

WEAVING DISCOURSES AND CHANGING ORGANIZATIONS: THE ROLE OF ICT IN THE TRANSFORMATION OF HEALTHCARE TOWARDS A PATIENT-CENTERED MODEL

Completed Research Paper

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Abstract

This paper illustrates ways in which ICT are implicated in transforming healthcare from an organization-centered model of delivery to a patient-centered model. Building on the literature on discourse analysis and organizational change it analyzes ICT-led organizational transformation and patient-centered healthcare discourses constructed in the UK's policy papers and enacted in healthcare organizations. It suggests that ICT discourse performs different roles in relation to patient-centered healthcare discourse, and theorizes them as opening of possibilities, amplifying and re-focusing. The research reveals that Electronic Health Records both facilitate and obstruct the transformation of healthcare towards a patient-centered model. This contradiction arises from a number of contingent, interacting factors including different organizational characteristics, implementation strategies and work practice, as well as different conceptualizations of patient-centered care. Organizational transformation takes time and is characterized by detours and setbacks.

Keywords: Organizational change, organizational transformation, ICT, electronic health records, healthcare, patient-centered, discourse analysis, healthcare policy

Introduction

Information and communication technologies (ICT) are increasingly seen as being at the centre of healthcare delivery and as key to the modernization of healthcare organizations. In the last few years, the UK and the US's initiatives in healthcare have gained significant media attention. However, ICT seldom fully fulfill their policy expectations. Yet, the introduction of new information systems (IS) in organizations usually brings about unintended, but important, changes (Ash et al. 2007; Orlikowski and Hofman 1997) and enables new forms of organizing (Zammuto et al. 2007).

Researching the role of ICT and information systems in organizational change is at the core of the IS field (Robey and Boudreau 1999), and is increasingly considered important in organization science studies (Zammuto et al. 2007). Different roles are perceived for ICT, for example as 'agent of change' e.g. as a part of Business Process Engineering (BPR) (Broadbent et al. 1999; Hammer 1990; Markus 2004; Venkatraman 1991), an ambiguous 'facilitator of change', or an actor (one of many) (Holmström and Robey 2005; Walsham and Sahay 1999), with many studies illustrating that ICT do not lead to pre-determinate outcomes but may be implicated in situated, emergent change (Markus and Robey 1988; Orlikowski 1996; Orlikowski and Hofman 1997).

Similarly, in organization studies the approaches and theoretical perspectives adopted in research on organizational change are diverse, and so is their focus and scope. Some concentrate on effects of change and the way organizations are transformed over time, while others focus on processes of micro-change implicated in organizational changing or 'becoming' (Jian 2011; Thomas et al. 2011; Tsoukas and Chia. 2002). Transformation is understood here as change in the institutional environment that gives rise to new governance systems, logics, actors, meanings and relations and which leads to shifts in the ecology of organizations (Scott et al. 2000). Changing is conceptualized as "discursive struggles over articulating multiple layers of meaning. These layers comprise the articulation of organizational circumstance, organizational and individual identities and organizational practice" (Jian 2011 p 45). Organizational changing is intertwined with negotiation of meanings and particular meanings have consequences for the nature of organizing (Thomas et al. 2011).

This paper does not subscribe to the dichotomy of 'changing' versus 'transformation' but rather suggests that studying changing over time may reveal processes of transformation. It also proposes that negotiation of meanings takes place on different but intertwined levels, e.g. society, policy and organizational levels. 'Meta' discourses are deployed locally in organizational discourse and become reconstituted in the process (Jian 2011). Thus, processes of ICT-related transformation of organizations begin before the implementation of technology in a particular organization. They arise at the time when 'meta' discourses (such as ICT-led transformation of public services, or patient-centered care) are constructed, and might become intertwined. During the processes of implementation and use of ICT different discourses are performed (i.e. they are contested, translated, accepted, or rejected) and changing (or in some circumstances non-changing) takes place.

This paper analyses the UK's policy and strategy between 1992 and 2010, focusing on discourse of ICT-led transformation of healthcare towards a patient-centered model. It then discusses how this discourse, and specifically the vision and strategy of the National Programme for IT (NPfIT), was reflected and enacted in England's National Health Service (NHS) organizations. This is complemented by a brief discussion of key technologies that are influencing the way healthcare is delivered and consumed. In doing so, this paper addresses the following question: In what way ICT are implicated in transforming healthcare from an organization-centered model of delivery to a patient-centered model? Specifically, it aims to illustrate how:

- ICT and patient-centered discourses are constructed in policy papers, which envisage particular role(s) for ICT in transformation of healthcare;
- those discourses are constructed and enacted in different NHS organizations; and
- they are reproduced and translated in technological objects.

In doing so, this paper informs the discussion on the role of ICT in the transformation of healthcare and, more generally, in organizational change. It also theorizes the processes involved in interweaving of discourses.

This paper is structured as follows. It first reviews the literature on Patient Centered Care (PCC) and the role of ICT, and on technological innovations for healthcare. Then, it outlines the theoretical assumptions informing the research and research methods. Following section discusses ICT and patient-centered discourses constructed in the UK's health policy. Then, research findings from the evaluation of the implementation of electronic health record (EHR) in England are presented. The paper closes with a discussion and conclusion section that highlights its main points, contributions and limitations.

