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Abstract

The relationship between technological expertise and organisational decision making has always been complex and moving this to the public sector only increases the complexity. This paper uses a longitudinal case study to present four critical incidents about the implementation of one such scheme in the UK and analyses these to determine the nature of this relationship in the public sector. By drawing on insights from science and technology studies about the nature of scientific and technological expertise it argues that the parliamentary debate and decision making about the technological aspects of the proposed policy was based on a misplaced confidence espoused as technological certainty rather than confidence in the underlying policy proposals. This misplaced confidence led to many problems in the implementation of the Scheme and, this paper argues, could have been avoided had a clearer understanding of the relationship between technological expertise, certainty and organisational decision making been found.

Keywords: Public sector; technological expertise; decision making; identity cards; science and technology studies

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Abstract

The relationship between technological expertise and organisational decision making has always been complex and moving this to the public sector only increases the complexity. This paper uses a longitudinal case study to present four critical incidents about the implementation of one such scheme in the UK and analyses these to determine the nature of this relationship in the public sector. By drawing on insights from science and technology studies about the nature of scientific and technological expertise it argues that the parliamentary debate and decision making about the technological aspects of the proposed policy was based on a misplaced confidence espoused as technological certainty rather than confidence in the underlying policy proposals. This misplaced confidence led to many problems in the implementation of the Scheme and, this paper argues, could have been avoided had a clearer understanding of the relationship between technological expertise, certainty and organisational decision making been found.

Keywords

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Introduction

Information technology is playing an increasingly important role in the implementation of most aspects of public policy ranging from taxation and border control to the payment of welfare benefits and other forms of social security (Avgerou & McGrath, 2007; Dunleavy et al., 2006). Elected public servants, however, are as likely to have as little technological knowledge as most non-technical senior executives and as such will have to rely on specialists to guide them about the technological aspects of the proposals (Bassellier et al., 2003).

In some cases this specialist advice may lead to technological systems that follow from policy initiatives, whilst in others advances in technology might result in new policy opportunities that were previously unimaginable. For example, the collection of taxes based on income levels might be implemented on a computer system based on a (politically driven) decision about appropriate levels of taxation, whilst the opportunity to allow tax returns to be made online (and hence minimise the transaction costs of the process for both the citizen and the state) would not have been considered effective before the widespread introduction of the internet.

This tension between technology leading organisational innovation and technology following organisational innovation in the public sector has direct parallels with similar debates in the private sector where information systems were seen, at different times, as providing opportunities for competitive advantage (Porter & Millar, 1985), supporting organisational innovation and restructuring (Davenport, 1993; Hammer & Champy, 1993) to becoming a necessary but not sufficient condition for operating in the global economy (Carr, 2003). Both sectors, therefore, raise important questions about the relationship between technological knowledge and expertise (typically provided by information systems specialists) and the processes of organisational and institutional decision making (often

undertaken by senior ‘managers’ with limited knowledge of technological issues) that use this knowledge.

There is extensive research into many aspects of this relationship in the private sector, covering for example the IT experience of business managers (Bassellier et al., 2003), how technological expertise and prior success (Martins & Kambil, 1999) might lead to overconfidence (Simon & Houghton, 2003) or project escalation (Keil, 1995) as well as the limited attention spans of directors for IT matters (Huff et al., 2006).

Far less is known about the role that technological expertise plays in decision making in the public sector, despite the fact that the process is likely to be much more open (for example, Parliamentary debates are a matter of public record) and can potentially draw on more detailed expert advice than similar private sector decisions. In addition, many public sector systems are of a vastly larger scale than most private sector systems (Willcocks & Kern, 1998), with public sector successes and failures often having a far higher profile than the equivalent private sector systems (e.g. BBC News, 2007; Beynon-Davies, 1995)

This paper explores public sector deliberation about technological decisions by focussing on public statements about the use of technological knowledge made during the decision making process, rather than surveys of managers or interviews with key individuals. It is argued that the majority of such public statements will have been carefully prepared and, as such, be a good representation of the government’s understanding of the technology at the time. Thus, when a senior politician tells Parliament that the government had learned the lessons of previous IT failures and knows exactly what it is doing, it is likely that this reflects the government’s current thinking on this matter as the minister will have been briefed and given detailed notes about the proposals before making the statement.

