles, coupled with collections of rules or conventions governing relations among the occupants of these roles’ (Young, 1986, p.107). Institutionalism examines how ‘social processes, obligations, or actualities come to take on a rule-like status in social thought and action’ (Meyer and Rowan, 1991, p.42). Some suggest the study of institutions is undergoing a renaissance within the social sciences generally (Dimaggio and Powell, 1991). In the field of information systems research, specifically, there is a discernable increase in number of studies using institutional theory to examine innovation and technology-enabled organizational change (Abrahamson, 1996; Swanson and Ramiller, 1997; Currie, 2004).

There are many interpretations and perspectives within institutionalism, which arise from different disciplinary fields and from the traditional and more recent schools of thought. For example, whereas economists and political scientists focus more narrowly on rules governing actions and behavior, sociologists take a broader view by conceptualising institutions as anything from marriage, management, health-care, information technology, schools, to prisons (Avgerou, 2003). Behavior may become institutionalizable, ‘over a wide territorial range’ from within a small group to ‘myths of rationality and progress in the world system’ (Meyer and Rowan, 1991, p. 9).

The literature on institutional theory is delineated into traditional (old) and modern (new) perspectives. Whereas the old institutionalism views organizations as organic wholes, the new institutionalism treats them as ‘loosely coupled arrays of standardized elements’ (Dimaggio and Powell, 1991, p.14). Neo-institutionalism emphasises the homogeneity of organizations and the stability of institutionalized components (Zucker, 1991). Institutionalization is viewed as both a phenomenological process where social relationships and actions come to be taken for granted, and a state of affairs in which shared cognitions determine what actions are possible and what has meaning (Meyer and Rowen, 1977; Zucker, 1983). The new institutionalism confines irrationality to the formal structure, and not at the level of the individual. It attributes the ‘diffusion of departments and operating procedures to inter-organizational influences, conformity, and the persuasiveness of cultural accounts, rather than to the functions they are intended to perform’ (Dimaggio and Powell, 1991, p. 13).

Both perspectives view institutionalization as a state-dependent process that renders organizations less instrumentally rational by limiting their options. Both emphasise the relationship between organizations and their environments, as well as the inconsistencies and contradictions within organizations concerning their formal and informal accounts of reality. The role of culture in shaping organizational reality is also common across the two schools (Dimaggio and Powell, 1991). Yet new or neo-institutionalism draws more heavily on sociological theory within organizational analysis. Neo-institutionalism treats institutions as independent variables. It emphasises cognitive and cultural explanations and examines the properties of supra-individual units of analysis, which are not amenable to being reduced to ‘aggregations or direct consequences of individuals’ attributes or motives’ (Dimaggio and Powell, 1991, p. 8).

Institutionalization occurs at the sectoral or societal levels, with the emphasis upon inter-organizational change. The focal lens is on how organizational forms, structural components, and rules become institutionalized, and not on specific organizations, departments or individuals (Powell, 1988). It examines how and why action and behavior are structured, and order made possible by shared systems of rules, which allow groups and individuals to both benefit and be constrained by the prevailing rewards and sanctions. The structural components of a system must be integrated for the system to survive, since the components are interrelated parts of the whole. A corollary is that change in one structural component necessitates adaptive changes in other components of the system (Tolbert and Zucker, 1996).

A common thread running through both old and new approaches to institutionalist theory is the rejection of rational-actor (or functionalist) models of organizational and political change (Dimaggio
Rational-actor models presume that individuals are engaged in cost/benefit calculations of different action choices, with behavior reflecting such ‘utility maximising calculations’ (Tolbert and Zucker, 1996; Coleman, 1990; Hechter, 1990). Conversely, institutional theorists face criticism, as they invariably perceive ‘over-socialised’ individuals as passively embracing and enacting social norms, with little self-reflection or behavioral resistance, even where organizational change arising from innovation may detract from the personal interests of constituents (Clegg, 1989). Yet while these competing models are often treated as oppositional, institutional theorists suggest they represent ‘two ends of a continuum of decision-making processes and behaviors’ (Tolbert and Zucker (1996, p. 176), recognizing the symbiotic relationship between societal, organizational and individual units of analysis.

An overriding concern of institutional theory is cultural persistence (Zucker, 1977). More recent contributions have explored the processes of institutional change or de-institutionalization (Oliver, 1992). Ecologists suggest two distinct types of change. One is through a process of adaptation, which involves changes that occur as existing organizations do new things or old things in new ways. Another is where change occurs because new types of organizations replace existing ones. In addition, change may be conceptualised as incremental or discontinuous. Incremental change occurs ‘gradually and imperceptibly, as organizational forms add and subtract personnel, subunits, and services or products’ (Scott et al, 2000, p.4). Some writers suggest that organizations conform to certain underlying patterns or archetypes that provide templates for organizing (Greenwood and Hinings (1993). Incremental change witnesses the development of organizational structures and systems within the constraints imposed by the existing archetype. Conversely, discontinuous change occurs suddenly where a situation becomes greatly altered. This type of change rarely occurs within the boundaries of existing organizations, since it requires the substitution of one template for another or the combining of templates; which are likely to be selected rather than the result of organizational adaptation (Scott et al, 2000, p, 4-5).

3 RESEARCH MODEL

For our study on a long-term IT-enabled change program within the UK NHS, we adapt Tolbert and Zucker’s (1996) model on component processes of institutionalization (see Figure 1). This model is divided into four key stages: innovation, habitualization, objectification, and sedimentation. At the innovation stage, we investigate the influence of regulative, normative and cultural-cognitive forces (Scott et al, 2000) underpinning the NPfIT within the NHS. Institutional theory offers many insights into the development, diffusion and rejection of innovations, conceptualized as ‘management fads and fashions’ (Abrahamson, 1996) and ‘organizing visions’ (Swanson and Ramiller, 1997).

Insert Figure 1 here.

Figure 1: Component Processes of Institutionalization in the NHS (adapted from Tolbert & Zucker, 1996)

As an innovation within the NHS, the NPfIT is influenced by a range of external forces, including technological forces, pressure groups, government regulation and market forces. Each of these forces serve to change, or de-institutionalize (Oliver, 1992) existing institutionalized structures within the NHS. Formal structural change is likely to occur ‘when the functional contributions of a given structural arrangement are exceeded by dysfunctions associated with that arrangement’ (Tolbert and Zucker, 1996, p. 176). Formal structures are conceptualized not simply as tangible or observable phenomena, but as having symbolic and action-generating properties. Structure is infused with socially shared meanings, which, in conjunction with their objective functions, serves to communicate information about the organization to both internal and external audiences (Tolbert and Zucker, 1996).