Literature Review

Patient-Centered Care and the Role of ICT

A patient-centered approach to medical care, often referred to as patient-centered care (PCC), has been advocated in the literature for at least four decades. PCC discourse can be generally divided into two strands. The first focuses on understanding patients' needs, preferences and experiences, and providing care that is closely congruent with those. Decisions about treatment, for example, are negotiated between healthcare professionals and patients (Mead and Bower 2000). A number of publications in this strand focus on the 'whole person approach' and discuss implications for the doctor-patient relationship. The second strand conceptualizes PCC as reorganization of services around patients' care plans (Lutz and Bowers 2000) and a transformation of healthcare towards optimal care (Davis et al. 2005). This strand focuses on organizational change, encompassing the entire organization of work and relationships related to patient trajectory. The first strand can be described as philosophical and the second as managerial (Vikkelsø 2010). The two strands, although focusing on different issues, overlap. For example, the way healthcare organizations are being transformed to achieve PCC depends on how PCC discourse is interpreted and what is given priority. This paper is primarily concerned with the second strand as it relates to organizational change.

The claims for PCC suggest that it would help patients to access appropriate and preferred medical care when and where it is needed, potentially leading to positive health outcomes. The managerial approach to PCC links these ideas to economic gains. Patients are seen as a 'resource' that can be utilized to contain costs and improve quality. Proposals on how to achieve this include patients taking part in the management of trusts or at least in assessment of the quality of service, e.g. through surveys, and taking increased responsibility for their own health and care process (e.g. by maintaining/overseeing their electronic health records). However, these claims are not uncontested. Lee and Lin (2010) reveal that past research has led to inconsistent findings regarding the impact of patient centeredness on patient outcomes. Mead and Bower (2000) criticize implicit assumptions in the literature that patient-centered behavior can be associated in linear fashion with positive outcomes such as satisfactions and adherence to therapy. This underestimates many variables influencing outcomes, for example, varied preferences of different patients in terms of expectations of care, or the type of consultation.

When transformation of healthcare services and organizations is considered PCC discourse is often intertwined with technological discourse. ICT are seen as potentially enabling the transformation of healthcare from organization-centered to process-based care and finally towards person-centered care (Hayes 2010). Indeed, Vikkelsø (2010) suggests that "The managerial version of PCC aims to integrate information technology in every link of the care chain in the belief that web-portals, distributed records, and online access facilitate relationships between professionals and patients by providing, for example, sufficient information, patient engagement and mutual feedback."

For example, an independent review of health and social care IT in England, reported by de Lusignan and Krause (2010), formulates the following principles:

"1) the patient must be at the centre of all information systems; 2) the provision of patient-level operational data should form the foundation - avoid the dataset mentality; 3) store health data as close to the patient as possible; 4) enable the patient to take a more active role with their health data within a

trusted doctor-patient relationship.” The authors stress that these principles “need application within the modern IT environment” and that “Closeness to the patient must not be interpreted as physical but instead as a virtual patient-centred space”.

Outlining a vision of ICT-enabled healthcare for 2013, Haux et al. (2002) identify three major goals for an efficient, advanced and affordable system. These are: patient centered recording and use of medical data for cooperative care, process-integrated decision support through current medical knowledge, and comprehensive use of patient data for research and health care reporting.

May et al. (2006) envisage a role for ICT that bridges two discourses about practice in primary care (and I would add, secondary care too), that of evidence-based medicine and patient centered practice. They propose that technological solutions embody and enact tensions between those two discourses but may also be opening up a new array of practices, which they term technogovernance. This term refers to governmental technologies intended to guide conduct and so to structure work, and that are related to shifts that are concerned with framing the structure and direction of the engagement between doctors and patients. Specifically, they envisage a role for decision support or decision aid systems, for example in the form of interactive computer programs, as well as audiotapes, pamphlets, and group presentations.

Overall, there are a very few articles which consider the role of ICT in the processes of transformation of healthcare towards a PCC model of delivery, and none that I found that span policy and practice. This paper addresses this gap.

Technological Innovations for Healthcare

The technologies seen as potentially enabling the transformation of healthcare from organization-centered to patient-centered care include electronic infrastructures (such as the NHS N3), large databases enabling storing data (e.g. needed for electronic health records) and data warehousing and data mining capabilities allowing for searching/querying vast amounts of historical data to identify different trends (e.g. for research or epidemiological purposes) (Hayes 2010). In addition the Internet is presented as a source of information for health professionals and the general population alike. Similarly, Vikkelsø (2010) singles out four types of emerging, patient-centered information infrastructures: shared care record systems; internet health sites; online data access for patients (e.g. to their records); and electronic consultation systems.

Many of the technological innovations for healthcare utilize the Internet, and in particular Web 2.0 applications. Health sites have evolved from being simply a source of information to interactive tools offering (relatively) easy ways of co-producing information, communicating and collaborating with others. Although most people seek information on their illness and available treatments, many join Internet-based support groups. Blogs, discussion groups and online communities centered on patients and their diseases, such as PatientsLikeMe, are becoming increasingly popular. Health-related groups on large social networking sites like Facebook and MySpace aim to provide support for patient/caregiver groups, or to conduct awareness campaigns. Personal Electronic Patient Records (EPRs), such as Microsoft HealthVault and Google Health, allow users to aggregate health data from various providers. All these technologies are promoted as enabling the transformation of passive patients into informed and empowered consumers of healthcare services (Hogarth et al. 2010; Murray et al. 2008) and as giving patients control over the management of and responsibility for their health (NCVHS, 2006).

A limited number of providers allow patients to contact doctors through emails, texts, instant messages or videochats claiming that this allows for richer engagement and deeper doctor-patient relationships resulting in better care for patients, as well as making it easier to spread innovation in healthcare (Hawn, 2008). Recently mobile applications are being promoted as alternative channels for bringing health information and healthcare to individuals (e.g. text messaging is used to support participants in smoking cessation programmes).

There are also more specialized telemedicine and telecare applications which, for example, support living with chronic illnesses, through the provision of information, monitoring of vital signs and decision support tools. Their potential benefits and barriers to adoption are well documented (Wootton et al. 2006), although there is less literature on their actual benefits.