The purpose of this paper is therefore to review a representative series of such public statements about the technological expertise that underlies government decision making

about one major public sector IT project in the United Kingdom and use these statements as a basis for inferring the relationship between technological expertise and public sector decision making about technology. A series of recommendations for policy practice, as well as areas for further research follow from this relationship.

The structure of the paper is as follows. The next section reviews the differing relationships between technological expertise and organisational decision making in the public and private sectors before introducing the case study used in this paper, the UK's proposals for a biometric identity card scheme. This is followed by a discussion of the data collection approach used and a presentation of data from the critical incidents associated with the Scheme. The paper then relates these incidents with the existing literature before inferring the relationship between technological expertise and decision making in the public sector and making recommendations for practice and research.

Technological expertise and organisational decision making

The relationship between technology and organisational processes in the public and private sector has varied considerably over time (Bassellier et al., 2003). By definition, in the private sector decisions about the earliest business applications of computers were made on the basis of limited existing technological expertise (Caminer et al., 1998; Ferry, 2003; Glass, 2005). As a result, decisions about what processes could be automated / supplemented by computing resources were typically made on the basis of existing expertise in 'systems research' and 'organisation and methods' (Ferry, 2003).

The emergence of a distinct cadre of technological specialists, often experimenting with technological systems (Ciborra, 1991) led, in the 1980s to what have been called 'strategic information systems' (Earl, 1993; Galliers, 1991; Johnston & Carrico, 1988; King, 1978; Somogyi & Galliers, 1987). Drawing on a number of classic case studies, the argument was made that technologically driven innovation was the key to successful, sustained competitive

advantage (Cash & Konsynski, 1985; Ives & Learmonth, 1984; McFarlan, 1984; Porter, 1985; Porter & Millar, 1985). Decisions about changes to organisational processes were therefore believed to be heavily influenced by the successful incorporation of this technological expertise by senior managers who would adapt their organisations to reflect the opportunities offered by technology.

By the late 1980s, however, this technology driven approach was being replaced with a more process oriented perspective (Davenport, 1993; Hammer & Champy, 1993). Here the argument was based on focussing on the key business processes of the organisation and using technology to support the reengineering of business activities around these key processes (Hammer, 1990). At this time, therefore, technological expertise had reverted to a more subsidiary role in organisational life, supporting the reorganisation of business processes.

The advent of the internet as a means of supporting interorganizational systems (Benjamin et al., 1990; Johnston & Vitale, 1988) reasserted the role of technological experts in providing opportunities for technology driven innovative business practices (Castells, 1996) which have, in many cases, now become standard practices that all in a particular industry need to mimic (Carr, 2003).

Technological decisions in the public sector have followed this pattern, although perhaps with less violent fluctuations, partly as a result of the conservatism inherent in most civil service organisations and partly because of the scale issues associated with any large scale public sector innovation (Dunleavy et al., 2006). This is not to say, however, that there have not been attempts at innovation in the public sector, particularly in terms of the new public management agenda (Barzelay, 1992; Bevir et al., 2003; Hood, 1996; The Cabinet Office, 1999) and e-government (Fountain, 2001; Ho, 2002; Moon & Norris, 2005; West, 2004)

Technological uncertainty

An important element of technological decision making arises from the relationship between expertise, technological knowledge and uncertainty about technological issues. This element has some counter-intuitive characteristics which have been identified by the social studies of science and technology, which argue that increased technological knowledge can lead to increased technological uncertainty rather than the more intuitive logic whereby increased knowledge reduces uncertainty.