Prior studies on IT innovation have largely deployed the organization or even individual in the form of ‘technical champion’ as the unit of analysis. To understand the full implications of the NPfIT, it must be placed in the wider societal context, as government bodies, the NHS executive, associated health-care organizations (i.e. NHS hospitals, patient pressure groups), IT service providers and patients, are all relevant constituents in its development, implementation and evaluation.
The rationale for the adoption and diffusion of the NPfIT is based on an assumption that, altering or creating a new formal structure in the NHS, is a critical undertaking to improve health-care services and the overall health of the nation. Policy makers (i.e. government ministers, NHS executives, management consultants) recognize that organization-wide change will consume more resources than maintaining the status quo. Equally, they are aware that, in the public perception, the current structural conditions within the NHS have lost much of their legitimacy due to a widely adopted view that organizational processes, procedures and practices are less efficient compared with those in the private sector. This view has gained momentum over two decades as the politicians have instigated policies to force the public sector to adopt private sector management methods and techniques (NAO, 2004), even though many pundits have demonstrated the problems in so doing.1

Formal structures that are altered or created as part of a widespread initiative are believed to have positive value for the health service, which underpins why policy makers have allocated vast resources to the NPfIT. Yet organizational decision-makers, such as health-care professionals and managers, may have varying levels of power and discretion in how they interpret the requirements for the NPfIT. Decision-making power may be broad or circumscribed. For example, an IT director within a large NHS hospital, may also sit on important IT health-care committees and be instrumental and influential in designing and implementing IT strategy. But even where an individual can exert some influence over the development of the NPfIT, we need to place rational-actor accounts into a wider socio-political and economic context, as individual interpretations of events and decisions are not reducible to personal choice in a program of this magnitude.

Our research study adopts three levels of analysis to facilitate understanding and interpretation of the introduction of the NPfIT. At the societal level, we are interested to observe the regulative and legislative forces underpinning the NPfIT. This level also incorporates the organizational field, which ‘encompasses those organisations that, in the aggregate, constitute a recognized area of institutional life’ (Scott et al, 2000). Regulatory and legislative factors also incorporate governance structures, which may be beneficial or problematic to achieving the overall vision of the NPfIT. Second, we investigate the impact of the NPfIT at the level of the organization, by collecting data from respondents across 10 NHS hospitals. Our intention was not to develop 10 separate case studies but to interview as wide a range of healthcare professionals and associated staff involved in the NPfIT as possible. Third, we observe the influence of ‘technical champions’ by considering the role of specific organized groups or individuals who are influential in the adoption and diffusion of the NPfIT. One group within the NHS, was the National Health Service Information Authority (NHSIA) (now disbanded) which was responsible for tracking and monitoring the progress of the NPfIT. In addition, we interviewed a range of IT service providers, all of whom are bidding for large-scale public sector IT contracts.

As a lens to enable us to analyze our data, we adapt Tolbert and Zucker’s (1996) model of four sequential processes of institutionalization, which are subject to varying levels. The model implies that some patterns of social behavior are subject to more critical evaluation, modification, and even elimination than others. Such patterned behaviors are claimed by Tolbert and Zucker (1996, p. 181) to, ‘vary in terms of the degree to which they are deeply embedded in a social system (more objective, more exterior), and thus vary in terms of their stability and their power to determine behavior’. This processual model offers a useful conceptual framework for understanding the different degrees to which, attitudes, values, norms and behavioral patterns become institutionalized over time.

### 3.1 Habitualization

The first key element of Tolbert and Zucker’s model is Habitualization. This involves the generation of new structural arrangements in response to a specific organizational problem or set of problems.

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1 It is outside the scope of the present paper to explore the public/private sector divide in detail. Suffice to say that one important example of how the public sector has emulated the private sector is by adopting a ‘market-driven approach to procurement. This was stepped up in the 1980s with compulsory-competitive tendering (CCT) which saw an increase in the use of third party service providers. The use of outsourcing has increased, encapsulating services such as information technology, catering, cleaning and many others.

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and the formalization of such arrangements in the policies and procedures of a given organization, or set of organizations that confront the same or similar problems. These processes result in structures that can be classified as being at the pre-institutional stage. Habitualized action encapsulates behaviors that have been developed empirically, and adopted by an actor or collection of actors to solve ongoing or recurring problems. These behaviors are habitualized because they are ‘evoked with minimal decision-making effort by actors in response to particular stimuli’ (Tolbert and Zucker, 1996, p 182). The values and norms that are attributed to habitualized behavior have become generalized in day-to-day society, and are independent of the specific individuals who carry out the action.

Habitualized behavior applies to the way in which individuals perceive the introduction of a new innovation. As Tolbert and Zucker (p. 181) suggest, ‘Since organizational decision-makers may share a common core of knowledge and ideas that make an innovation feasible and attractive, the adoption of a given innovation may and often does occur in close association with adoption processes in other organizations’. This process is referred to as simultaneous invention.

Large-scale innovations targeted at the NHS are initiated at the societal level, and not by organizations or individuals. Various forces exert pressure on the NHS, which include, government agencies and ministers, pressures groups, market forces, and technical changes and patients. Within the NHS, the NPfIT is a major innovation to transform public sector provision of IT, which is sanctioned, rationalized and legitimized by societal (political) pressures with a view to greatly improving patient care. Traditionally, the NHS used manual, paper-based, work-flow systems which exhausted numerous filing systems and usually ended up in the basement of hospitals. As the volume of paper increased, the consequences of such an inefficient and unwieldy system compounded problems such as the regular loss of patient notes, often resulting in expensive repeat work (i.e. x-rays, scans, blood tests).

With the advent of digital technology, an opportunity now presents itself to the NHS to record patient data digitally. At the wider societal level, many pundits such as politicians, the IT industry and other pressure groups argue that, by emulating the large-scale IT innovations of the private sector, the mainly publicly funded NHS will become more efficient and effective as a result. Patients demand better standards in health-care, and the opportunity to introduce digital technology to improve service delivery now exists. But the way the NPfIT is interpreted by stakeholders across the organizational field of health-care may not entirely reflect this optimistic view, as the norms, values and attitudes of privatization, market testing, outsourcing, and cost reduction - more commonly associated with the private sector - may not be readily transferable to health-care. Habitualized behaviors and actions may inhibit the adoption and diffusion of the NPfIT across the NHS. Implicit in our process model, therefore, is the challenge of moving from the pre-institutionalized stage of habitualization to one of objectification.

3.2 Objectification

The next stage of the process is where the generalization of the meaning of action is described as objectification (Zucker, 1977). This is a key component of the process of institutionalization, which occurs in conjunction with the diffusion of structure. Objectification involves the ‘development of some degree of social concensus among organizational decision-makers concerning the value of a structure, and the increasing adoption by organisations on the basis of that concensus’.