These developments have given rise to, an arguably technological, term Health 2.0 and a claim of a paradigm-like shift in the way healthcare is delivered and experienced (Murray et al. 2008). However, there is a growing body of literature highlighting problems with the notion of ICT-enabled patients' empowerment, such as lack of skills or literacies (technical skills, finding information and ability to understand, evaluate and interpret it in the context of ones circumstances), problems of equity of services and validity of information (Henwood et al. 2002; Henwood et al. 2003; Hirji 2004; Klecun 2008; Klecun 2010; Theofanos et al. 2004). Furthermore, integrating many of such services in healthcare organizations has proved difficult, not least because of organizational challenges (Broens et al. 2007). In the past many telemedicine projects have not become institutionalized or sustainable, and were discontinued when the project funding run out.

Yet there are instances when such technologies have become integrated in normal service provision and have transformed the way healthcare is provided and consumed, even if only partially and on a small scale. For example, Vikkelsø (2010) discusses the Danish health web portal www.sundhed.dk, which allows people to gain electronic access to health records and medical profiles, as well as make appointments with their doctors and participate in e-mail consultations. Davies et al. (2011) describe a process of restructuring services in two Australian public hospital multidisciplinary pain centers (MPCs) to make them patient-centered and patient-driven. This involved enabling entry to MPCs through an education portal that included both information and self management skills, and then ability to select particular treatment options on the basis of evidence of known efficacy. Research suggests that user-centered interactive web sites supporting patients with chronic illnesses can facilitate self-management and education, however they have to be well designed and tailored to user needs and characteristics (Zuffereya et al. 2010).

Recently, application of user-centered design (UCD) approach to the development of ICT, such as EHR, has been advocated. For example, Hogarth et al. (2010) illustrate how the ambition to provide a more user-centered service and the engagement of users in design process lead to the production of shared treatment care plans rendered as calendars and able to be integrated with a personal calendar. They hail it as a radical departure from the traditional EHR design.

The technologies and their particular applications described in this section are opening new possibilities for patient-centered healthcare. These possibilities arise from healthcare organizations' use of new technologies to support the transformation of healthcare structures and modes of healthcare delivery and from citizens using a variety of technological applications (such as web portals) outside organizational context. Indeed, the possibilities arise from the interactions of organizational and individual use of new ICT-based applications. The literature suggests that healthcare organizations can utilise ICT to provide new services and new ways of providing services, facilitate co-operation across professional groups and healthcare organizations, and engaging patients, as well as using patient data for research and reporting.

Yet, the research reported also reveals the limited scope of such developemnts. Many reasons are given for this but often organizational challenges are seen as more significant than technological one. Furthermore, literature on PCC suggests that there are more than one PCC discourses and that the very idea of PCC leading to better health outcomes is at times questioned. Hence, there is a need to investigate how PCC discourses are constructed, in what ways ICT are implicated in their construction, what organizational changes they imply, and to what extent those changes are taking place. Many different ICT applications have potential to facilitate the transformation of healthcare towards a PCC model but integrated and shared EHR is seen as a core technology facilitating this process. However, research reported in the literature tends to be based on one organization or a single department. This paper reports on a large scale investigation of the implementation of EHR in a number of organizations across England and hence adds a new dimension to the existing literature.

Theoretical perspective: meanings, discourses and technology

The author's understanding of the world and how we can obtain knowledge about it is influenced by social constructionist insights. This has shaped the way she has conducted research in healthcare organizations and the way she perceives technology, organizational and sociotechnical change. This section briefly outlines the main points of social constructionism and assumptions about technology as expressed Science and Technology Studies (STS).

Social constructionists share a belief that “all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context” (Crotty 2003 p 42). This does not mean that the world does not exist outside our mind, but rather that its meaning is ascribed to by our consciousness. Furthermore, social constructionism does not declare that each individual creates his own meaning independently and imposes it upon the world. Rather, meanings are generated collectively. The means to ascribe meaning ‘precede us’ and ‘we are already embedded’ in them (Crotty 2003 p 52). Human beings engage with the world which is “always already there” (a view espoused by Heidegger and Meleau-Ponty). This emphasizes the historical and situated aspects of meaning generation and transmission. Moreover, social constructionism focuses on the interaction with the object (be it technology, such as an information system, or a natural phenomena). Meaning is created as a result of engagement with the world.

We can envisage different discourses as arising from different meanings and as means used to generate (collective) meanings. Discourses are taken here, in the spirit of social constructionism, not as purely linguistic or textual devices but as being “institutionalized and reproduced in social and material practices” (Doolin 2003 p 755). Hence, discourse is performative. Discourse neither constructs ‘reality’ nor simply mirrors it. Meanings, feelings and materialities interact in hybrid, dynamic, complex, political and historical ways (Iedema 2007). Hence, the discursive and the material co-emerge (or ‘intra-act’) (Iedema 2007). Such a conceptualisation of discourse informing this research envisages technology as constructed in discourses (e.g. of organizational transformation and PCC) and in turn as influencing those discourses. It does not, however, deny the materiality of technology. Indeed, following Faulkner & Runde (2011) I see technological artifacts as objects with material and non-material properties that are open to different interpretations.

In conceptualizing technology I also draw on concepts developed by STS theorists, such as of technological artifacts embedding values, beliefs and perceptions of their designers (e.g. policy makers, managers and healthcare professionals as well as software providers) (Bijker 1997; Bijker et al. 1992; MacKenzie et al. 1999) and inscribed programs of action (Callon 1991; Latour 1999) as well as being interpretively flexible at the point of conception, design and use. Hence, I believe that we need to study technology-in-practice when considering its organizational implications (Orlikowski 2000; Timmermans et al. 2003). However, I also argue that technologies acquire meanings not only when particular artifacts are conceptualized and designed or indeed used but also at the time when a vision for a particular technology or set of technologies is created (Davidson et al. 2005; Klecun-Dabrowska et al. 2002; Swanson et al. 1997). Although those meanings are fluid (at least to a degree) and ICT might be easier than other technologies to appropriate through use (Woolgar 1996), nevertheless their interpretive flexibility is not unlimited. It may differ for different social groups and at different points of time.