The social studies of science and technology (e.g. Bauchspies et al., 2006; Sismondo, 2004; Yearley, 2005) has sought to understand the nature of scientific and technological expertise. Through detailed empirical studies, these studies have shown that technological expertise is often context-bound and tacit (e.g. Collins, 1992; Latour, 1999). In particular, these studies have shown that expert knowledge is much more conditional and less certain than the popular image of scientific knowledge suggests (Latour, 2004). Thus, whilst there might be agreement about the scientific knowledge about gravity and its effects, in many areas of current scientific research (e.g. the health effects of mobile phones or the ability to match individuals based on partial DNA patterns) there is perplexity and data that does exist underdetermines any particular results (Collins & Pinch, 1998a, 1998b; Latour, 2004).

MacKenzie (1993 [1990]) illustrates this in the case of technological expertise about nuclear weapon guidance systems and, in particular, the technological expertise about their likely accuracy in real world situations. In doing so, he highlights a novel form of uncertainty: “that of those closest to the heart of the production of knowledge of accuracy” (p. 371) with this group finding doubts because of their “intimacy with this process of production” (p. 371). As a result, he proposes a “certainty” trough where those directly involved in knowledge production have greater uncertainty than those “committed to technological institution / program but users rather than producers of knowledge”. Those

alienated or uncommitted to the technology are likely to have high uncertainty simply as a result of their lack of knowledge (p. 372).

The case study presented in this paper focuses on a technology driven innovation in public policy and as such raises questions about the nature of the technological expertise utilised by the government decision makers in deciding whether to and how to implement the particular policy.

The UK Identity Cards Scheme

The public policy intervention that is presented in this paper is the UK government's proposals to introduce a biometric based national identity card for the UK population. Outside of wartime (Agar, 2005; Elliot, 2006) the UK, unlike other European countries, has not had a national identity card. In 2002, the UK government began consultations about a proposed 'entitlement card' (Home Office, 2002). The proposals were based on an innovative, technology driven Scheme that would be based around the use of biometric identifiers to ensure that no individual would be able to register with the Scheme more than once, and a large, effectively centralised database (the National Identity Register) which would store the identity details of all UK citizens aged 16 and over. The Register would also provide an audit trail of whenever an identity had been formally verified against the data held on the Register.

The government's proposals were seen by many to be controversial for a variety of reasons including human rights issues, the effectiveness of the Scheme in addressing government concerns for benefit and identity fraud and the likely costs of the Scheme and the ability of the government to implement the Scheme successfully and on budget (LSE Identity Project, 2005). In countering these concerns, the government insisted that it had drawn on the appropriate scientific and technological advice and knew what it was doing. This paper

uses these statements as the basis for inferring the role of technological expertise in the decisions about Scheme.

Technological concerns with the Identity Cards Scheme

The LSE report raised a number of concerns with technological aspects of the proposed Scheme (LSE Identity Project, 2005). In particular there were concerns with the choice of a single (logical) database to store all the biographical and biometric information associated with the Scheme. A centralised Scheme such as was being proposed by the Government, it was argued, would be a particular target for hackers and identity thieves and, once breached would make the Scheme unworkable (Young, 2005).

Government IT projects generally, and UK government IT projects in particular, have a poor reputation for being successfully implemented and a variety of explanations have been offered as to why this is the case (Craig & Brooks, 2006; Dunleavy et al., 2006). There were therefore concerns that the government would be able to deliver a successful Scheme on time and on budget.

A third concern was the variety of uses the Scheme is expected to address and the differing technological requirements this would impose on the Scheme. For example, the speed of response required for implementing a verification service suitable for use at border controls (National Audit Office, 2007) is very different to what would be acceptable when verifying an identity on registering with a local doctor.

More generally, the procurement, implementation and integration of a large information infrastructure of the scale envisaged by the programme (Ciborra & associates, 2000) would be likely to raise many systemic problems and so the LSE report and others argued that the procurement and implementation of the Scheme could also be problematic.

