e-Government Leaders, Organisational Change and ICTs: Learning from FAME and other e-Government Experiences

James Carr[1] and Pat Gannon-Leary[2]
[1]University of Edinburgh, U.K
[2]Northumbria University, UK
james.carr@ed.ac.uk
pat.gannon-leary@unn.ac.uk

Abstract: So-called 'slow' adaptation to technological change is actually a characteristic of major innovations, particularly those requiring significant organisational change. The implementation of ICT to support government sector working is no exception: it is a complex socio-technical practice comprised of interrelated technical, cultural and organisational issues. As part of the "Framework for Multi-Agency Environments" (FAME: www.fame-uk.org) project interviews were conducted with leaders of e-government projects and with project managers responsible for local authority FAME strands. How far do leaders/managers think in terms of organisational change and what technology can do to help that objective, and how far do they think about the opportunities for organisational change that ICT developments might enable? Grounded theory method (GTM) is used in the context of local authority leadership to explore these issues.

Keywords: e-government leaders, organisational change, ICT, socio-technical practice, FAME, innofusion.

1. Introduction

This article examines the way in which leaders/mangers of UK e-government projects think about adaptation to the implementation of ICT to support their sector's work, implementation that may require significant organisational change. This examination is conducted using interviews with leaders of best practice UK e-government projects and with local authority project managers carried out during the Framework for Multi-Agency Environments (FAME: www.fame-uk.org) research programme, one of 22 national projects established by the UK Office of the Deputy Prime Minister (ODPM) to support the adoption of electronic government (e-government) by English local authorities. The national projects were designed to offer solutions to meet councils' needs and covered a wide range of aspects of local e-government including council websites, e-democracy and mobile technology. The first phase of FAME, in which the authors were involved, ran from April 2003 – October 2004 with six discrete projects (known as strands) led by local authorities throughout England. Each local strand worked with an IT supplier to produce a technical system for the exchange and management of client/patient information across agency and professional boundaries in a specific service. FAME Phase 2 (November 2004 –March 2005) consisted of experience sharing and dissemination activities. A third phase based in the north east of England (October 2005 – June 2006) is concerned with developing and promoting a transition to a multi-agency, multi-service shared infrastructure to support partnership and practice development. The authors' responsibilities as part of the multi-disciplinary team in the Centre for Social and Business Informatics at the University of Newcastle upon Tyne in 2004 were to conduct and interpret a number of case study interviews. Some of these were with leaders of e-gov projects outwith the FAME project while others were with project personnel involved in FAME strands. The methodology employed is qualitative and interpretivist in nature, an approach that is common in studies concerned with examining the broad implementation frame and the factors that shape technology experiments, To assist with "making sense" of the initial findings and to provide a sound theoretical base whilst providing practical implementation tips to e-government practitioners, the key themes identified are framed in terms of the Social Shaping of Technology (SST), Technology Implementation (TI) and Strategic Information Systems Planning (SISP) literature. Authors in these areas include Williams (1996) and Fleck (1987, 2001) whose work addresses applications of information and communication technologies (ICTs), the conceptions of technology held by the various players involved and their objectives for organisational change. Research into systems implementation (e.g. the work of Teo and Ang, 2001; Lee and Bai, 2003; Grover and Segars, 2005) has highlighted complex social processes capable of frustrating – or at least leading to modification – of the initial goals and conceptions of technology. Of particular relevance to this study are discussions in the literature about alignment of the business plan (BP) and SISP, the variables influencing BP: SISP integration and the impact of this integration on organisational performance (Teo and Ang, 2001). Another issue of relevance highlighted by Teo and Ang and by Grover and Segars (2005) involves the development of critical success factors (CSFs) leading to BP: SISP alignment. These are discussed in terms of the problems associated with three phases of SISP, namely input, process and outcome. In addition, the research conducted by Lee and Bai (2003) is highly relevant since it discusses the effects both of organisational factors and of inter-group behaviour on the success of SISP.