Finally, in conceptualizing IT role in organizational change I follow Davidson and Chismar (2007) in treating technology analytically as an integral component in the change process not as a static, external change trigger. Hence, I study how people, organizations, technologies (such as EHR software) and policies intermingle and in doing so shape processes of change.

Research Methods

The conceptualizations of discourse, ICT and their role in organizational change outlined in the previous section meant that I needed to study texts (focusing on health policy papers), the context in which they were developed and the ways they were reinterpreted and enacted locally (in this case in different NHS organizational settings).

I reviewed all health policy papers and relevant strategy papers for England between 1989 and 2010. Their analysis concentrated on the meanings assigned to ICT and ICT-led transformation and patient-centered ideas of care. Those analyses were placed in the context of the history of reforms in the English NHS, particularly as they related to the implementation and adoption of ICT, and a literature review of PCC approach and the role of ICT in PCC discourse. Publications from IS, organization studies and health informatics fields were reviewed. The search was conducted using multiple databases and terms including ‘patient centered healthcare and information systems’ (and their different combinations and spellings).

The critique of policy and academic papers is informed by concepts of information mythology as developed by Bowker (1994) and Boland's (1987) 'five fantasies of information' present in every day assumptions about information systems, which he identifies as: (a) information is structured data, (b) organization is information, (c) information is power, (d) information is intelligence and finally (e) information is perfectable. Bowker conceptualizes information mythology as the widespread belief that scientific and technological knowledge is the motor of societal change. As people enact this belief they make other explanations and actions more difficult. Hence, "the myth is made true over time because many people act on the assumption that it is real" (Jensen 2008 p 364).

The analysis of the local practices (discourse constructions and enactments) is based on the findings of a multi-disciplinary project evaluating the NHS Care Records Service (NCRS) in secondary care, a key part of the NPfIT. The large-scale, mixed methods evaluation was conducted by a team of researchers over a 30-month period from September 2008 until February 2011. Initially 17 locations were approached but subsequently 12 sites (mainly hospital trusts but also mental health trusts) were chosen for more in depth study. The research collected qualitative and quantitative data and consisted of 431 semi-structured interviews, 590 hours of direct observations, usability surveys, outpatients surveys, and 867 documents. Interviewees were mainly recruited from trusts' employees and included managers, implementation team members and IT staff, doctors, nurses, allied health professionals and administrative staff. A number of key stakeholders outside the Trusts, such as those involved in the managing the programme, as well as system developers and relevant independent sector representatives were also interviewed. When possible interviews were recorded and transcribed and field notes taken. Whole data set was available to the author of this paper who was a member of the project team.

The research focused on the processes NCRS implementation and deployment and their consequences e.g. in terms of changes to work practices, professional identities and organizational structures, as well as stakeholder attitudes, expectations and beliefs. Data collection and analysis are described in more details in another paper (Sheikh et al. 2011). Findings are described at length in the project report, as well as in published and forthcoming papers (Robertson et al. 2010; Sheikh et al. 2011). This paper does not aim to present comprehensive findings of this evaluation. It is only interested in how (if at all) different 'mega' discourses were woven and enacted locally. Hence, for the purpose of this paper data analysis focused on: (1) stakeholders' visions of the NCRS systems, PCC and current and future role for ICT (and more specifically NCRS), and (2) organizational changes taking place in relation to the transformation of healthcare towards patient-centered model. Data analysis was done in four ways. First, all reports produced for each case study (i.e. 12 sites) were read and thematically coded. Second, the interviews were searched for patient, patient-centered (centred), change and transformation keywords. Third, some transcripts were re-read, as keyword searches only offer a partial view (e.g. relevant information might be implicit rather than explicitly stated). Finally, those findings were compared and synthesized.

Transforming Healthcare: ICT and PCC Discourses in Policy Papers

This section provides an introduction to the UK's NHS and the attempts to modernize it. This is followed by an overview of UK's (and more specifically England's) health policies as related to patient-centered discourse and the role of ICT in transformation of healthcare.

Overview of the UK's National Health Service (NHS)

The NHS is a publicly funded (through general taxation) organization, or rather a number of organizations, delivering about 95% of the UK's healthcare free (at the point of delivery and with some exceptions) to the population. The NHS organizations such as primary care practices, hospitals, mental health and ambulance services are grouped into trusts. Hospital trusts (also referred to as acute trusts) comprise of one or a few local hospitals. The trusts enjoy varying levels of autonomy. In the face of raising budgets and in the effort to minimize costs whilst improving care, a number of initiatives to transform the NHS have been introduced by a succession of the UK governments. These include the establishment of internal markets, the private finance initiative, the introduction of performance related payments, restructuring of the workforce (Agenda for Change), performance targets and management, Foundation

Trusts and new clinical governance structures. These changes are intertwined with even more frequent rearrangements of organizational units and reallocation of money and responsibilities.

At the roots of many of these initiatives lies New Public Management discourse reflecting the desire to mimic private sector in order to make healthcare more efficient and effective. This discourse is intertwined with other discourses that have influenced the UK's healthcare policies and practices, including that of ICT-led modernization, PCC and evidence-based medicine. Below I focus on policy initiatives since 1992 relevant to PCC discourse and the role of information and ICT in its development and realization.