Data collection

The data presented in this paper is taken from a variety of official sources and statements, including the official parliamentary record (Hansard), Parliamentary committees and official publications by the Home Office and the Identity and Passport Service (IPS), the agency responsible for implementing the Scheme. These sources were specifically selected because they either reflect ‘official’ views on the issues (each of the formal documents will typically have been reviewed by a number of civil servants before being issued) or because they are based on statements made to parliament by individuals who typically will have been briefed in advance of making the statements. The official transcripts (e.g. Hansard) of Parliamentary debates are not necessarily a completely true and complete record of exactly what was said in Parliament, as specific norms have been developed for the recording of what was said (Bayley, 2004). The official record does, however, provide a useful resource covering what was said both for and against a particular piece of legislation.

Data collection has taken place over the life of the project. This has involved collating a range of sources including: all the official publications issued by the Identity and Passport Service, the full text of speeches made by ministers about the Scheme, news stories and blogs about the Scheme and its rollout. This is supplemented by attendance at professional workshops and meetings where both formal and informal conversations take place with experts and key stakeholders. The data has been indexed manually and also using the Atlas TI qualitative analysis software. The themes for the analysis have been generated in part from the data itself. In addition, themes and data (especially quotations) have been identified in response to particular questions from members of parliament (for example, what has the government said about the nature of the database), requests for articles and comments from the press and specialist trade and parliamentary publications and frequent invitations to speak about the Scheme for a variety of public meetings.

This use of direct quotations is both an advantage and problem for the analysis presented in the paper. The advantage, as outlined above, is that the public record contains all statements made during Parliamentary debates and Committees regarding the Scheme. This record is freely available and easily search able. The main problems, however, arise because of the ways in which the official record is based on naturally occurring speech. Thus, whilst Parliamentarians may well be carefully briefed, their statements might contain errors and omissions that a printed document would not. Similarly, points that a speaker plans to make might never be made if the flow of argument and debate moves the topic along. Thus, particular care must be taken to contextualise all statements that are analysed and it is possible that whilst the gist of an argument might appear throughout a statement, no easily quotable statements can be isolated to readily summarise that argument.

The statements that are presented below represent a number of key stages in the development of the proposals from the time the Bill was introduced to Parliament (May 2005) to the announcement of the start of the procurement process (August 2007). Longitudinal case studies have a strong tradition in management research (Organization Science, 1990; Walsham, 2006) with Pettigrew (1990) arguing for the “importance of temporal interconnectedness, locating change in past, present, and future time”.

In this case, the two year period covers a number of ‘critical incidents’ (Pettigrew, 1990) in the life of the Scheme. Each of these incidents reveals new data associated with the relationship under study and each can best be understood in relation to the previous events.

There are four distinct incidents. The first is the Parliamentary debate about the proposals. This includes Parliamentary consideration of the concerns raised by the LSE project and the role of Office of Government Commerce Gateway reviews of the project. The second incident is the scrutiny of the Scheme (and in particular the government’s attitude to scientific advice, risk and evidence) by the House of Commons Science and Technology

Select Committee. The third is a high profile press leak in a leading UK newspaper featuring emails from senior civil servants warning that the Scheme was doomed. Following this leak and the appointment of a new Home Secretary (the minister with overall responsibility for the Scheme) the whole Scheme was reviewed and the Strategic Action Plan released in December 2006 (UKIPS, 2006). The final incident is the start of the procurement process.

These four incidents correspond with a marked increase in the press coverage of the Scheme. For each incident, relevant extracts from the texts are presented. These will be analysed below to help determine the nature of the relationship between the government and its technological expertise.