The adoption and diffusion of a large-scale IT program necessitates the cultural and normative acceptance of a wide array of constituents, not merely within an organization, but at the levels of the organizational field and wider society. In recent years, management fashions and fads in the form of business process re-engineering (Hammer and Champy, 1990) and knowledge management have been developed by management consultants in response to a perceived business problem (Hindle, 2005). Many NHS hospitals adopted BPR as a way of linking IT with business processes, to enhance efficiency and delivery of health-care services. Although the label BPR was used to describe the innovation, the practical task being carried out within the organization was to facilitate the
Introduction of IT, largely by automating business processes. The degree to which activities of this kind are perceived to be successful varies widely across the NHS.

Irrespective of the perceived business or technical levels of success, ‘…..the more widespread a given choice becomes, the more likely are individuals to view it as an optimal choice, and the less influential will be decision-makers’ independent judgements of the value of the choice’ (Tolbert and Zucker, 1996, p. 183). Objectification and diffusion of the NPfIT is being spearheaded by the NHS Information Authority (NHSIA), as technical champion, which comprises a number of individuals with a material stake in the promotion of a new formal structure.

The process of objectification requires the fulfillment of two tasks to assist in the process of institutionalization. First, the creation of a definition of a generic organizational problem that includes specification of the set or category of organizational actors characterized by the problem. This involves generating public recognition of a consistent pattern of dissatisfaction or organizational failing that is a characteristic of parts of the NHS. Second, the justification of a particular formal structural arrangement as a solution to the problem on logical or empirical grounds. This involves developing theories that provide a diagnosis of the sources of dissatisfaction or failings, theories that are compatible with a particular structure as a solution or treatment (Tolbert and Zucker, 1996).

Within the NHS, the view that adopting methods and practices commonly associated with the private sector is one mechanism for providing legitimacy for changes in the formal structure.

If the NPfIT becomes widely diffused, it can be described as entering a stage of semi-institutionalization. At this stage of objectification, Tolbert and Zucker (1996) suggest that adopters have typically become quite heterogeneous, which means that specific parts of the organization that have previously identified with adoption will have relatively limited predictive power. But as the theorization process develops and becomes more explicit, variance in the form that the structure takes in different organizations may begin to decline. This is referred to as isomorphism within institutional theory (Scott, 2001).

If the NPfIT is perceived as a successful innovation for the NHS, where it is identified as an effective solution to a clearly defined problem by relevant bodies such as the Department of Health and the British Medical Council, it will gain further cognitive and normative legitimacy. Tolbert and Zucker (1996) argue that persuasive and effective theorizing efforts need to provide evidence that the change is actually successful and can be adopted more widely. As staffs in NHS hospitals and patients continue to support the innovation, further adoption and diffusion will follow. At an empirical level, the authors claim that ‘as the degree of objectification and exteriority of an action increased, so did the degree of institutionalization, and that when institutionalization is high, then transmission of the action, maintenance of that action over time, and resistance of that action to change are also high’ (Tolbert and Zucker, 1996, p. 183).

Objectification progresses where the impetus for diffusion shifts from simple initiation to a more normative base, reflecting implicit or explicit theorization of structures. As the rhetoric surrounding an innovation develops and becomes more explicit, ‘variance in the form that the structures take in different organizations should decline’ (Tolbert and Zucker, 1996, p. 183).

As the NPfIT is adopted and diffused across different NHS hospitals, albeit at varying levels, organizational structures are likely to become isomorphic to over time. Hospital managers, administrators, IT professionals and even patients, will seek best practice examples of how IT-enabled innovation will enhance health service delivery, and this, will be transmitted across the industry and in the wider society. Conversely, examples of poor practice will equally attract attention, particularly from the media, who will be consciously aware of the public interest in negative stories about the

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1 Isomorphism is a term used by institutional theorists to describe how organizations within the same organizational field, i.e. hospitals or universities, come to resemble each other. DiMaggio and Powell (1991, p. 147) focused upon institutional isomorphism showed how coercive, normative and mimetic mechanisms, ‘make organizations more similar without necessarily making them more efficient’. Scott (2001, p. 153) explains that, ‘The recognition that organizations not only must be viable in terms of whatever competent processes are at work but must also exhibit structural features that make them both recognizable and in conformity with normative and regulative requirements goes a long way to explain observed similarities among organizations in the same arena’. Wendy L. Currie

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program. Within our model, structures that are subject to objectification through further diffusion are described as at the stage of semi-institutionalization.

3.3 Sedimentation

The process by which full institutionalization is reached is sedimentation. This is where structures reproduce themselves and become taken-for-granted in the wider society and at the level of the organizational field and by individuals themselves. According to Tolbert and Zucker (1996, p. 184), full institutionalization involves sedimentation, which is a process that ‘rests on the historical continuity of structure, and especially on its survival across generations of organisational members’. Sedimentation is achieved by the almost complete diffusion of structures across a group of actors who may be likely adopters, and by the reinforcement of structures over a significant time period.

Identifying and delineating the factors that affect adoption and diffusion and, long term retention of a structure is a key element in the process of sedimentation. One factor is ‘the existence of a set of actors who are somehow adversely affected by the structures and who are able to collectively mobilize against them’. (Tolbert and Zucker, 1996, p. 184). The authors suggest that, even in the absence of direct opposition, sedimentation may be stifled by an absence of demonstrable results associated with a structure. A weak, yet positive relation between a particular structure and desired outcomes may be sufficient to affect the spread and maintenance of structures, especially if advocates continue to be actively involved in rhetoric and promotion. However, in many cases, the link between the structure and the intended outcomes is quite distant, and demonstration of impact difficult to discern. Given the development and promotion of alternative structures to achieve the same ends, organizations may abandon older arrangements in favour or newer, promising structures (Abrahamson, 1996).

The model of component processes of institutionalization offers a useful conceptual lens to undertake longitudinal case-study research into the NPfIT in the NHS. Each of the three components suggest different stages of pre- and post-institutionalization. At the stage of habitualization, we are concerned to explore how the vision for the NPfIT is likely to confront existing institutionalized processes, procedures, norms and behaviors. This pre-institutional stage is critical in the interpretation, legitimation and mobilization of the NPfIT, and a pre-requisite for moving to the next stage of objectification. Assuming the organizing vision (Swanson and Ramiller, 1997) for the NPfIT becomes widely accepted across the NHS as an effective solution to improve service delivery of health-care, increased adoption will lead to further institutionalization of the innovation.

Conversely, if some groups within the NHS such as consultants, doctors, administrators, IT staff resist the innovation, its legitimacy and reputation may be seriously damaged. For example, the desire of hospital consultants to retain a given structure is key to the process of sedimentation or institutionalization. This group may collectively mobilize against the NPfIT and succeed in halting its further adoption and diffusion. In addition, even where there is an absence of direct opposition by this group, sedimentation may be further prohibited where there is a perceived lack of success with the innovation across the organizational field. For the NPfIT to become institutionalized, a process of de-institutionalization will need to occur, as clinicians will need to adopt new IT-enabled working practices. This will be the major challenge of the NPfIT. To provide a conceptual lens for our research, our model provides a framework for analyzing the component processes of institutionalization. Our purpose is to investigate the introduction of the NPfIT in a highly institutionalized setting, where the outcome may see the innovation becoming institutionalized or failing to become adopted and diffused across the health-care system.