Policy and Strategy

A shift (at least in policy rhetoric) from medicine to health, characterized by the promotion of health and prevention of illness, was signaled in the white paper 'The Health of the Nation' (DOH 1992). The paper stresses the importance of people taking responsibility for their health and promises individual opportunities and wider choices, emphasizing the need for reliable and diverse sources of information about health. Information is given a central role in those changes. The paper states the need for comprehensive health monitoring and for the measurement of health outcomes. It envisages that information systems would focus on the individual patient and that details of all interventions, treatments and outcomes over time and across all service providers and agencies would become available (without breaking confidentiality rules).

These ideas have largely not been realized, although patients were given right to choose a general practice rather than to be 'assigned' to a local one.

The 1997 elections brought the Labour party to power. Re-organization of the NHS followed, to which the replacement of the internal market with integrated care was central (DOH 1997). The white paper 'The New NHS: Modern. Dependable' (DOH 1997) states that the NHS must change, so it is able to embrace rapid changes in science and medicine as well as to harness the potential of modern ICT. It promises the NHS built around the needs of people, not of institutions, e.g. by becoming more flexible and supporting local ways of delivering health and healthcare, as well as integrating health and social care services.

The choice agenda is taken a step further promising more rights and more choices for patients, such as participation in decision making about care received and in management of the NHS trusts. This is to be facilitated by access to more information (about health in general and the NHS in particular, including the performance of different trusts).

The role of ICT is defined as supporting front line staff in delivering benefits to patients and bringing new services to communities and into individual homes. This is re-emphasized in white policy paper 'Saving Lives: Our Healthier Nation' (DOH 1999) and a paper setting out policies for the NHS 'Information for Health: An Information Strategy for the Modern NHS 1998-2005' (NHS Executive 1998). The 1998 paper has made a commitment to creating life-long electronic records for NHS patients.

This change agenda for the NHS was a part a wider trend of 'modernizing the government' (HMSO 1999). This policy places 'information age government' in the centre of the service modernization process and proclaims that "The NHS will use IT to transform the way health services are delivered." (chpt 5, p 1). It singles out NHS Direct (a nurse-led service offering healthcare advice via telephone) and NHSnet (the NHS wide intranet) as important initiatives. Subsequent publications support the strategic goals of improving NHS information systems and of developing more patient-centered service organization and care delivery (DOH 2000; DOH 2001; DOH 2002).

'The NHS plan: A plan for investment, a plan for change' (DOH 2000) identifies 3 patient-centered technologies: video and telinks to hospital specialists enabling e-consultations, telecare, and electronic patient records with all local health services having facilities by 2005 allowing patients to connect with staff electronically for advice.

Two years later, 'Delivering 21st Century IT Support for the NHS – A National Strategic Programme' (DOH 2002) was published – and the Labour Government launched the National Programme for Information Technology (NPfIT) for England (other devolved nations in the UK have their own national NHS organizations).

The programme comprises of the following four critical application areas supported by a new nationwide IT infrastructure (N3):

- Electronic patient records (EPR), a comprehensive “cradle-to-grave” record – named later on Care Records Service (CRS) – for all 50 million residents of England.
- Electronic prescribing (EP), which involves the use of ICT for the transmission of prescriptions and the administration of medicines;
- Choose and Book, a computerized system for booking hospital appointments which allows patient choice among a range of hospitals;
- Electronic transfer of digital images, such as scans and X-rays, via PACS (Picture Archiving and Communication System).

The NPfIT amounted to a plan for a major technology-based transformation of healthcare, promising IS that give patients more choice and health professionals more efficient access to information and thereby delivering better patient care. The intention was to change clinical work practices, healthcare delivery processes and management of NHS organizations through computerization and ‘ruthless standardization’.

With the Coalition Government coming to power in 2010 another major re-organization of the NHS was announced, giving GPs more power and responsibility for budgets to commission services from secondary providers. The Forward to the new policy paper ‘Equity and excellence Liberating the NHS’ (DOH 2010) proclaims that “patients will be at the heart of everything we do. So they will have more choice and control, helped by easy access to the information they need about the best GPs and hospitals. Patients will be in charge of making decisions about their care.”.

The choice agenda present in earlier Labour Government papers is expanded here, with patients able to choose a provider organization, consultant-led team, GP practice and treatment (i.e. shared decision making). This is coupled with a promise of patients having control over their health records, envisaged as ability to access the record, see any amendments to it and determine who else is allowed to access it.

Analyzing the Role of Policies in the Development of ICT and PCC Discourses

It would be easy to dismiss government policies on at least two accounts: (1) as having limited impact and emphasize that their interpretation and implementation (or not) that matters, (2) their technological determinism, seeing information and ICT as somewhat simple (to design, implement and adopt) and as having pre-defined, beneficial and benevolent impacts (e.g. on health outcomes or organizational change).

The papers assign highly transformative meaning to ICT. This is present in earlier papers, for example, in the way telemedicine and telecare were projected as being able to re-shape the way health care is delivered; remotely instead of person-to-person, in home rather than in hospital, to groups rather than to individuals, and across traditional institutional boundaries (DOH 1997; DOH 1999; DOH 2000). See, for example, Klecun-Dabrowska and Cornford (2000) for more detailed analysis of the meanings of telehealth in policy papers. Transformative potential is also reflected in the most recent papers, in terms such ‘NHS information revolution’. Strong claims are made for information (and implicitly ICT) as enabler of fundamental transformation of the care process into a more patient-centered model.