Critical incident	Dates
Parliamentary debate	June 2005–March 2006
Science and Technology Select Committee Inquiry	November 2005–October 2006
Leaked emails and Strategic Action Plan	July 2006–December 2006
Procurement process	August 2007

Table 1 Critical incidents for the Scheme

The critical incidents for the Scheme

The Parliamentary debate (June 2005 – March 2006)

When the then Home Secretary Charles Clarke introduced the Identity Cards Bill to Parliament for its second reading (for details of how a Bill becomes law see (House of Lords, 2005)) he told Parliament that he would “address the concerns about the project’s size, technology and scale” [Charles Clarke Hansard 28 June 2005 Column 1152]. With the flow of debate in Parliament, he didn’t actually return to address these points on that day although

it is clear that he would have been briefed in advance of the debate and had prepared statements to make on these points.

When the Bill returned to the House of Commons after its Committee stage, disquiet about the Scheme had increased and Mr Clarke assured politicians that

The wider UK technology industry have the ability to meet the technological challenges created by the Government's ID card proposals. The technology being considered, which will form the basis of the scheme, has already been used in similar programmes across the world and is well established [Charles Clarke Hansard 18 October Column 800]

A similar point was made shortly afterwards during a debate in the House of Lords

I am confident in saying that the technology for a large-scale national identity scheme is available and proven. There are at least 40 projects in 31 countries involving identity storage, the majority incorporating the use of biometric details. If the UK decides to pursue such a scheme, technology will not be a limiting factor. [Lord Mackenzie of Framwellgate Hansard 31 October 2005 Column 62]

Another argument that was used to support the government's position was that the proposals for the Scheme had been reviewed by the Office of Government Commerce Gateway Review Process. The OGC review process had been introduced to "deliver a 'peer review' in which independent practitioners from outside the programme/project use their experience and expertise to examine the progress and likelihood of successful delivery of the programme or project. They are used to provide a valuable additional perspective on the issues facing the internal team, and an external challenge to the robustness of plans and processes" (Office of Government Commerce, 2007). The results of the reviews are traffic light signals, with Green and Amber projects being allowed to proceed and Red reviews requiring immediate action to be taken.

During the same debate in the House of Lords the Minister of State for the Home Office informed Lords that the project

has been through a further Office of Government Commerce review, Gateway 1, on business justification and the review confirmed that the project is ready to proceed to the next phase [Baroness Scotland of Asthal Hansard 31 October 2005 Column 15]

In the same debate, she made a similar claim to Mr Clarke about the viability of the Scheme

Many concerns have been expressed about the technical viability of the prescribed scheme. We recognise that there are challenges. Projects such as this will always face such challenges and opinions in the field of technology will differ. However, the body of representations within industry, existing project experience and research by established experts in the field of biometrics and database technology indicate that we are right to proceed with our plans at this stage. As with all major government projects, the technology behind the identity card scheme will ultimately come from the industry, and key sections of the industry are telling us that the technology can work.

An identity technology advisory group representing leading technology companies in this field says that if the UK decides to pursue such a scheme it will work. The industry can also point to a number of existing technology projects run successfully, including many for the United Kingdom Government using large databases [Baroness Scotland Hansard 31 October 2005 Column 111].

After its passage through the Lords the House of Commons debated an amendment about the costs of the Scheme and the Home Secretary again made reference to the technological expertise provided by industry

We had a substantial discussion with the whole industry about our proposals to ensure that we work as best we can with the most up-to-date technologies. The right hon[orable] Member for Haltemprice and Howden (David Davis) was right to say that the technology is fast moving. Many companies are involved—many British companies are in the lead, by the way—and we want to work closely with them. That is an intelligent course for us to follow. [Clarke Hansard 13 February 2006 Column 1173]

Thus, throughout the Parliamentary debate, the government's position was clear: they had learned the lessons of previous IT failures and knew exactly what they were doing now.

The Science and Technology Select Committee Inquiry (March 2006–August 2006)

The question of the government's use of scientific and technological advice formed a key part of a House of Commons Science and Technology Select Committee inquiry. The inquiry looked at three areas of government policy: The classification of illegal drugs, the use of MRI equipment and the technologies supporting the Government's proposals for identity cards.

The inquiry into identity cards took place after the Bill had become Law and received written and oral submissions from the Home Office as well as representatives from industry and academia (Science and Technology Select Committee, 2006).