4 Research Method

The research study began in 2001, prior to the publication of the Wanless Report (2002) that presented the UK government with a review of the long term trends affecting the health service. Our initial interest was to conduct an exploratory-descriptive study in ten NHS hospitals to explore why,
historically, the NHS has not used or developed IT as a asset in delivering and managing health-care’ (Department of Health, 2002). The history of introducing IT-enabled change programs within the NHS has produced mixed results (NAO, 2006).

Our reading of the IS and general management literature on health-care unveiled few longitudinal studies, which systematically and rigorously examined how IT systems were introduced and changed over time. There were no studies that examined inter-organizational relationships between different constituents in the adoption and diffusion of IT systems (i.e. government agencies, NHS executives, hospital trusts, IT suppliers and patients). Most of the studies were descriptive and lacked an historical dimension. In the early 2000s, the literature on IS in health-care was largely atheoretical, with most contributions reporting the findings of a specific IT project implementation using simple success and failure criteria.

One of the most significant contributions was Scott et al’s (2000) study on institutional change within health-care organizations, conducted in the US. These authors suggest that, ‘the field of health-care services…presents a marvelous opportunity to examine an institutional arena undergoing rapid, even ‘profound’ change’ (Scott et al, 2000, p. xvii). This empirical work tracks the changes occurring over half a century in the health-care delivery system of one metropolitan area, the San Francisco Bay Area. Although this investigation is limited to explaining the developments in a single, large, but geographically limited region, the authors’ claim the effects of institutional environments are not restricted to local arenas, but have repercussions for other regions.

Using this relevant and wide-ranging study as a backdrop for our own research into the UK health-care system, we recognized that it was important to extend our empirical enquiry for two reasons. First, exploratory-descriptive case studies on a single organization or site (i.e. an NHS hospital) would not elicit in-depth and rich data to develop any meaningful analysis and conclusions on how IT was being deployed and managed. Second, the introduction of a large-scale IT-enabled change program needed to be researched at the wider societal, organizational field and individual levels, covering an extended period of time, to understand the component processes of institutionalization (Tolbert and Zucker, 1996).

As the largest civil IT program in the world, the NPfIT is politically charged and generates mixed publicity. Politicians from across the spectrum either support its high financial cost by justifying it in terms of a ‘vision for IT’ which will utilize the vast ‘capabilities of modern information technologies’ to transform the health-care service (Department of Health, 2002, p. 1), or are negative in their views by taking every opportunity to highlight past publicly-funded IT failures. This research study was designed to capture the myriad of views and opinions about the NPfIT over a three-year period to build a rich picture of the institutionalized processes underpinning large-scale IT change.

4.1 Data collection and analysis

Three methods of data collection were adopted (see Table 1). First, the researchers assembled a range of academic, government and industry studies on the health-care sector. These studies were not restricted to the UK only, but included articles and reports on health-care services in many countries, regions and locations. This material proved invaluable for understanding some of the societal, economic, political, cultural and technical differences in health-care nationally and internationally. Second, we attended various trade fairs, conference, workshops and exhibitions on health-care. Some of these events were focused on general topics (i.e. IT in health-care, patient services, hospital management and professional best practice), with others more focused upon specific activities (i.e. the NPfIT, presentation of the Wanless Report, IT strategy). These events generated many useful research contacts. Third, we engaged in primary data collection, where 123 interviews were conducted with a range of constituents (i.e. health service professionals and administrators, clinicians, doctors, patients, IT service providers, and politicians) in three phases covering two year periods. The majority of interviews were with health service professionals (i.e. NHS hospital executives, managers, administrators) engaged in the implementation of the NPfIT.
Ten UK NHS Trusts were used as interview sites. A semi-structured interview schedule was used to enable interviewees to expand on their answers. This method of data collection was critical for allowing interviewees to raise additional themes, issues and concerns that they felt were important to the research study. Interviews with respondents took place over a three-year period. Most of the interviews lasted around two hours. The interviews at the NHS hospitals were tape-recorded and the tapes were transcribed. Respondents were sent a transcript of the interview to verify it was a true account of what was discussed. Any errors were corrected. Since some of the interview content is politically contentious, the interviewees asked for themselves and their NHS hospitals to retain their anonymity. The data was not intended to provide 10 individual case studies, but to provide a general overview of the perceptions of respondents about the NPfIT across relevant themes.

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<tr>
<th>Research Timescales</th>
<th>Method of Data Collection and Analysis</th>
<th>No of Interviews or Respondents</th>
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<tr>
<td>Phase 1: 2002-2004</td>
<td>Open-ended and semi-structured interviews carried out in across 10 NHS Trusts</td>
<td>35</td>
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<tr>
<td>Phase 2: 2005-2007</td>
<td>Open-ended and semi-structured interviews carried out in across 10 NHS Trusts</td>
<td>53</td>
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<tr>
<td>Phase 3: 2008-2010</td>
<td>Open-ended and semi-structured interviews carried out in across 10 NHS Trusts</td>
<td>35</td>
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Table 1. Schedule for data collection and analysis.

The open-ended and semi-structured interviews were conducted prior to the launch of the NPfIT covering a period of seven years following its introduction. Multiple informants were interviewed both within the 10 NHS hospitals and with other constituents. During the first year of interviews, the scope of the study was extended as it was important to elicit data and information from a wider range of respondents engaged in the implementation of the NPfIT. These included IT service firms bidding for public sector IT contracts and doctors in general practice (external to the NHS hospitals). Respondents from IT service firms offered critical insights into the political and procurement processes within the NHS and public sector more generally. GPs offered useful insights about the communication channels underpinning the NPfIT.

Following the first year of interviews, the researchers evaluated the data and refined the semi-structured interview schedule. It was recognized that given the range of constituents involved in the NPfIT, the questionnaires needed to be more closely targeted to the professional and personal situation of the individual, as generic questions were less meaningful. The questions used for the research were ultimately divided into five major themes:

1. **Vision for the NPfIT**: This theme was intended to elicit responses from a wide range of NHS and non-NHS staff about their perceptions of the vision for health-care as contained in government reports. Part of this was to reveal how the NHS could improve its use of IT as a strategic asset for health-care professionals, managers and patients. General questions were: How would you describe the overall vision for the NPfIT? Do you think the vision for the NPfIT is compatible with what you are trying to achieve at your own NHS hospital?

2. **Strategy for the NPfIT**: This topic considered the strategy developed to deliver the NPfIT. It included governance, organization and management structures, strategic priorities, procurement and outsourcing options. Isolated autocracies are typical within the public sector where formal institutions for generating and reproducing trust between economic actors are weakly established. Many

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3. The NPfIT is regularly featured in the computer trade press, with many articles critical of various aspects of the change program. See: www.computerweekly.co.uk.