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2. Methodology

A modified grounded theory approach was chosen as the nature of the exploratory survey fitted with Glaser and Strauss' (1967) argument that theory (consisting of conceptual categories, their properties and relationships) should be derived from and illustrated by data. Given the exploratory nature of the research and a desire to understand how practitioners "define the situation" (Thomas, in Marshall and Rossman 1989:46), a qualitative approach seemed more suitable than a quantitative one. Furthermore, qualitative methods, for example unstructured or semi-structured interviews, are response - rather than question – oriented (Dickens 1987). Thus the flow of the interview is at least partly determined by respondents; it is not dictated by the format of a questionnaire (Dickens, 1987). Similarly, Walker (1985) notes that qualitative methods are flexible and opportunistic, thus allowing a great deal of data to be collected from a limited number of individuals. In addition, as McQuarrie and McIntyre (1988) claim, while focus groups may be best for researching common ideas, or those held by segments of the population, individual interview may be useful for eliciting idiosyncratic ideas. The grounded theory approach has several distinctive characteristics. Firstly, joint collection, coding and analysis of data are the underlying operations (Glaser and Strauss, 1967). The generation of theory, coupled with the notion of theory as process, requires that all these operations be completed together as much as possible (Glaser and Strauss, 1967). Secondly, grounded theory emerges from constant comparisons of instances from the data, so that tentative categories and their properties can be identified (Glaser and Strauss, 1967). The emergent elements of the theory are modified and developed by comparison with instances from subsequent fieldwork, and further categories and properties emerge (Glaser and Strauss, 1967). Throughout this process the researcher writes analytic memos, which serve to guide and record the emergent theory (Glaser and Strauss, 1967). Eventually, when fresh instances fail to indicate new aspects, categories are reduced to a smaller number of higher-order concepts (Glaser and Strauss, 1967).

Despite the fact that GTM was established 40 years ago, it is still used in a range of research settings and has been validated by Denzin (1994), Strauss and Corbin (1997) and Miller and Fredericks (1999). Creswell (1998, p. 56) explains that "The centrepiece of grounded theory research is the development or generation of a theory closely related to the context of the phenomenon being studied." GTM offers an accessible 'roadmap' when navigating the highways and byways of qualitative inquiry which involves talking with a range of stakeholders and observing interactions in a number of related environments Critics of GTM have included Layder (1993), Haig (1995), Dey (1999) Thomas and James (2006). However, as Robrecht (1995) points out, elaboration of procedures – which is advocated by its critics - can divert attention from the GTM data towards the GTM procedures, or, as Robrecht says elaboration can encourage researchers 'to look for data rather than look at data' (p. 171). While Thomas and James (2006) see no 'middle way' for GTM, despite his criticisms Dey (1999) sees GTM as capable of offering a 'middle way' between ideographic and nomothetic theorising. Charmaz (1995) similarly sees GTM as bridging traditional positivistic methods/interpretative. Her version of grounded theory 'fosters the researcher's viewing the data afresh, again and again' (2000, pp. 525-6), in order to seek meaning and make sense of it. Baker et al. (1992) describe how:

> *"[The] researchers' purpose in grounded theory is to explain a given social situation by identifying the core and subsidiary processes operating in it. The core process is the guiding principle underlying what is occurring in the situation and dominates the analysis because it links most of the other processes involved in an explanatory network."*
>
> *(Baker et al, 1992, 1357)*

Schatzman (1991, p. 304) describes GTM simply in terms of 'common interpretive acts'—of review, rehearsal, discussion, recognition, evaluation and coming to a conclusion. While deductive research begins with a pre-existing theory from which testable hypotheses are derived, GTM begins with observations from which generalisations can be made. Dey (1999, pp. 3-9) summarises the structure of current grounded theory research practice into stages of: (a) initiating research, (b) selecting data, (c) collecting data, (d) analysing data, and (e) concluding research. Inherent to GTM is the practice of concurrently selecting/collecting/analysing data until the categories developed become saturated and no new patterns emerge, i.e. conclusion.

2.1 Data analysis

Marshall and Rossman (1989) claim that data analysis brings order, structure and meaning to the material collected. They describe this process as:

> *"… A messy, ambiguous, time-consuming, creative and fascinating process. It does not proceed in a linear fashion; it is not neat. Qualitative data analysis is a search for general statements about relationships among categories of data; it builds grounded theory."* (Marshall and Rossman, 1989:112)

This certainly proved to be an accurate description. Ideally, the Glaser and Strauss (1967) approach of joint collection, coding and analysis of data would have been strictly followed. Due to time constraints, transcribing and detailed analysis took place once the interviews were completed. Between interviews however, tapes were listened to and the themes and ideas noted were fed into subsequent interviews. Following Thompson *et al.* (1989), a part-to-whole mode of interpretation was used in analysing the transcripts. Each transcript was first examined as a distinct entity for emergent themes and patterns. Separate transcripts were then related to each other in order to identify common themes. In generating themes, a balance was sought between "lived" and "conceptually abstract" concepts (Thompson et al., 1989). As Glaser and Strauss (1967) observe:

> *"To make theoretical sense of so much diversity in his data, the analyst is forced to develop ideas of generality higher in conceptual abstraction than the qualitative material being analysed."* (Glaser and Strauss, 1967:114)