Again, the language from the Home Office gives clear indications as to its relationship with the technological expertise it was drawing upon. For example, Katherine Courtney, Director of the Identity Cards Programme assured the Committee that she had a "very high level of confidence" that they would be able to come to an agreement "around the specification for that system with suppliers" and that it would "delivered when we have agreed they will deliver it" (Science and Technology Select Committee, 2006 answer to Q328).

Although later oral evidence from academia and industry (Science and Technology Select Committee, 2006 Evidence given on 3 May 2006) raised concerns about the limited interactions between government and industry, when the Junior Home Office Minister appeared before the Committee on 14 June 2006, she told the Committee that

I am not anticipating something major that would completely delay or derail the programme (Science and Technology Select Committee, 2006 answer to Q1175)

Leaked emails and the Strategic Action Plan (June 2006–December 2006)

On 9 July 2006, however, a leading Sunday Newspaper ran a front page headline story entitled “ID cards doomed” based on leaked emails sent between senior officials from the Office of Government Commerce and the Identity and Passport Service. These emails had been exchanged on 8 and 9 June 2006 (i.e. a month after Ryan had told the Select Committee that she didn’t anticipate major problems).

The first email, from OGC Mission Critical Director David Foord, warned

even if everything went perfectly (which it will not) it is very debatable (given performance of Govt ICT projects) whether whatever TNIR [Temporary National Identity Register] turns out to be (and that is a worry in itself) can be procured, delivered, tested and rolled out in just over two years and whether the resources exist within Govt and industry to run two overlapping procurements. What benchmark in the Home Office do we have that suggests that this is even remotely feasible?

I conclude that we are setting ourselves up to fail. (The Sunday Times, 2006)

The response, from Peter Smith, Acting Commercial Director for the Identity and Passport Service indicated what was likely to happen next.

The procurements we will (we hope) launch in the next few months - not the TNIR but things like APSS and contact centre - are all necessary (essential) to sustain IPS business as usual, and we are designing the strategy so that they are all sensible and viable contracts in their own right EVEN IF the ID Card gets canned completely. So also less dependence on business case approval etc. (The Sunday Times, 2006)

Following these leaks, however, the recently appointed Home Secretary John Reid delayed all aspects of the procurement process and ordered a full scale review of the proposed Scheme. As a result of this review, a new Strategic Action Plan (UKIPS, 2006) was released in December 2006. This proposed a radical redesign of the Scheme, for example by dropping the mandatory use of iris biometrics and reusing three existing government databases rather than designing a new National Identity Register from scratch.

Procurement

Procurement for the Identity Cards Scheme finally began in August 2007 and only two projects have so far been approved: the replacement of core Application and Enrolment processes for passports and the provision of desktop infrastructure for IPS; and the replacement and upgrading of the existing systems for fingerprint matching and storage in connection with immigration and visa requirements and transition to the replacement service. (Identity and Passport Service, 2007 p. 17)

The procurement 'Prospectus' speaks of "a set of challenging issues" (p. 4) that are still to be resolved and a Scheme that could "change over time as a result of the current review of delivery options" (p. 7).

According to the Prospectus, the reason for this new position because the Scheme "is a large scale, long term business transformation programme involving multiple stakeholders" that "will exist in an environment of ongoing change as well as emerging technologies" (p. 9).

Analysis

Although the statements presented above clearly relate to the relationship between technological expertise and the decision making process, many of the insights from the literature about this relationship in the private sector appears to have limited applicability.

For example, the explanation offered by Martins and Kambil (1999) suggests that prior experiences affect current decisions, with successful prior experiences potentially being given more weight than is necessarily appropriate, raising the possibility of project escalation (Keil, 1995). In this case, the government's patchy record with IT systems would suggest a more cautious approach to technological expertise than is found in this case.