Information and information processing acquire almost ‘mythical’ meaning (Bowker 1994) and healthcare is redefined (to some extent) as an information institution (Pollock 2000). For example ‘Equity and excellence Liberating the NHS’ paper (DOH 2010 p 13-14) boldly proclaims that: “Information, combined with the right support, is the key to better care, better outcomes and reduced costs” and that “[t]he information revolution is also about new ways of delivering care, such as enabling patients to communicate with their clinicians about their health status on-line. We will provide a range of on-line services which will mean services being provided much more efficiently at a time and place that is convenient for patients and carers, and will also enable greater efficiency”. Boland’s (1987) five fantasies of information are echoed throughout the policy texts. For example, structured data is equated with information, and in turn information is often equated with knowledge or power available to healthcare professionals and patients. Although, to lesser or greater extent, some of the documents acknowledge the problems of implementation IS, nevertheless they tend to convey a message that perfect information and

a perfect future that is designable and achievable are possible – i.e. Boland’s last fantasy of ‘information is perfectable’.

Such criticisms are partly made easier because policy and strategy papers (perhaps understandably) tend to be written in a specific way, using decisive language that conveys strong, positive messages. Nevertheless, Fotaki (2010) discussing patient choice policies provides a convincing critique of the way that policy formulation is distanced from organizational reality and outlines implications of such distance for healthcare organizations.

Indeed, the influence of policies and strategy texts should not be dismissed. They and other rhetorical stances both influence the interpretative discourse of the NHS (for example its ethos, priorities and organization) and of health ICT organizing vision (Swanson et al. 1997), and the material activity (e.g. enactments of those activities ‘on the ground’). Vaara et al (2010 p 686) suggest that “strategy texts have force potential (Fairclough 1992) and textual agency (Cooren 2004). That is, strategy documents serve several purposes: they communicate socially negotiated meanings, legitimate ways of thinking and action and de-legitimate others, produce consent but may also trigger resistance, and have all kinds of political and ideological effects, some more apparent than others.”

The role of government policies is particularly strong in UK’s healthcare since about 95% of it is provided by the NHS, although recent reforms, such as the introduction of Foundation Trusts have significantly increased autonomy of (some) hospital trusts and private-public initiatives have enlarged the role of private providers. Nevertheless, as Motion and Leitch (2009) have shown even in other situations public policy may effect discourse transformations and open up new possibilities and rules for organizational legitimacy and societal relations.

Discourse, delineating what is legitimate and what is not, may also be perceived as a strategic resource that governments and other types of organizations can draw on to effect and legitimate change (Motion et al. 2009). For example, Bloomfield and Hayes (2009) have shown how the major modernization programme for local government in the UK was legitimized through the appeal to the importance and centrality of the citizen/customer.

In the area of healthcare, government policies have utilized PCC discourse to a number of ends, including legitimating reforms of organizational structures and budgetary regulations (e.g. GP commissioning), changes to medical practices, such as allowing patients to choose healthcare providers (e.g. a particular hospital or general practice) and to negotiate treatments, as well as investments in the ICT. They have linked PCC to the economic discourse and to the modernization agenda. In doing so, they translated PCC discourse by focusing on the choice agenda, which according to Fotaki (2010) relies on “overly simplistic idea of patients as choosers shaping service provision”. In turn, the policies and discourses they represented were translated into particular technological propositions, e.g. systems through which patients choice of a hospital appointment can be conducted, so called “Choose and Book”, telemedicine (becoming somewhat less prominent in later policies), NHS Direct, NHS Choices and NCRS.

Bloomfield and Hayes’ (2009 p 481) assertion that “[t]he realization of customer focus as well as its governance relies on new technology and conversely the emplacement of the new technology was justified through the need to modernize and make the ‘citizen as customer’ the focal point of service delivery” made in relation to the modernization of local government equally applies to the NHS.

Overall, the following dimensions of PCC discourse are identified in policy papers:

Patient perspective

- More convenient care (easy access to services, new services and new modes of their delivery)
- More choice (e.g. of care provider)
- Shared decision making regarding care (negotiation of care plans)
- Taking a stake in managing healthcare organizations (e.g. hospital trusts) and planning of services

Provider perspective

- Providing better care for a particular patient e.g. through access to relevant data and sharing of data across organizational boundaries and professions

- Efficient and effective service delivery for all, e.g. better planning, monitoring and use of resources
- Using data for medical research and planning of future services.

Those dimensions require transforming practices and organizational structures, blurring of boundaries (between professions, particular institutions and patients), as well as standardization of practices (e.g. based on evidence-based medicine). They also imply re-inventing patients as ‘empowered’ or at least informed, responsible citizens and consumers who are capable (and expected) to describe experiences, express preferences, make informed, rational decisions, negotiate care plans with health professionals, and to evaluate care received (Adams et al. 2007). As May et al. (2005) suggest the public ‘discourse of technological ambition’ can be interpreted as requiring users of healthcare, not just its provision, to be modernized.

Information, and hence information systems, are seen as key to achieving such transformations. In conceptualizing the role of ICT discourse in relation to PCC discourse, the following roles are identified:

- Amplifying. Through myths and mythologies, such as information as power, organization as information, informed patient as empowered patient, ICT discourse amplifies and make more visible (and more achievable) PCC discourse. In policy both discourses are intrinsically linked.
- Re-focusing. Whilst amplifying PCC discourse it also re-focuses the discourse on technological solutions, such as EHR or telemedicine applications..

The following section considers ways in which those different dimensions of PCC and ICT discourses and organizational transformations they imply were translated and enacted in local organizations.

Enacting Policies and Transforming Discourses

Not all the technologies and services promised to support PCC have materialized. Nevertheless, both NHS Direct and NHS Choices have been introduced and with time have become popular. NHS Choices offers information on health and available health services to the public while NHS Direct provides another route to receiving health advice and accessing the services.