Qualitative research, focusing on the informant's perspective, requires the researcher to "bracket" preconceived ideas and theories and to refrain from imposing them on the data. Nonetheless, Glaser and Strauss (1967) argue that some categories may be usefully borrowed from existing theory, although they may need to be adapted in some way to fit the data. When all the material from the interviews was coded, the transcripts were examined and compared in relation to particular themes. From the broad categories, more detailed concepts emerged at this stage. As suggested by Glaser and Strauss, lower-level concepts emerged more quickly while higher level or integrating concepts took longer. As "theoretical saturation" set in (Glaser and Strauss, 1967), few new insights into conceptual categories were obtained and the theory began to cohere. When data relating to each broad category had been analysed in this way, the notes or "analytic memos" written while coding were used to construct the analysis. The original transcripts were returned to frequently at this stage, to allow for checking of direct quotations or the clarification of the context of comments. Subsequent additional editing helped to make the theory more cohesive and provided another means of "triangulation" (Jick, 1979; Denzin, 1988; Marshall and Rossman, 1989) of research results.

3. Key themes emerging from the analysis

Five key themes emerged from the interview analysis. These were, firstly, technology-driven visions; secondly the scale of change required; thirdly the management of expectations; fourthly the development of skills in negotiation, communication and collaboration with a wide range of technology players; and finally, the development of a learning organisation. This article seeks to exam each of these themes using GTM.

3.1 Technology-driven visions

Williams (1996) argues that it is difficult to a assess the prospects and societal implications of new ICTs when experience is extremely limited and initial applications may be far from typical of future offerings. He points to the problems with basingdiscussions of the utility of new ICTs upon future visions, driven predominantly by technology and informed by supplier perspectives:*"Technical specialists have tended to underestimate the complexity of application areas, and the consequent difficulties of applying ICTs, which has contributed to the repeated experience that ICTs fail to meet the expectations generated by technology-driven visions."* (Williams, 1996)

Williams contends that supplier product announcements may amount to little more than 'vapourware', that acts to shape the behaviour of competitors and collaborators and there is a danger that expectations may become too far removed from emerging capabilities. In agreement with this view, one interviewee expressed the problems surrounding the uncertainty generated by visions of future offerings in terms of resource and project planning:

> *"Resource planning is very difficult when dealing with new technologies because you don't know what is involved… how long it is going to take so when you've got time-limited projects where you really have to deliver that proves very difficult and uncertain."* (Leader F, FAME 2004)

In contrast, one leader proposed a more positive side to the notion of 'vapourware' in that it can help to raise expectations that lead to practical implementation:

> *"Promotion /publicity always helps. Sometimes you can find that it is beneficial to promote something that is still vapourware because once there is an expectation raised people might actually come along and help you to configure it."* (Leader J, FAME 2004)

Another leader pointed to the need for knowledge management, and an understanding of knowledge management (KM) by senior management, as a potential answer to this problem:

> *"The number of times people have asked me for a project plan and you kind of put your finger in the air just for the sake of it and I hate doing that. We don't know how to work like that, do we? We haven't found a way of doing that yet …there's maybe academic interest in how that can be delivered. It's not an uncommon problem. I did work around knowledge management a while ago but … senior managers don't understand unfortunately, but everything we do is knowledge management … I think its just such a big subject."* (Leader D, FAME 2004)

In the strategic information systems planning (SISP) literature, Schultze and Boland (2000) point out that those who would implement KM systems should develop ICT solutions consistent with the knowledge work practices of the intended user communities. To do this, Schultze and Boland explain, needs a practice-oriented approach focussed on what people '*actually*' do rather than on what they *say* they do or on what they ought to be doing. They cite the work of Pickering (1992) and Suchman (1995) which highlights the relevance of practice-orientation to KM because technology partners do not always have accepted models for the complex, 'invisible' nature of the work practices that KM technologies are expected to support. Project managers and others involved in the FAME strands typically expressed the importance of strategic and practitioner buy-in in words to the effect that 'the technology will be easy – the real challenge will be changing the ways people work – changing culture'. As time moved on however the magnitude of technical impediments to success became more and more obvious and threatening. It was acknowledged with hindsight that work on integration with core Social Services systems and (where appropriate) with NHSNET should have begun much sooner. Very late in the project one project manager raised the issue that the technology partners, in her view, were not delivering 'live integration' as promised. Almost every participant in FAME, including the technology partners, insisted that it was about workforce change and business processes:

> *"Our main contribution to FAME is that we are driven by change management and implementation - not IT."* (Strand 1 spokesperson, FAME 2003)

> *"We thought the most difficult thing would be joining all the people which is what we were told, that the technical thing was just something somebody wrote and it was easy and this is what we were told all the time and it has actually turned out to be completely the other way round."* (Strand 2 spokesperson, FAME 2004)

Although some claimed that others (mistakenly) thought it was about technology, the FAME researchers did not encounter anyone who made such an assertion. There were comments, in the early days of the project, that the technology was easy while people, organisations and culture were difficult. In practice implementing technical solutions was far from easy and the most damaging delays resulted from struggles with integration. The judgment of the FAME researchers– based on evidence from within and beyond the FAME strands – is that the technology / practice dichotomy is misleading and unhelpful. Multi agency practice and ICT should be understood as two facets of the same whole.