Similarly, Simon and Houghton (2003) suggest that problems with risky products might arise through the effects of overconfidence in the decision making process. Such overconfidence may arise because the decision making process lacks "prior similar actions to help calibrate judgment" (p.140). In this case, however, the government's espoused relationship was based on using established technologies that had 'been used in similar programmes across the world'. Moreover, the costing methodology used by the project explicitly includes consideration of an 'optimism bias' (KPMG, 2005).

Thus, despite (or because of) public sector awareness of these issues, it is apparent that the statements made by the government about the technological expertise underlying the Scheme (at least for the first two incidents) demonstrates a very strong confidence in the expertise that is driving the technological aspects of the Scheme.

Thus, there is confident talk of "well established" technology that will not be a "limiting factor" and project plans that have the support of industry and that have successfully passed internal reviews. When questioned by the Science and Technology Select Committee project members spoke of their very high levels of confidence in the project, with problems being unlikely.

Up until this stage at least the frontstage (Goffman, 1990 [1959]) presentation of the relationship between government and its technological expertise was always one of confidence: confidence in the technology, confidence in its plans and confidence in its ability to deliver the Scheme on time and on cost. Backstage, however, as the leaked emails suggest, this confidence was more muted and calls into question the simple relationship that government had excellent technological expertise that it used as a basis for its policy decision making. Insights from the social studies of science and technology are proposed as a way of explaining the relationship between confidence and technological expertise.

Technological uncertainty

During the early stages of the Scheme (i.e. the first two critical incidents presented above), it would appear that MacKenzie's uncertainty principle does not hold. Here, there is strong confidence in the technological aspects of the Scheme based on the available technological expertise. (One could argue that the civil servants representing the programme and briefing ministers are drawing on interactional rather than contributory technological expertise (Collins et al., 2006) but this is probably a matter of degree as many will have been drawn from industry because of their technological expertise; for example, James Hall, CEO of the Identity and Passport Service has extensive experience in managing large public sector IT projects for Accenture). During the later stages of the Scheme (the third and fourth incidents), the pattern appears closer to that suggested by MacKenzie—i.e. those with technological expertise are less confident in their ability to deliver the Scheme successfully (third incident) and highlighting the complexities that a Scheme of this size will invariably face (fourth incident).

For those in academia and industry, the idea that large scale systems will, in all likelihood, change and develop before they are finally implemented is hardly a novel insight, thus reinforcing MacKenzie's point that those close to the technology will have less

confidence in it than those further away. Indeed, in a recent editorial to a journal special issue focussing on the UK's National Programme for IT, Sauer and Willcocks (2007) examine some of the problems associated with delivering the large scale IT systems. They argue that in such "multi-year, multi-billion pound" schemes "problems are to be expected and that it is a misunderstanding of the nature of the enterprise to suppose that initial expectations will be met" (p. 196).

Why then, when the Scheme was being debated in Parliament, was the language from the government almost exclusively framed in terms of certainty about the technology, its implementation and its likely costs?

One plausible explanation is a mismatched relationship between public sector decision making about technology and technological expertise. That is, the Home Office felt that the only way it could pass the legislation was by presenting its confidence in the Scheme in terms of certainty about its technological implementation, with any acknowledgement of the kinds of complexities raised by Sauer and Willcocks likely to be seized on by opponents as a sign of weakness. This confusion of confidence with technological certainty is problematic, both for the implementation of the Scheme and for its effective scrutiny by Parliament. For example, in relation to the projected costs of the Scheme, the Science and Technology Select Committee noted that they were

sceptical about the validity of costs produced at this early stage. We acknowledge that the release of firm overall costing has been driven by political imperatives but the Home Office could have credibly given a broad range instead of precise figures (Science and Technology Select Committee, 2006 recommendation 32)

This echoes Sauer and Willcocks' (2007) suggestion that when project sponsors and supporters are aware of the complexity that the systems are likely to entail they are more likely to trust the judgements of the experts implementing the scheme. Thus, they advocate a

policy of honesty as to the likely problems that any large scale IT systems in the public (or private, for that matter) sector is likely to entail, arguing that such an approach is both ethical and engenders better working relationships leading to more opportunities for openness and discussion than situations based on misrepresenting the benefits and risks of such schemes.

