# Rethinking resistance to 'big IT': a sociological study of why and when healthcare staff do not use nationally mandated information and communication technologies

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**Disclaimer:** this report contains transcripts of interviews conducted in the course of the research and includes language that may offend some readers.

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## Scientific summary

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# Scientific summary

## Background

Information and communication technology (ICT) programmes in health care fail partly because people do not use the technologies. Previous research on resistance has been dominated by rationalist models (such as the widely used technology acceptance model), which focus on the efficiency of a process and imply simplistic behavioural solutions. Social scientists have conceptualised the human agent differently (emphasising, for example, their complex and changing relationship to the technology, to other users, to the organisation and to wider society), and explained people's reluctance or inability to use technology in 'sociotechnical' and system-level terms. We sought to add to this sociologically informed literature specifically in relation to professional practice, asking why and how health professionals and their staff resist technologies that have been introduced as part of a national policy initiative that seeks to change their behaviour in particular ways. We took as our starting point the question 'what is excellence in clinical practice?' and the professional commitments that clinicians (and, by extension, the non-clinical staff in frontline health care) make to their patients. We also sought to go beyond simplistic models of 'technology adoption' by capturing and incorporating such factors as the complexity and unpredictability of healthcare work, the changing roles and practices of health professionals, the institutionalised nature of healthcare organisations and both the symbolic and the material properties of ICTs.

## Study design and method

We reviewed relevant sociological and philosophical literature, focusing in particular on the sociology of expert systems proposed by Anthony Giddens and the 'moral turn' in contemporary sociology, which emphasises what matters to people and considers what drives them in terms of 'doing the right thing'. This produced a new and challenging theorisation of clinical work and professional practice in an era of advanced ICTs.

In parallel with this literature review, and feeding iteratively into it, we undertook a secondary analysis of qualitative and quantitative data gathered for three previous in-depth case studies of ICT use in the English NHS, all gathered in the time period 2007–10. In each of these cases, we began with a much larger primary data set and selected for detailed analysis background material (e.g. policy documents, business plans) and small-scale examples (e.g. video capture or ethnographic field notes on real consultations) relevant to 'compliance with' or 'resistance to' the index technology.

In order to develop our theoretical model of resistance, we focused mainly on a data set on the practice of referral to hospital by general practitioners (GPs), for which the index technology was Choose and Book. This technology had been introduced in 2004 by the English Department of Health to help GPs and their patients to book hospital outpatient appointments remotely. It was anticipated by the original architects of the programme that remote booking would become standard practice once technical challenges were overcome. However, despite political pressure and financial incentives, Choose and Book remained unpopular and was used reluctantly or not at all by many GPs. Policy-makers framed this as a problem of 'clinician resistance'.

We considered Choose and Book as an expert system. Our data set comprised background documents, field notes, interviews, clinical consultations (directly observed and videotaped) and naturally occurring talk relating to referral to hospital in four general practices. We used Stones' strong structuration theory, Giddens' conceptualisation of expert systems, and sensitivity to other sociological perspectives on technology, institutions, the professions and values to examine the relationship between the external

environment, the evolving Choose and Book technology and the decisions and actions of human agents (GPs, administrators, managers and patients) in relation to outpatient referrals.

We subsequently tested this theoretical model to judge how well it explained the findings in two further data sets. One was an ethnographic study of chronic disease management in four English general practices, for which the index technology was electronic templates built into the local GP record and linked to the Quality and Outcomes Framework (which in turn reflected a national pay-for-performance policy). These templates were used extensively (though in a variety of different ways) by practice nurses but rarely by GPs. The other data set was from a national case study of emergency and unscheduled care encounters, for which the index technology was the Summary Care Record (SCR), a centrally stored extract from a person's general practice record and introduced as part of a policy to make electronic records widely accessible and thereby improve the quality and safety of care. At the time of our data collection, the SCR was rarely accessed, for complex reasons – again attributed by policy-makers to 'clinician resistance'.

## Results

A sociologically informed analysis of empirical and background data allowed us to produce a richer theorisation of why health professionals may 'resist' the use of ICTs that are linked to national policy initiatives. Our theorisation depicted the clinical encounter (and other practices within health care) as a social accomplishment, shaped and constrained by both social forces and the material properties of technology. The background to our theoretical model, which was developed for Choose and Book but which had explanatory power across all three examples in our sample, can be summarised as follows.

Much human action in the healthcare setting is driven by ethical and normative concerns – that is, clinicians seek to provide a professional service and be good doctors, nurses and so on; they and other staff strive to protect confidentiality, assure safety, provide advocacy for the vulnerable and allocate public resources fairly. These moral 'ends' are profoundly important to them and they strongly resist pressure to behave in ways that they experience as breaching these professional norms.

Health care is a complex and rapidly changing institutional field characterised by the pressures of 'modernisation'. There is increasing managerialisation and rationalisation of clinical tasks and processes, producing a tendency to focus on means ('doing the thing right') rather than ends ('doing the right thing'). This is partly a reflection of wider societal forces towards the (technology-supported) control and incentivisation of professional practice by means of expert systems. Clinicians struggle to align scientific–bureaucratic (rational, technical, means-oriented) and humanistic (practical, ethical, ends-oriented) institutional logics in the moment-by-moment unfolding of the clinical encounter. They must, for example, continually manage the tension between standardisation (e.g. a guideline, protocol or algorithm) and personalisation (responding sensitively and with professional judgement to the unique features and unfolding story of an individual case).