3.2 The scale of change

It is widely reported in the SST and Technology Implementation literature that radical technology implementation programmes within organisations and industries require considerable changes in the nature of work. Two interviewees commented on the scale of change required and also the need for having a clear idea of what is trying to be achieved:

> *"Don't underestimate the size of the business change programme. All too often we get tied up in 'let's introduce the new technology to improve things' and we don't give enough time and effort to changing the way we work."* (Leader D, FAME 2004)

> *"Issues of procedural change and changes to working practices should not be underestimated."* (Strand 5 manager, FAME 2004)

Technology does not provide "quick fix" solutions and large amount of time and effort is required to change business processes and ways of working – technology implementation for use within the organisation is bound to affect, and be affected by, the organisation itself (Fleck *et al.*, 2001). Furthermore, Fleck *et al.* state that the implementation process varies across different contexts of use even with the same technology, and this has the consequence that the adoption and diffusion of new technologies will often be much slower than that predicted by government visionaries and technology producers. The FAME Strand 3 Manager reported that the problems with implementation in her city were not to do with the technological functioning of the system. (There were one or two bugs, which were fixed.) The problems with implementation were to do with the change management agenda – the re-engineering of business processes. What she felt was needed in the city was a 'system champion' – to meet with the users to find out what the problems were. She managed

to secure a change of funding that would have gone to project management in the city to go to resourcing a practitioner champion. It is extremely important to engage and enthuse practitioners and to keep up their interest in using the system after it goes 'live'. A 'change champion' can animate interest and help to avoid people drifting back to their old practices. In the SISP literature, Grover and Segars (2005) discuss the evolution of SISP within an organisation and how it requires adaptability, characterised by diverse participation by large numbers across hierarchical levels and functions. Additional characteristics of adaptability include frequent SISP related meetings and open feedback systems, a characteristic discussed in the next section on the management of expectations.

3.3 Management of expectations

The need for very clear communications about what is trying to be achieved through e-government implementation projects was expressed by one leader:

> *"Managing expectations is very important: be very clear what you are trying to achieve and what is outside of the scope of the project …without that you prove to disappoint some people…"* (Leader B, FAME 2004)

There is a need to be clear about what is within and what is outwith the scope of the programme. Lack of awareness will lead to disappointment and negativity about the effects of the introduction of new technology:

> *"… You need to draw the map before you go on the journey."* (Leader G, FAME 2004)

In the wider SISP literature, Watts and Henderson (2006) discuss the importance of the reality-check, which shifts the aspiration levels of others towards realisable goals. Lim et al (2005) discuss how misalignment between user expectations and managerial policies may fuel user resistance to ICTs introduction. Lim et al's work indicates that without convergence in 'valence' (the perceived value an individual attaches to the actual rewards) between rewards and user expectations, system users are likely to suspend – or at best maintain threshold-level – usage of systems. Lederer and Mirani (1995) have referred to the concept of SISPs as bestowing benefits upon the organisation. Anticipated benefits can create management and staff expectations, which will be disappointed if those benefits are not attained. Lederer and Mirani also point out that expectations afford an opportunity to evaluate projects. For the learning and evaluation study of FAME the researchers attempted to gain understanding of practitioners' expectations of FAME. A Strand 4 respondent professed, in September 2004 to being a 'cautious sceptic' about FAME. The NHS history of IT developments, she said, has not been as one would hope. She was particularly concerned that expectations of her staff would be raised to anticipate more than the system would deliver. Her wariness was somewhat justified by the practitioner experiences up to and including September 2004 when one manager attributed low usage of the new system to early difficulties they had experienced with access. This was corroborated by questionnaire responses when 75% of respondents answered an open ended question about barriers to using FAME with reference to technical problems, for example, 'system failure, denied access' and 'time, reliability and speed of access'.