In the case of the Identity Cards Scheme, however, an alternative strategy was followed that drew heavily on technological certainty as a means of highlighting the close relationship between public sector decision making and technological expertise. However, as MacKenzie has argued (and critical incidents three and four have shown), technological certainty is inappropriate for Schemes of this nature and it should be possible for governments to demonstrate confidence in their proposals (and for effective deliberation of them to take place) without having to make this inappropriate call to technological certainty.

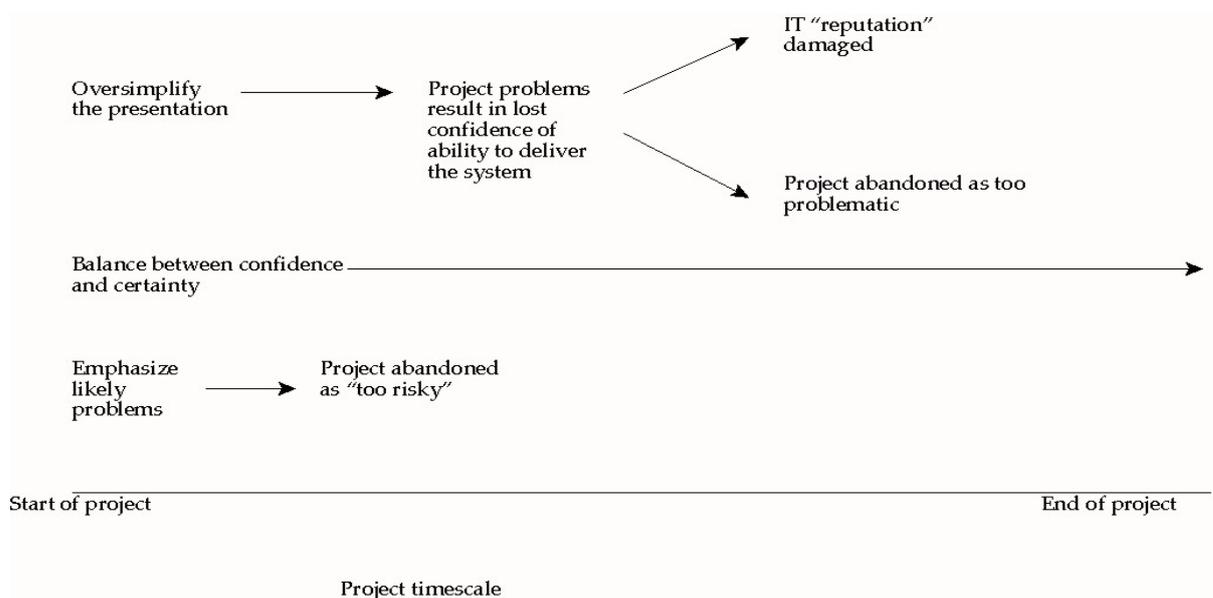


Figure 1 Different strategies and their consequences

These choices are represented in Figure 1. The government chose to present their case in terms of technological certainty (despite the potential awareness of the likely complexities and uncertainties associated with a project of this scale). However, as the latter two cases show, this resulted in the problems that arose in Incidents 3 and 4. An alternative strategy,

however, of emphasizing the likely problems that a scheme of this scale would face is unlikely to succeed politically.

This suggests a midway strategy that acknowledges the awareness of uncertainty that technological experts have as suggested by MacKenzie. Thus, the argument could be presented in terms of confidence in the ability to deliver the Scheme *rather than* certainty that the Scheme will have a particular form / deliverables etc. The IPS is, to some extent, moving in this direction with its more recent announcements, although the politically charged nature of the Scheme means that even now there is a tendency to slip back to claims of certainty rather than confidence.

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