4. The questions for respondents’ were designed to elicit their general perceptions about the NPfIT on the five themes rather than invite ‘yes’, ‘no’ answers using a structured questionnaire. The study was designed to produce a rich picture of introducing large-scale IT-enabled change in healthcare, rather than one intended to valid responses through statistical analysis.

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Restructuring initiatives contribute to isolated autocracies by involving highly concentrated groups represented by external agencies, senior managers and IT professionals. Key questions were therefore: Who is engaged in developing the strategy for the NPfIT? And how is the strategy communicated throughout the NHS? What forms of clinical governance are necessary to facilitate the introduction of the NPfIT?

IT-enabled Implementation of the NPfIT:- IT infrastructure and applications are critical in the delivery of the various work streams and flows. The integration of legacy and emerging technologies is critical in the delivery of various elements of the NPfIT, including the electronic patient records. One of the key issues about implementation is how the different constituents work together to develop and share capabilities. We asked: What professional, managerial and technical skills and capabilities are needed to implement the various elements of the NPfIT? Have you engaged clinicians in the implementation of the NPfIT?

Project risk analysis and management:- Appropriate performance measurement and risk assessment methods and techniques are used in large-scale, government run IT-enabled projects. One recent development is the Gateway Review process which is designed to monitor projects at various stages of their development (NAO, 2004). The risks involved in the NPfIT are extensive given its scale and scope. We asked, ‘What are main risks identified in the NPfIT? How can past large-scale IT program failures be avoided? What are the cost/benefit choices and issues affecting the NPfIT?’

Delivering value:- The issue of gaining value from IT systems is a perennial theme. Yet the concept of value creation is politically charged and not shared among the various constituents. Our interest was to elicit data from respondents about their perceptions of value from the NPfIT. Key questions included, ‘What value is derived from implementing the NPfIT?’ and ‘Who are the major beneficiaries from the NPfIT?’

4.2 Case Analysis and Discussion: Electronic Health Records for UK Citizens

In the late 1990’s, the government increasingly recognized the opportunity to use IT to improve the delivery of service within the NHS. After a series of reviews of NHS IT service delivery, a more integrated and seamless IT organization was recommended (DoH, 2000; Wanless, 2002). The NHS Information Authority (NHSIA) embarked on the Integrated Care Report Service (ICRS) project to provide, among other services, a nationwide electronic patient database. The result was a document called “Information for Health” that specified the need for the complete automation and integration of various patient information databases in the country (DoH, 2000). The UK Department of Health (DoH, 2002, p. 3) stressed, ‘It is widely accepted that the NHS Plan to improve care and services in the NHS depends on a number of transformations in quality, speed and capacity of the organisation. Information technology and the electronically stored information it handles are key enablers of some of this transformation. With modern IT, information can be captured once and used many times, working practices can be modernized and communications speeded up’.

In spite of the vision for IT transformation in the NHS, the history of introducing large-scale IT development projects has not been an overall success, with some suggesting a failure rates of between 60 per cent and 80 per cent (Brown, 2001). The UK public sector spends around £2.3 bn per annum on IT, yet, ‘there is a history of failure of major IT-enabled projects, characterized by delay, overspend, poor performance and abandonment’ (NAO, 2004, p. 3).

So against a background of mixed results from innovation projects, many of our respondents were cautious about government plans to introduce the NPfIT as a large-scale IT-enabled change program comprising many individual projects, primarily outsourced to a range of service providers. From the outset of the program, this caution was echoed in the media, where IT practitioner publications openly criticized it as too expensive and risky (Collins, 2003).

As a major IT-enabled change program to run over a 10 year period, the NPfIT is the largest outsourced IT program ever undertaken by the UK government, and is key to delivering the NHS Plan for reforming the health-care sector. It aims to create a multi-billion pound information infrastructure,
to improve patient care by increasing the efficiency and effectiveness of clinicians and other NHS staff. The NPfIT is tasked with procuring, developing and implementing modern, integrated IT infrastructure and systems across the NHS up to 2010. The NHS Care Records Service formed the major part of the NPfIT designed to improve the sharing of consenting patients’ records across the NHS making it easier and faster for a GP5 (General Practitioner, similar to a primary care physician in the US) and other primary care staff to book hospital appointments for patients (now called Choose and Book).

As with all large scale IT-enabled programs, the success or otherwise of the strategic plan is in its implementation (Herzlinger, 1989; Doolin, 2004; Hendy et al, 2005). Past IT projects that have cost a fraction of the current NPfIT have seldom delivered the desired benefits, but have produced a number of important lessons for decision-makers. These lessons are well documented in the literature and involve the lack alignment between the business and IT strategy (Luftman, 2000); a lack of ownership and leadership of the IT project among senior decision makers (Brown, 2001); poor risk assessment skills (Heathfield et al, 1998); over-scoping of the functional and technical specification leading to IT projects becoming over-budget and late (NAO, 2004); poor communication between program/project managers and potential users of the system (Currie, 1997); inadequate resources to deliver/implement IT system (Wyatt, 1998).

Tracking the NPfIT over a seven year period beginning in 2002, we identify a series of events and changes to the scope and scale of the programme. As the National Care Record Service consumed the largest proportion of the NPfIT spend, we focused our interviews on this system implementation.

Table 2 provides a chronology of events and reporting about the initial vision for the NPfIT to issues about benefits realisation and risk assessment. At the initial stage of the introduction of the NPfIT, it is notable that government opted for a highly centralised approach, with contracts let to a small number of large telecoms/IT and consulting firms. Part of the vision was to link the perceived benefits of a NCRS to patient choice. However, as our data suggest, much of the diffusion and implementation was targeted to clinicians, particularly since patients and citizens more generally did not receive information about plans for their ‘summary care record’ to be uploaded on the Spine (a large centralised database run by the NHS).

The decision to co-opt a small number of large suppliers did not prove to be beneficial to the NPfIT, particularly as two suppliers (Accenture and Fujitsu) subsequently left the programme. Introducing a policy of not paying suppliers until systems were fully working meant that payments for work were delayed, often as much as one year. This posed problems for suppliers and the vast complexity of the NPfIT suggested that responsibility for missing targets was unlikely to be the fault of one party.

As the programme progressed towards 2006, an NAO report was published which identified a series of problems with the NCRS and other elements of NPfIT. Apart from missed implementation targets and projected increases in the budget, important barriers in the way of lack of clinical and user engagement were evident. Many clinicians interviewed stated that they felt ‘disengaged’ from the NPfIT, and many others had very little knowledge about the programme.

Implementation times slipped further and in 2008, another NAO report was published which identified further issues and challenges facing the programme. One such challenge was the size and complexity of the NPfIT, with the initial five regions in England reduced to three very large regions. Strategic Health Authorities (SHAs) would become ‘accountable’ for the NPfIT and this was not met with wholehearted acceptance across these 10 organisations (reduced from 29 previously). One clinician remarked, “We are constantly pressured with restructuring, technologies which disrupt our working practices and endless targets. We need more stability and routine, not constant change”.