Lederer and Mirani (1995) have discussed some of the potential benefits of SISPs which include faster retrieval/delivery of information; improved accuracy/reliability of information; facilitation of systems development; improving management planning and control; speeding up productivity; and customer-related developments. When key personnel from the local FAME strands elaborated upon and explained their expectations around the objectives and desired outcomes stated in the project initiation documents (PIDS), all articulated service sector / client group specific variations on the themes of better ability to meet needs and increased user satisfaction, i.e. customer-focused benefits consistent with the SISP literature (Orli and Tom, 1987; Rivard and Kaiser, 1989; Sullivan-Trainor, 1989). All key personnel linked information sharing, and multi agency working to these outcomes – sometimes drawing upon their experiences to explain how this should work. Tools for assessing the outcomes of partnerships are less well developed than tools for assessing the process. Assessment of outcomes is likely to be made from the different perspectives of different stakeholders. The fact that partnership organisations may have differing expectations as well as differing points of view compounds the complexity of outcomes evaluation (Thomas and Palfrey 1996). In examining the implementation and rollout of new partnership arrangements it is necessary to look vertically at all levels and horizontally at impact on other organisations and services. An identified risk in some PIDs was unrealistic expectations of the project and, as a result, a perception of project failure. A measure to counteract these was to ensure there was regular consultation and communication with stakeholders. In some projects this took the form of a stakeholder group. In others it comprised a members' reference group. There was some representation of service users on such groups. One service user – the lone representative of service users on the Strand 4 stakeholder group said:

> *"I came away at times feeling tokenism, not being listened to…being patronised…. My overall impression is that the service user's voice is not heard properly."* (Strand 4 service user)

This service had a service users' coordinator who tried to support FAME by finding individuals for the stakeholder group and to get involved with the launches. However this proved unsuccessful:

> *"Whenever you talk about IT to service users you get the glazed over look… Service users are keen to get involved in their service but they don't seem to be keen to get involved in the IT part."* (Strand 4 coordinator)

3.4 Development of skills

Pinch and Bijker (1984) claim that the range of players involved in technological innovation (for example technical specialists from supplier organisations, suppliers of complementary as well as competing products, consultants, policymakers, existing and potential users) tend to have very different understandings of technology and its use. Furthermore each has a different relationship to the technology and varying commitments in terms of past experience and expertise (Williams, 1996). Thus for SST commentators, a key aspect of technologies is their negotiability: artefacts emerge through a complex process of action and interaction between heterogeneous players, rather than being determined by any one player (Williams, 1996). Implications for leaders of technology implementation projects are that they need to be adept at judging the different stances of the various players involved; negotiating, communicating, collaborating and building trust with these players; and at understanding the impact this will have on the success of technology implementation programmes:

> *"It is no good just talking to the Chief Executive or just talking to the head of whatever or just talking to the person on the ground who deals with it, you have to hit all 3 levels to get buy-in...."* (Interviewee B, 2005)

> *"Do not have any closed doors whatsoever behind which discussions take place … make sure that all the people in the partnership and all the processes in the partnership are transparent…. It's about that feeling of trust … and you can only do it by working together and talking around a table."* (Interviewee C, 2005)

From the SISP literature, Min et al (1999) stress the importance of skills development, especially in terms of project management skills such as progress control, quality assurance and development coordination. Over half of Teo and Ang (2001)'s respondents identified the delegation of planning responsibility to an individual without sufficient experience as a major problem in SISP. Selected individuals need to be not only technically proficient and committed, but also able to motivate people and able to compete/negotiate for scarce resources FAME Strand 3 came to be seen by other FAME strands as a leader in confronting problems that became common to all such as negotiating with third party IT suppliers. Experiences on the project were very valuable for the future in that they informed the approaches of senior local authority personnel to multi-agency planning and IT, for example in negotiating with IT suppliers and being aware of what questions to ask them. Whereas other local FAME projects had to negotiate with one core system supplier for social services there were five in Strand 3. As anticipated, this complexity bedevilled the project. Setbacks and delays to design and implementation were repeatedly caused by problems associated with integration between the technical provider's system and these core systems. The FAME project managers identified linking with core systems as a key risk to the success of the project. One Strand 4 project manager described negotiating with a third party supplier as akin to "treading on eggshells".

As highlighted in the previous section, good communications are vital and include examples such as the clarification on the partnership agreements; the identification of ways in which cross-contacts can be developed and cross-working encouraged; involvement of technical providers fully in communications plans; the use of mechanisms such as websites and monthly newsletters, into which partners can feed, to keep all informed; the successful cascading of information within partners and the development of a strong training package. In the ISIP literature, Lee and Bai (2003) make the point that interaction between business and IS strategy results in organisational changes in not only tasks and skills, as discussed above, but also in managerial styles, values and organisational structure. They discuss IS/IT planning modes and the transition from the technology-led mode to the align mode to the impact mode and thereon to the fit mode. The technology-led mode reiterates the issues discussed in the section on the avoidance of technology-driven visions above in that it fails to adequately address organisational requirements and resources. The align mode echoes the issues discussed in the above section on underestimating the scale of change required since it places over-reliance on business plans and tends to be reactive rather than proactive. The impact mode leads onto the next section since it helps create and justify new uses of ICTs and, by so doing, facilitates the development of a learning organisation.