The implementation of the NPfIT encountered numerous and well publicized problems (NAO, 2011; Sauer et al. 2007), but they were also considerable achievements, such as N3 and PACS. After initial opposition and problems the electronic appointment booking service, Choose and Book, is also in place. This is not the case with the NCRS. The NCRS was considered as core to the NPfIT, and as central to the transformation of the NHS towards a patient-centered model and shared care approach based on cross-organizational and cross-professional collaboration. The NCRS was to be shared across a range of NHS providers, spanning primary, secondary and community care settings. This was to be achieved through centrally stored summary care record (SCR) containing basic clinical information for emergencies and a locally held and shared detailed EHR. However, the NCRS proved to be particularly difficult to implement (Greenhalgh et al. 2010; Sheikh 2011), especially in secondary and tertiary organizations.

Of the 377 hospitals and specialist sites in which implementations should have been completed by the expected end of the Programme in 2010, only 78 have begun the process of implementing the software systems; most of the implementations have been of patient administration systems with limited clinical functionalities.

The remainder of this section reports on findings from the evaluation of NCRS. In doing so, it focuses on different meanings the NCRS systems acquired amongst various stakeholders, their visions of PCC and current and future role for ICT (specifically the NCRS), as well as organizational changes and transformations that took place.

The NCRS, as outlined in the Labour government policy papers, embodies (or rather embodied at the time of research) a particular vision of shared record, one that is based on ‘ruthless’ standardization, through centrally-driven, standardized national implementations of limited number of commercial EHR systems and allowing (at least initially) little local flexibility. This vision from the outset was subject to contradictions. First, it revealed a centrally held belief that the NHS is one organization (that can use one system). But each Trust considered itself an organization separate from the others. The NCRS and other

systems meant to support the best possible care across the NHS (e.g. by embodying 'best practices', standardizing processes, enabling data sharing) rather than being optimized to the requirements of each individual organization providing specific services and with established (often non-standardized) working practices. Second, it reflected the tensions in PCC discourse between a belief in collaborative care (across professional and organizational boundaries) and a belief that market competition between trusts would lead to more effective and efficient services (and overall better quality and value for patients). Through enforcing standardization of practices, enabling sharing of clinical data, as well as facilitating collection and analysis of large quantities of operational data (e.g. on achieving performance targets) the NCRS could potentially support either of those aims. However placing organizations in competition can counter the logic of PCC based on different services collaborating to provide best care for a patient and meeting patients' needs across the care plans, resulting instead in just delivering a specific part of the plans more efficiently and effectively. Those tensions were acknowledged by the interviewees, who themselves constructed different (often competing) meanings of the NCRS. Some emphasised the NCRS role in managing patient data (collecting, storing, sharing and analysing), others saw it as predominantly supporting the process of care (e.g. facilitating workflows), or alternatively as enabling effective running of services and as a tool for organizational change towards policy related aims (such as PCC).

Different aspects of PCC discourse were emphasized by different people (in different roles). These included: delivering better care for patients by having appropriate information when needed, providing collaborative care (e.g. developing care plans as a team), better utilization of resources and more efficient running of an organization. Others emphasized the care aspect of PCC, e.g. in terms of face-to-face contact with patients and direct engagement with their needs. Patient empowerment and shared decision making was given less prominence. Nevertheless, some saw the NCRS as central to achieving the vision of PCC, and wanted to give control over records to patients (e.g. to decide who can access their records).

Data collection on outcomes of the implementation, e.g. in terms of the role of the NCRS in organizational changing and the transformation of healthcare towards a patient-centered model was hindered by the delays in implementation. The project findings indicate that in many settings (particularly in acute hospitals) the process of IT-enabled change did not lead (at least so far) to fundamental changes in the nature of practices (Petракaki et al. 2011), and hence to transformation of the NHS towards shared care and a patient-centered model. This might be the case because of partial implementations (e.g. on one ward only) and the timescale of the evaluation. Comparisons across different sites was difficult due to their different characteristics (e.g. size, budgets and workforce), varying implementation strategies (from big bang to soft landing) and different functionalities (parts of the system) implemented in different sites, as well as customizations of software for each site. In practice the NCRS role in providing more patient-centered, better and more efficient care was ambiguous. On one hand interviewees reported some beneficial effects (such as overcoming a problem of legibility and at times, but not always, improving access to records), on the other hand they noted disadvantages, such as making some processes longer and potentially less safe, disrupting procedures, and changing the nature of care. For some the NCRS was an obstruction to contact with patients, creating more administrative tasks and shifting them from administrative to healthcare staff, as well as introducing a physical barrier between health professionals and patients (e.g. during home visits healthcare workers had to use their computers to access and enter information, and hence were sitting at the table rather than at the patient's bed). Overall, due to limited (in their number and scope) implementations the shared vision of the NCRS has not been achieved in secondary (acute) care. In mental health services, where more established software was used, the record's role in co-ordination of patient care and managing services was more evident.

Despite problems encountered, many professionals expressed commitment to the idea of EHR (even if not to the particular implementation of the NCRS) and accepted enlarged role for ICT in healthcare. This acceptance of a proposition that ICT are useful tools for the improvement of healthcare provision is also reported by another large study of the NPfIT (Currie et al. 2011). This 'duality' of attitudes (positive towards future ideal systems and negative towards present offering) was also noted in my previous research of e-prescribing systems and telehealth conducted over the last 10 years in different healthcare organizations in the UK.

It must be noted that during the lifespan of this research the policy vision of IT-led transformation and the nature and scope of the NCRS has evolved significantly. Even before the change of government local organizations were given greater flexibility in terms of how and what features of the proposed software

they adopted. Additional IT suppliers were encouraged to bid for contracts under the NPfIT. Since the Coalition Government came to power in 2010 the focus has shifted to more local efforts to procure and implement electronic health records leading to abandoning the idea of uniform software.