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5 A General Practitioner or GP is the name given to a medical doctor who works either in their own practice or at an NHS hospital.

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By 2008, issues about benefits realisation and risk assessment were placed firmly on the agenda by Connecting for Health. The NCRS was now over four years late and implementation was due for completion in 2014–15, assuming another political party forming a government would retain the NPfIT. Another important change was to revise the policy of centralised ICT procured in favour of a National Local Ownership Programme (NLOP). This would encourage additional IT suppliers to bid for contracts under the NPfIT and extend the involvement of NHS staff in the programme. It was also recognised that the multi-million dollar contracts for a few suppliers tended to increase risk, particularly with two key players leaving the programme.

While projected costs were put as high as £20 billion, expenditure on the NPfIT was vastly lower due to missed implementation targets. With further delays, the issue of patient confidentiality and data security gained momentum. Many clinicians started to raise fears about the ‘opt-in’ and ‘opt-out’ issue relating to the SCR. Clinicians, supported by the British Medical Association, argued that patients should be given more information about the SCR, particularly in terms of whether they wish to opt-out of having their personal/patient data uploaded on the central NHS database. The policy of ‘implied consent’, which means that unless patients express their desire not to have their data uploaded, then it will automatically be included, was of concern by many clinicians.

4.3 An Institutional Analysis

The goal of this paper is to deploy institutional theory as a lens to observe, and gain a greater understanding of, the introduction of the NPfIT, as the largest government funded IT-enabled change program in the world. Returning to our theorizing, institutionalists’ are concerned with the processes of cultural persistence and change (Zucker, 1977). The survival of an organization depends as much on conforming to societal norms of acceptable practice as to achieving high levels of production efficiency and effectiveness (Covaleski et al, 1993). Prior work has shown that an organization’s formal structure, policies and procedures serve to demonstrate conformity with the institutionalized rules and requirements of external constituents (Meyer and Rowan, 1977; Dimaggio and Powell, 1983). Our three-year empirical study within the UK health-care system showed that the NPfIT was intended to play a high profile role within the heavily institutionalized environment of hospitals (Scott et al, 2000).

The vision for the NPfIT was infused with the institutional logics more commonly associated with the private sector, as an innovation that would contribute to greater productivity, efficiency, cost control and customer satisfaction in health-care delivery. Paradoxically, this externally directed institutional logic served to under-represent and simplify the vast complexities and contradictions in how it was perceived, and reacted to, by those affected by government-led IT-enabled change. Within the NHS, staffs were increasingly sceptical about the merits of private sector logics, such as the PFI initiative, as their values, norms and goals invariably placed financial considerations secondary to choices about patient care.

To offset any negative stories within the media, government sought counter-measures in the form of public relations to convince the general public about the benefits of innovation in health-care.6 Prior work by Meyer and Rowan (1977) and (Meyer 1983, p. 237) suggest that organizations avoid massive dysfunction by ‘decoupling’ their external image systems from their internal operating processes. They suggest that, “to maintain ceremonial conformity, organisations that reflect institutional rules tend to buffer their formal structures from the uncertainties of technical activities by becoming loosely coupled, building gaps between their formal structures and actual work activities”, 1977, p. 341.

Within our sample of 10 NHS hospitals, opinions, values and perceptions about the NPfIT varied according to the priorities of different groups and individuals. For example, hospital consultants expressed concerns about how the NPfIT would affect their autonomy and freedom. GPs similarly were concerned about the security of patient data held on large NHS run databases. IT directors also showed some frustration about the practical and technical merits of the NPfIT, particularly as their

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6 A dedicated website is available which covers all aspects of the NPfIT: ttp://www.connectingforhealth.nhs.uk/
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ability to recommend future IT systems could be prevented. This concern was largely due to fears that a centralised approach to IT strategy would curtail their freedom in what they described as a fragmented and decentralised IT environment.

Revisiting our research model (see Figure 1) of the component process of institutionalization comprising three distinct stages: habitualization, objectification and sedimentation (adapted from Tolbert and Zucker, 1996), we suggest the NPfIT remains in the pre-institutionalized stage of habitualization. Our empirical data points to the rhetoric on the NPfIT remaining in a highly unstable and volatile state, as various constituents continue to question the relationship between the vision and implementation of such a high profile and expensive change program. Much of this discourse continues to be played out in the media, as IT and health-care trade journals perceive the $10 bn NPfIT as an ongoing and highly valuable story for public consumption, with one computer journal creating a section entitled ‘NHS IT Watch’ which reports almost weekly on the progress (or apparent shortcomings) of the NPfIT.

Further evidence of the NPfIT remaining in the habitualization stage is demonstrated by the highly politicized nature of UK healthcare manifested by a polarity of ideas and opinions about the potential solutions to resolve ongoing problems (Pollock, 2005). For an innovation to become institutionalized, it must be embedded within an organizational field (Swanson and Ramiller, 1997; Currie, 2004) where becomes a taken-for-granted part of everyday life. After three years of empirical research, the NPfIT was becoming increasingly contentious with views about its progression at both ends of the spectrum, from highly successful to a complete failure. This type of polarization only serves to confuse and complicate matters, as various stakeholders attempt to make sense of mixed messages.

Two identifiable difficulties facing the NPfIT were cultural persistence with the NHS and the scale of the ten-year change program. As a highly institutionalized system, UK healthcare had become increasingly complex as a centrally controlled, bureaucratic multi-faceted organizational field. Since the 1980s, successive governments have exposed healthcare to a range of privatization measures through market testing leading to large-scale outsourcing (Pollock, 2005). Previously complex, yet manageable bureaucracies had effectively become internal and external markets (Mohan, 2002), with a range of services (i.e. catering, cleaning, IT work) now routinely outsourced to third party firms. Long term systemic problems within the NHS were increasingly treated with solutions developed by the private sector, where short-term contracts tended to blur responsibility and accountability between purchasers and providers.

Our findings suggest this had led to high levels of confusion and disruption within hospitals, where institutionalized behaviors were increasingly coming under pressure to change. The NHS, however, exhibited habitualized action, which amounts to routinised behavioral patterns developed empirically over time (Tolbert and Zucker, 1996). These behaviors are adopted by an actor, or set of actors to solve recurring problems, and are habitualized to the degree that they are evoked with minimal decision making effort by actors in response to a particular stimuli. Further, reciprocal typifications are manifested in the development of shared definitions or meanings that are linked to these habitualized behaviors (Schutz, 1962). So if behavior is to become institutionalized, these typifications, which entail classifications or categorizations of actors, with whom the actions are associated, must acquire shared meanings attributed to habitualized action. As these shared meanings become generalized - a process that shows they are independent of the specific individuals who carry out the action – the degree of objectification and exteriority of an action increases, along with it the degree of institutionalization (Tolbert and Zucker, 1996).