3.5 Development of a learning organisation

Learning organisations have been defined as organisations that

> *"Promote collective learning so as to enable the continuous capacity to adopt innovations and thereby change."* (Mohanty and Deshmukh, 1999, cited by Selen, 2000, p.347).

Characteristics of a learning organisation, according to Senge (1990), include a shared vision; the discarding of old ways of thinking/standard problem-solving routines; the regarding of all organisational processes, activities, functions and interactions with the environment as part of the system; open communications; and the sublimation of self/departmental interests to work together to achieve the organisation's shared vision. An important insight in the SST literature is seen to arise from the notion of *innofusion* (Fleck, 1987). This is used to explain the important innovative effort as suppliers and users adapt supplier offerings to their particular context of use - that is the outcome of the protracted learning processes involving both suppliers and users as technologies are applied and used, which results in the discovery of new user needs and requirements and further innovation. The importance of this innovation around the application and use of technologies further underlines the problem of understanding fully the potential uses of a technology at the beginning of a project (Williams, 1996). One leader, reflecting at the end of the interview on the discussion that had taken place, in effect remarked on the importance of the notion of *innofusion* and the complex nature of technology implementation in different contexts of use:

> *"A lot of that [the interview discussion] is what I've been doing, my kind of bearing on multi-agency working …it doesn't really address the core of it, the core of it is addressed by experiences and difficulties … and I don't have any simple answers."* (Leader A, 2004)

Implications for leaders of e-government projects are that they need to fully appreciate, and act upon, the fact that the implementation test ground provides an often-overlooked site of vital innovation knowledge (Williams, 1996). One leader seemed to recognise this explicitly:

> *"There's a lot of change and that's why for the overall transformation process we actually spend a large degree of time observing how the system actually works and understanding how it is going to have to change in order to accommodate this front/back office split."* (Leader E, 2004)

The importance of users, who have a vital part to play in the innovation process (Hippel, 1988, Swanson, 1988, Williams and Edge, 1996), should also not be overlooked in the observation and design of new computer systems. Another implication is the opportunity to learn from failure, or social learning as Van Lieshout et al. (2001) call it. Rather than disregarding projects that do not immediately provide benefits to the organisation, make time within the organisation to reflect and learn from technology implementation "failures" along the way. In this way there is more chance of obtaining "buy-in" to technology change programmes, as one leader commented:

> *"Build in time for lessons that it throws out and the communication to fully understand the lessons… You've got to reflect on the pilot and, having reflected on it, communicate what now needs to happen in order to build on it. You get the buy-in that way, finding out what works and what doesn't*…."(Leader J, 2004)

Social learning can also emerge through following up on best practice examples provided by key e-government agencies and seeking out advice to avoid "reinventing the wheel":*"There are lots of examples of good practice and one of the things to do is to keep your eyes open for places where they have already advertised success… Don't reinvent the wheel if you can avoid it. Somebody's had to be a pioneer and they probably had to do everything the hard way and they may well have some short cuts for you."* (Leader J, 2004)

There is also the possible need to set up a dedicated technology RandD department if one does not already exist in the organisation:

> *"We realised there was a need for an in-house RandD function to look at new technology. With this project we won the funding and then we realised we didn't know about this type of technology and the clock was ticking...."*(Leader I, 2004)

FAME provided some valuable learning experiences that local authority personnel will take into future negotiations: As one senior manager explained:

> *"For those of us who are not from an IT background, it is difficult to see behind the glossy sell aspect… when I meet with IT providers now, I am more aware of relevant questions to ask and less hooked by the product-selling alone.…The FAME project has helped me to be confident in …putting forward an argument why we should not buy a particular package at this stage."* (Strand manager 2, 2004)

4. Conclusions

Table 1 Identifies the key themes discussed in this article along with bullet points to encapsulate how the resulting theory/concepts emerged from the research process.