In summary, the project findings indicate that different PCC discourses and different visions of the NCRS and its role in supporting transformation towards a PCC model of care co-exist at the local level. They also evolved over time. The NCRS systems implemented locally were seen by many (at least potentially, in some not so distant future) as facilitating and enabling the transformation of healthcare towards a patient-centered model. However, others saw the NCRS as obstructing patient care. Such contradictions arise from a number of contingent, interacting factors including different organizational characteristics, implementation strategies, work practices and software, as well as different conceptualizations of patient-centered care emphasizing particular aspects, such as personal care, cooperative healthcare or efficient service provision. Obstructions were caused by the limitations of the software and problems with implementation, necessary compromises between local and central needs which were making some processes more cumbersome (even if beneficial for patient care in the long run) and by taking health professionals away from patients.

Discussion and Conclusions

This paper set out to address the following question: In what way ICT are implicated in transforming healthcare from an organization-centered model of delivery to a patient-centered model? This challenge was approached by studying discourses of ICT-led transformation and PCC. The discourse analysis in this case encompassed academic publications, policy and strategy texts and their local enactments, as well as a wider context of the NHS reforms and technological innovations.

The literature review and research conducted suggest that discourse of ICT in healthcare is intertwined with other discourses, including that of PCC and evidence based medicine, change and transformation through 'information revolution', and is influenced by and in turn influences them. This interweaving takes place on different levels, including national policy and strategies and organizational settings. This paper suggests that ICT discourse performs different roles in relation to PCC discourse, and conceptualizes those as opening of new possibilities, amplifying and re-focusing (as described in the previous sections).

The research revealed that ICT are seen as either (or indeed as both at the same time) facilitating/enabling and obstructing patient-centered care. It has also shown that ICT-led transformation although influenced by policies and strategies (either directly mandating the use of particular technologies such as the NCRS or implicitly creating the need for new information systems) is also conditioned on local enactments (Petraiki et al. 2011). Organizational transformation, perhaps more so in public than private organizations such as the NHS, takes time and is not characterized by a simple replacement of the 'old' with the 'new' but rather it is messy process, with the 'old' and the 'new' coexisting (Bloomfield et al. 2009) and with many detours and setbacks (moving, at times, from the 'new' to the 'old'). For example, this paper has shown that shared EHR was promised in 1998, but its implementation is still in progress and the vision of how it is to be achieved has substantially evolved in the period of time under study. This view is supported by a comprehensive review of literature on EPR (Greenhalgh et al. 2009), which indicates that contrary to hopes, many EPR projects have not lead to the transformation of healthcare organizations (e.g. through supporting new ways of collaborative working) or the realizations of expected benefits.

Yet, such initiatives do not disappear totally as they influence public and organizational discourses (at least to some extent) and contribute to organizational changing. For example, attitudes are at least partly based on past experiences with previous implementations and technologies already in place often remain there (in one form or other) even if the change programmes are abandoned. Those technologies influence subsequent implementations.

Furthermore, it appears that discourses of ICT-led organizational change and PCC have been sustained over the years in academic literature and government policy, and are slowly influencing the transformation of the NHS and the healthcare field more generally. It must be noted that this transformation is not leaner or unambiguous and that technological and PCC discourses are fluid.

Although in a micro-level contradictory organizational outcomes from IT use have been reported in the literature (Robey et al. 1999) and have also been identified in this research, over time and across organizations certain patterns of transformations may be possible to identify (Davidson et al. 2007). Such patterns might arise from the cumulative influence and interaction of institutionally triggered and technology-triggered change processes (Davidson et al. 2007). Those processes are influenced by and in turn influence local and mega discourses.

Hence to answer the question: “in what way ICT are implicated in transforming healthcare from an organization-centered model of delivery to a patient-centered model?” we need to learn from past developments, link policy and practice, and gain an appreciation of new organizational and technological trends. Those may give us glimpse of how healthcare might be changing, and more specifically what are the implications of new ICT for organizing healthcare.

This paper has attempted to illustrate one way of approaching this task. In doing so, it contributes to the discussion on the role of ICT in the transformation of healthcare and, more generally, in organizational change. Furthermore, the theorization of different roles of ICT discourse developed in this paper should provide a useful model for discourse-based studies of varied phenomena in a number of areas not just healthcare.

Implications for Research

To gain better understanding of processes of organizational change or transformation and the role ICT might play in them we need to move away from a confinement of one organization or a short frame of time, a stance also advocated by Currie (2011). By this I do not mean abandoning in-depth case study-based research but rather building on it to gain a picture over a period of time and spanning organizations. Hence, longitudinal research is needed (perhaps conducted by multi-professional research teams, allowing for appreciation of different perspectives).

Limitations of this paper

This paper attempted to present a longitudinal view of the role of ICT in the processes of change in the UK's NHS and healthcare more generally. However, this is a very difficult task to accomplish and even more so to present in one paper. Hence, a focus on two discourses was adopted, technological and patient-centered care, in order to theorize how interweaving of those has influenced the transformation of the NHS from organization-focused to patient-centered care. However, by focusing on those, and highlighting their construction and enactment much was omitted or underrepresented, not least power, a topic evermore present in IS research (Doolin 1999; Jasperson et al. 2002; Markus 1983), healthcare studies (Jensen 2008) and in discourse analysis (Fairclough 2005). Furthermore, it could be argued that the (new) institutional theory is particularly relevant to studying ICT-led transformation programmes, as argued by Currie (2011). Indeed, different theories might highlight and help to explain different phenomena. Thus, this study offers only one perspective amongst many others on a sub-set of issue concerning the chosen topic. For example, as mentioned earlier, ICT are implicated not only in PCC discourse but also evidence based medicine, arguably a very important topic in the study of healthcare.

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