For the NPfIT to become embedded into the day-to-day actions of individuals, the overriding challenge is to win the political and ideological battle, which serves to threaten such an ambitious change program. Most of our respondents accepted the proposition that IT is a useful enabling tool to improve health service delivery. But they were critical about the procurement processes and the lack of inclusion in high level decision making activities between senior politicians, NHS executives and IT providers. For such an ambitious program to succeed, IT cannot be perceived in isolation from the wider cultural, political and economic issues in health-care. In particular, the ideological and
pragmatic relationship between the NHS and private sector firms. Yet the increasing use of external providers added further complexity to the existing task of IT-enabled transformation of health-care. The most significant challenge was not merely how to introduce large IT-enabled change, but how the various constituents could work together to reconcile their different and often conflicting professional agendas. Prior to the NPfIT becoming institutionalized, a process of de-institutionalization is necessary, where constituents gradually adapt their working practices, not merely to embrace new technology, but to accept political and ideological arguments, which have wider cultural, social and financial implications for health-care. This research study offers insights into the nature of these challenges, but further empirical study is needed to critically examine how the NPfIT will be adopted and diffused among specific clinical and non-clinical groups.

4.4 Research Limitations

Although this paper reports the findings from seven-year empirical investigation into the UK healthcare system, focusing specifically on the ambitious NPfIT, the research has several limitations. Firstly, it is clear that a longitudinal, process-oriented study of IT implementation in the NHS must be set within a wider historical and societal context of healthcare delivery (Scott et al, 2000). As empirical research has shown, even though 123 interviews were conducted with various stakeholders, the structural and cultural complexities and dynamics within healthcare precludes longitudinal research from unveiling commonly identifiable patterns of action and behavior. This is exacerbated by the magnitude of change within the healthcare industry, with many respondents becoming increasingly weary of constant government intervention by imposing new schemes, many of which are short-term fixes.

Secondly, our paper suffers from the major shortcomings of institutional theory. This criticism concerns issues of power and decoupling (Covaleski et al, 1993). This refers to the common tendency within the institutional perspective to overlook considerations of power and group interest. By focusing upon units of analysis like the organizational field or the discourse of institutional logics, institutional theorists are criticized for ignoring the role and influence of individuals or groups (Perrow (1985, 1986). However, we are reminded that institutionalization is applied in two ways, as an outcome and as a process (Dimaggio, 1991; Tolbert and Zucker, 1996). As an outcome, institutionalization views organizational structures and practices outside the reach of interests and politics, as expectations of acceptable practice exist and organisations passively conform to them. By contrast, as a process, institutionalization is profoundly political and reflects the relative power of organized interests and actors (Covaleski et al 1993, p. 66).

Our research has adopted a process-oriented approach, though we recognize the inherent shortcomings of emphasizing societal and organizational considerations, while underlaying the role of individuals in shaping and influencing organizational and technical outcomes. Notwithstanding these criticisms, we argue that one of the key shortcomings of many studies on IT-enabled change within the IS field, tend to offer rational-actor accounts, using terms such as ‘technical champion’, without explaining how and why outcomes can be discussed in isolation of the wider societal and political arena. Such research, we argue, often produces narrow accounts of change where ‘best practice’ can be delineated using simple models and frameworks. So while our study is limited by the above shortcomings, we suggest that institutional theory offers a rich explanatory framework for understanding complex structural and cultural processes of change. Future research may seek to build on this work.

5 Conclusion

By applying Tolbert and Zucker’s (1996) model of the component processes of institutionalization to our seven-year study on the NPfIT in the UK health-care system, we extend the growing repertoire of empirical research using institutional theory within the IS field. As part of a longitudinal study that continues, this paper offers some insights into the complexity and diversity of introducing large-scale IT-enabled change within a highly institutionalized environment. Our findings show the goal of NHS
executives is to introduce the NPfIT across the health-care system. Habitualized behaviors, however, conspire to resist the adoption of new working practices as clinicians question the rhetoric behind the new systems. This places IT in the wider socio-political and cultural context. IT is not merely a narrow technical imperative to facilitate cost cutting and performance improvement, but occupies a broader role where it is infused with the ideological and pragmatic concerns of multiple stakeholders. As our findings suggest, the complexity inherent within the structural and cultural fabric of the NHS, coupled with the extensive use of external IT providers, serves to destabilize rather than facilitate the introduction of the various projects that comprise the NPfIT. In conclusion, we suggest that such a large-scale and ambitious program requires that institutionalized processes become de-institutionalized (Oliver, 1992) as culturally embedded clinical practices will need to adapt to facilitate the adoption and diffusion of the NPfIT.

References

Brown, T. 2001. “Modernization or failure? IT development projects in the UK public sector”.