Key themes	How resulting theory/concepts emerged
Technology driven visions (TDV)	Expectations: capabilities gap ICTs fail to meet expectations Resource planning problematic Projects time-limited Tech solutions experience unforeseen delays + tech impediments SMT lack understanding of KM Practice orientation to KM ICT solutions to be consistent with KM practices of targeted users What is actually done vs. what users say they do TPs don't have models for 'invisible' practices *Drivers = change management + implementation NOT Technology*
The scale of change (SOC)	Technology will not provide a 'quick fix' Tech implementation → changes in the nature of work Time + effort needed to change working ways, procedures, practices Adaptability is key Diverse participation across hierarchical levels + functions Change champions needed to engage + enthuse Frequent meetings + open feedback systems *Implementation problems less with technology and more with change management*
The management of expectations	Need reality check + realisable goals Diverse participation across hierarchical levels + functions (SOC) Impact assessment across hierarchical levels different Frequent meetings + open feedback systems (SOC) Consultation and communication, not tokenism Expectations: capabilities gap (TDV) Expectations: actualities gap User expectations: managerial policies gap 'Valence' expectations = rewards *Unrealistic expectations → perceptions of failure*
The development of skills	Range of players in technological innovations Different understanding of ICTs + use Different relationships to technology Varying commitments to technology Project leaders to develop skills – negotiating, communicating, collaborating, trust-building – in order to get buy-in Frequent meetings + open feedback systems (SOC) *Business: IS interaction → Organisational changes → development of skills*
The development of a learning organisation	Shared vision + sublimation of self-interest Holistic view of system Management of change Understanding of need for change Discarding old ways of working Learn from failure (own and others) along the way Become reflective practitioners *Take learning experiences forward to future negotiations*

NB. KM = Knowledge Management

So-called 'slow' adaptation to technological change is actually a characteristic of major innovations, particularly those requiring significant organisational change (Freeman, 1997). As the research reported in this article discovered, the implementation of ICTs to support government sector working is no exception - the implementation of major e-government projects is thus likely to be much slower than that predicted by government visionaries and technology producers. The key themes identified by e-government project

leaders presented in this article can be related to common issues in the SST, TI and SISP literature, including:

- the problem with narrow technological determinist views owing to the high expectations that often surround the introduction of novel technologies to existing organisational practices;
- technology implementation is a complex and uncertain socio-technical practice comprised of interrelated technical, cultural and organisational issues;
- innovation is not restricted to technology supply but continues throughout the entire implementation process;
- the need to create the space for *innofusion* (the mutual adaptation of technology and work within specific organisational contexts) to occur within and between organisations through the development of learning organisations.

The key overall lesson for government visionaries is that complex technological change programmes take a long time to implement effectively owing to the disorientation they cause to practitioners and users alike – there is no such thing as a "quick-fix" solution. E-government experiments require the transformation of local authorities into learning organisations. This important cultural shift can be assisted through partnering with universities that have a track record in the social sciences and informatics disciplines.

References

Baines, S., Gannon-Leary, P. and Walsh, S. (2004) FrAmework for Multi-Agency Environments (FAME): Final Report of the Learning and Evaluation Strand. [online] SBI, Newcastle
http://www.fame-uk.org/about/strand/downloads/decemberReport.pdf

Baker, C., Wuest, J. and Stern, P.N. (1992) Method slurring: the grounded theory/phenomenology example, Journal of Advanced Nursing, 17, 1355-60.

Charmaz, K. (1995) Grounded theory, in: J. A. Smith, R. Harre´ and L. Van Langenhove (Eds) Rethinking methods in psychology (London, Sage), 27–49.

Charmaz, K. (2000) Grounded theory: objectivist and constructivist methods, in: N. K. Denzin and Y. E. Lincoln (Eds) Handbook of qualitative research (2nd edn) (Thousand Oaks, CA, Sage), 509–535.

Denzin, N. K. (1994) The art and politics of interpretation, in: N. K. Denzin and Y. S. Lincoln (Eds) Handbook of qualitative research (Thousand Oaks, CA, Sage), 500–515.

Denzin, N.K. (1988). Triangulation, in J.P. Keeves (ed.) Educational research, methodology, and measurement, Oxford: Pergamon Press, 511-513.

Dey, I. (1999) Grounding grounded theory—guidelines for qualitative inquiry, London, Academic Press.

Dickens, J. (1987) The fresh cream cake market: the use of qualitative research as part of a consumer research programme, in U. Bradley (ed.) Applied marketing and social research, Chichester: Wiley.

Fleck, J. (1987) Innofusion or Diffusation? The Nature of Technological Development in Robotics, Invited paper for a workshop: Automatisation Programmable Conditions d'Usage du Travail, Paris, April 1987. (Also available as Edinburgh PICT Working Paper No. 4, 1988.)

Fleck, J. et al. (2001) Implementation distance learning module, Technology and Innovation Management in Europe (TIME) project, Department of Business Studies, The University of Edinburgh, Edinburgh.

Freeman, C. (1997) The Economics of Industrial Innovation (3rd ed.) Pinter, London.

Glaser, B. and Strauss, A. (1967) The discovery of grounded theory: strategies for qualitative research, Aldine, Chicago.

Grover, V. and Segars, A.H. (2005) An empirical evaluation of stages of strategic information systems planning: patterns of process design and effectiveness, *Information and Management*, 42 (5), 761-779

Haig, B. D. (1995) Grounded theory as scientific method, Philosophy of Education 1995: Current issues (Urbana, IL, University of Illinois Press), 281–290.