Information and communication technology programmes have particular material features and functions, and they may or may not operate as intended under particular conditions of use. Technologies that are clunky, counterintuitive, liable to freeze or crash or which make the system run perceptibly more slowly become, for all practical purposes, impossible to use in the busy, time-constrained world of public-sector health care. ICTs are not passive tools but (in a sense) active agents, contributing to particular constructions of both clinician and patient and opening up the traditionally private space of the clinical encounter to other voices and gazes. In some senses, they 'configure the user' – that is, their design implies particular roles and behaviours that users may find it difficult or impossible to adopt. Furthermore, the consequences of ICT use and non-use by frontline staff feed back into organisational routines and wider social structures, shaping and constraining what is possible, reasonable, legitimate and appropriate in the frontline clinical and administrative situation.

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Taking account of these influences, we identified four specific foci of resistance to the Choose and Book technology by healthcare staff. First, they resisted the 'choice' policy that the technology had been introduced to support. They did not accept the government's depiction of the sick patient as a 'rational chooser', able and willing to decide between potential options using encoded information, nor did they feel that such 'choice' was beneficial to patients or an effective way of improving service quality.

Second, they resisted the significant material limitations of the Choose and Book technology, especially when they were expected to use it within the tight time window of the clinical consultation. An aspect of this material limitation was cost, both of the Choose and Book system and of the human infrastructure needed to service it. Referrals sent electronically frequently encountered downstream glitches in the system, generating disproportionate volumes of work for staff to fix the problem. Practices found that they needed to invest heavily in administrators to support the so-called 'automated' referral system. Even the minority of participants who saw benefits to the Choose and Book system (e.g. that it put the patient in charge of following up the referral) pointed out the 'ludicrously' high costs of achieving those benefits.

Third, GPs (and many of their staff) resisted the interference of the expert system with local, contextual judgements. In this regard, Choose and Book exhibited the classic characteristics of an expert system: it served to 'empty out' the content of the consultation as the abstract knowledge it contained about hospital services and performance was assumed to have universal validity and to over-ride the GP's application of rich local knowledge and practical wisdom, often acquired over years of experience in a particular locality. If GPs acquiesce with the external imposition of expert systems, the organisation's culture steadily changes from a local, personalised service where staff and patients know each other by name to a distinctly bureaucratic ethos driven by (nationally) standard(ised) operating procedures.

Finally, healthcare staff resisted the altered social roles and relations consequent on the use of Choose and Book. Doctors described themselves as under pressure to be 'moving away from curing, caring and comforting to [become] robotic automata'; administrators felt a similar loss of the personal aspects of the family doctor service. There was a clear tendency for the technology to 'configure the user'. For example, the option of 'choice of hospital' enshrined in the policy and inscribed in the software effectively cast GPs as brokers of a set of hospital performance metrics that they themselves questioned.

When we applied this theoretical model to chronic disease management templates and the SCR, we found similar social and sociotechnical influences on how and why the technologies were resisted. In particular, we identified (to a greater or lesser degree in each case) resistance to underpinning policies that the technologies had been introduced to support; to the material properties of the technology including the direct and/or opportunity cost of the technology and the infrastructure needed to support it; to the 'emptying out' of the local, contingent detail of social interactions by the action-at-a-distance nature of the technology; and to the implications for social roles and relationships. In short, we demonstrated a consistent tendency for clinicians and other healthcare staff to resist the technology's propensity to focus on tasks and processes ('means') rather than the ultimate goals of care ('ends'). However, aspects of both the policy and the technology itself meant that 'resistance' to each technology played out differently.

## Conclusion

The clinical consultation is a complex social encounter in a heavily institutionalised environment. 'Resistance' to ICT use is a complex phenomenon with both normative and sociomaterial components. It is unlikely to be overcome using atheoretical behaviourist measures, nor would attempts to do this be desirable. Rather, we suggest a number of questions that should be asked when staff 'resist' using nationally mandated technologies: (1) what is the nature and justification of the policy that this technology was introduced to support?; (2) what are the material properties and limitations of the technology under conditions of expected use (including its cost and the opportunity cost of introducing and supporting it) and how do these properties shape and constrain the possibilities for action?; (3) to what extent, and in

what way, are local, contextual judgements attenuated or compromised when the technology is used?; and (4) what changes in social roles and relations are required or made possible when the technology is used? In particular, how does the technology 'configure the user' via inbuilt expectations for roles and behaviours, and what are the implications for professional identity and the delivery of high-quality, ethical care?

Upstream of these questions about resistance to the technology is a preliminary, overarching question about means versus ends: have professionals' (and other staff's) concerns about the *ends* (the achievement of high-quality, ethical practice) been fully acknowledged and addressed, or have these concerns been dismissed in the pursuit of *means* (efficiency of tasks and processes)?

Our findings are consistent with the conclusion that those who seek to reduce 'resistance' to centrally mandated IT systems should seek a dialogue with the world of professional values at the stage of design and implementation and show willingness to strike a balance between such virtual, remote systems and the exigencies of the local sites in which professional values are performed.

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