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<td>‘to put in place through the use of new technology, information systems that give patients more choice and health professionals more efficient access to information and thereby ensure delivery of better patient care’</td>
<td>The core of the NPfIT is the NHS Care Records Service to make relevant parts of a patient’s clinical record available to health professionals.</td>
<td>“The NPfIT is designed to reform the way the NHS in England uses information, and hence to improve services and the quality of patient care. The programme’s aims are ambitious, and the scale and complexity make delivery more challenging than similar projects elsewhere in the world (HoC, 2009, p.9). “ …the context within which the Programme is being delivered is complex and constantly changing, with new requirements arising from policy and operational changes in the NHS” (NAO, 2008, p. 7).</td>
<td>New offerings in EHRs (Microsoft HealthVault and GoogleHealth provide alternatives to a centralized NHS database for storing patient data.</td>
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<td>The NPfIT was planned over 10 years as a centralized ICT policy. The aim was to provide several systems including an Electronic (Summary) Care Record for 50 million citizens in England. ‘Better IT is needed in the NHS because the demand for high-quality health-care continues to rise and the care now provided is much more complex, both technically and organizationally’</td>
<td>The NAO report states that, “On 30 May 2006, (Lord Warner of Brockley) who is responsible for the Programme, was reported in the media as having said that the full cost of the Programme was likely to be nearer £20 billion”. Connecting for Health confirmed that this would include the total expenditure on NHS IT over 10 years. The centrally planned procurement of contracts were estimated to save £4.5 million in terms of prices paid for goods and services.</td>
<td>The estimated cost of the Programme is currently £12.7 billion (NAO, 2008). The Report confirms there is ‘considerable uncertainty’ about the date when the NCRS will be fully deployed.</td>
<td>The UK government is committed to continuing with NPfIT although a general election planned for 2010 creates further uncertainty.</td>
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<td>The Department of Health establishes a unit to procure and deliver the IT systems of the NPfIT and appoints first Director General in 2002. Work with a small number of large IT firms. Contracts commercially</td>
<td>The DoH IT unit in April 2005 becomes an agency called NHS Connecting for Health. All procurement contracts were concluded within 10 months up to February 2004.</td>
<td>Connecting for Health had a budget of £1.4 billion in 2007-8, with around 1,100 staff. National Local Ownership Programme (NLOP) to strengthen local ownership and governance, and re-position the Programme as part of mainstream NHS business. 10 Strategic Health Authorities to become accountable for implementation and benefits realization. Suppliers are paid when services are delivered</td>
<td>While it is important to focus on interoperability and integration of NHS IT systems, SHAs and NHS Trusts need to define their own ICT policies and develop capabilities and skills (IT/Business maturity) to work with suppliers.</td>
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| Implementation Plan | Implementation planned across 5 designated regions in England. Strict targets on implementation dates | Successful implementation of the NPfIT was raised as a critical issue for the Department of Health. Three key areas were identified: 1) to ensure that IT suppliers continue to deliver systems that meet the needs of the NHS and to agreed timetables without further delays, 2) to ensure that NHS organizations can and do fully play their part in implementing the Programme’s systems, 3) Winning the support of NHS staff and the public in making the best use of the systems to improve services (NAO, 2006, 6). | Implementation planned across 3 (reduced from 5) designated regions in England (North, Midlands and East Programme; Southern Programme, and London Programme). “Recent progress in deploying the new care records systems has been very disappointing, with just six deployments in total during the first five months of 2008-9 (HoC, 2009, p.5). The implementation of the NCRS is estimated to be complete in 2014-15 (NAO, 2008). At 31 March 2008, a total of 128 deployments had taken place, including 34 in Acute Trusts (NAO, 2008, p. 8). |
| Clinical Engagement | Engage a small number of clinicians to act as 'ambassadors' for the NCRS. | Concerns raised by clinicians about lack of clinical engagement in the policy-making process for NPfIT. The NAO report claimed that, “early involvement of users and user organizations helps to ensure broad support for change and increases the likelihood of successful implementation” (NAO, 2006, p. 53). A MORI survey found that 12% of nurses and 32% of doctors were unfavorable towards the NPfIT. A major concern was that implementation targets had not been met. More efforts needed to be put in place to win user engagement. | A survey carried out by the NHS found that 67% of nurses and 62% of doctors thought the systems of the NPfIT would improve patient care (NAO, 2008, p. 12). The media continued to report negative stories about the NCRS, particularly the failure to engage clinicians and the missed targets. Connecting for Health appointed a Chief Clinical Officer to enhance clinical leadership of the Programme. Together with the clinical leads who act as advocates for the NPfIT, a team of NHS staff were also appointed to assist with developing the care record software. |

Annual UK public healthcare ICT market risen each year from £2,342m in 2007-08, £2,603m in 2008-09, with a forecast to grow to £3,488m by 2013-14, which represents a compound annual growth rate (CAGR) of 6.9% (Kable, 2009). Despite projected growth in UK public ICT spend, the economic downturn has led to government statements that the NPfIT will be scaled back.

London GPs are taking collective action which will make it easier for their patients to "opt-out" of having their medical details uploaded to a central database run by BT as part of the National Programme for IT [NPfIT]. The action is likely to be seen by the Whitehall officials as an attempt to hinder the roll-out of the Summary Care Record to six million patients in London. If many patients opt out of...
Citizen/Patient Engagement

To help deliver a better NHS that gives public and patients services that fit the twenty-first century.

ICTs in Healthcare were promoted by the UK government as part of a wider political objective to increase ‘patient choice’ in health care. While patients were considered to be the key focal group to benefit from the NPfIT, few efforts were made to inform citizens about the NCRS during this phase.

National Clinical Leads were appointed to set up and chair three clinical advisory groups – covering doctors, nurses and allied health professionals. Patient groups were not well represented.

Citizens continued to remain largely uninformed about the NCRS and most efforts were placed on ‘getting the technology right’ and meeting the resistance from healthcare professionals about the budget for the NPfIT and other ‘health priorities’ facing providers, i.e. the increasing spend on new drugs for patients across different regions. For example, patients were more interested in debates about access and entitlement to medicines (the postcode lottery debate) than they were about ICT in the health service.

“Patients and doctors have understandable concerns about data security” (HoC, 2009, p.7)

A Joseph Rowntree Report was released in March 2009. The Report highlights that the NHS Care Programme is potentially unlawful and calls for Detailed Care Record and the Secondary User Service (SUS) to be scrapped. A campaign to abandon the NCRS continues with a website: www.thebigoptout.com.

As part of a national roll-out of the summary care record, patients who do not respond to a leaflet from their primary care trusts on the benefits of a central e-record are having some medical details uploaded to a central "spine" database which is run by BT, with Oracle as its subcontractor. Patients who "opt-out" will have their records kept solely under the control of GPs.

The BMA’s General Practitioner Committee has also issued guidance to GPs on the roll-out, which says it is “deeply concerned by this sudden acceleration in the roll-out and feel that it being rushed.” The guidance outlines the BMA’s call for opt-out forms to be included in information packs sent to patients and states that the BMA would have preferred to see a national publicity campaign for the SCR.
The UK Department of Health (DoH, 2002, p. 3) stressed, “It is widely accepted that the NHS Plan to improve care and services in the NHS depends on a number of transformations in quality, speed and capacity of the organisation. Information technology and the electronically stored information it handles are key enablers of some of this transformation. With modern IT, information can be captured once and used many times, working practices can be modernized and communications speeded up.”

‘There is a history of failure of major IT-enabled projects, characterized by delay, overspend, poor performance and abandonment’ (NAO, 2004, p. 3).

More attention was placed during this phase on the procurement of the IT systems with large contracts led to a small number of telecoms/IT/Management consulting firms. The business model for the EHR was well articulated, as more emphasis was placed on setting targets for purchasing, developing and implementing systems rather than winning the ‘hearts and minds’ of clinicians and other user groups.

Much more emphasis now placed on benefits realization. More work is needed to identify the benefits with new metrics to be developed. Need to develop people with programme management skills who can work with NHS Trusts and Local Service Providers (LSPs).

The growing dissatisfaction among clinicians, represented by their large and powerful professional bodies led to greater emphasis on benefits realization and risk assessment. More attention was given to the fact that the NPfIT was not simply a technical project but a large scale, change management programme with widespread implications for clinical working practices. Connecting for Health responded to the NAO report by setting up more initiatives to identify the key benefits from the NCRS.

GPs say patients’ rights are being overlooked. Doctors’ leaders warn government ministers that the NHS is jeopardising its relationship of trust with patients by creating a vast database of personal medical records. GPs say they fear patients’ rights are being overlooked, that ”scaremongering” is being used to get people’s agreement for the database, and that hackers could illegally access the central computer.

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Table 2. A Chronology of Events of EHR implementation in the UK NHS
Figure 1: Component Processes of Institutionalization in the NHS
(adapted from Tolbert & Zucker, 1996)