Hippel, E. von (1988) The Sources of Innovation, Oxford University Press.

Jick, T., (1979) Mixing qualitative and quantitative methods: triangulation in action, Administrative Science Quarterly, December, 602-611.

Layder, D. (1993) New strategies in social research : an introduction and guide (Cambridge, Polity Press).

Lee, G.G and Bai, R.J. (2003) Organisational mechanisms for successful IS/IT strategic planning in the digital era. Management Decision, 41 (1), 32-42.

Lim, E., Pan, S.L. and Tan, C.W. (2005) Managing user acceptance towards enterprise resource planning (ERP) systems - understanding the dissonance between user expectations and managerial policies European Journal of Information Systems, 14 (2). 135-149. Marshall, C. and Rossman, G.B., (1989) Designing qualitative research, Beverley Hills, CA: Sage.

McQuarrie, E.F., and McIntyre, S.H. (1988) Conceptual underpinnings for the use of group interviews in consumer research, in M. J. Houston (ed.) Advances in Consumer Research, 15, Provo, UT: Association for Consumer Research, 580-586.

Miller, S. and Fredericks, M. (1999) How does grounded theory explain? Qualitative Inquiry, 9, 538–551.

Min, S.K., Suh, E.H. and Kim, S.Y. (1999) An integrated approach toward strategic information systems planning. Journal of Strategic Information Systems, 8, 373–394

Mohanty, R.P. and Deshmukh, S.G. (1999), `Evaluating manufacturing strategy for a learning organisation: a case', International Journal of Operations and Production Management, 19 (3), 308-27.
Orli, R.J. and Tom, J.C. (1987) If it's worth more than it costs, buy it! Journal of Information Systems Management, 4 (3), 85-9.
Pai, J-C et al (2005) Toward an understanding of ISSP research: issues, trends and future research BAI2005. International Conference on Business and Information, Hong Kong, July 14-15. [online]
http://atisr.org/conference/BAI2005CD/Paper/2005bai146.doc
Pickering, A. (1992) Science as Practice and Culture, University of Chicago Press, Chicago, IL
Pinch, T. and Bijker, W. (1984) The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology might Benefit Each Other, Social Studies of Science, Vol. 14, No. 3, pp. 399-441.
Rivard, E. and Kaiser, K. (1989) Benefits of quality IS. Datamation, 35 (2), 53-58.
Robrecht, L. (1995) Grounded theory: evolving methods, Qualitative Health Research, 5, 169–177.
Schultze, U. and Boland, R. (2000) Knowledge Management Technology and the Reproduction of Knowledge Work Practices, Journal of Strategic Information Systems, 9 (2/3), 193-212.
Selen, W. (2000) Knowledge management in resource-based competitive environments: a roadmap for building learning organisations, Journal of Knowledge Management, 4 (4), 346-353
Senge, P. (1990) The Fifth Discipline, Doubleday, New York, NY.
Strauss, A. and Corbin, J. (Eds) (1997) Grounded theory in practice, Thousand Oaks, CA, Sage.
Suchman, L. (1995) Making work visible, Communications of the ACM, 38 (9), 56–64.
Sullivan-Trainer, M.L. (1989) Push for proof of information systems payoff, Computerworld, 23 (14), 55-61.
Swanson, E.B. (1988) The Implementation Puzzle: Identifying the Pieces, Information Systems Implementation, Irwin: Homewood Illinois, 1-16.
Teo, T.S.H. and Ang, J.S.K. (2001) An examination of major IS planning problems, International Journal of Information Management , 21, 457–470
Thomas, G. and James, D. (2006) Reinventing grounded theory: some questions about theory, ground and discovery, British Educational Research Journal, 32 (6), 767-795.
Thomas, P. and Palfrey, C. (1996) Evaluation: stakeholder-focused criteria, Social Policy and Administration, 30 (2), 125–42.
Thompson et al. (1989) Putting consumer experience back into consumer research: the philosophy and method of existential-phenomenology, Journal of Consumer Research, 16, September, 133-145.
Van Lieshout et al. (eds) (2001) Social Learning Technologies: The introduction of multimedia in education, Ashgate, Aldershot.
Walker, R. (1985) Applied qualitative research, Aldershot: Gower.
Watts, S. and Henderson, J.C. (2006) Innovative IT climates: CIO perspectives, Journal of Strategic Information Systems, 15, 125–151.
Williams, R. (1996) The Social Shaping of Information and Communication Technologies, [online] Research Centre for Social Sciences, Edinburgh.
http://www.rcss.ed.ac.uk/SLIM/public/phase1/SSICT.html
Williams, R. and Edge, D. (1996) The Social Shaping of Technology, Research Policy, 25, 856-899.

