The Advent of a 'Digital State' and Government-business Relations

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> ‘The question of why rational persons would either transfer control or not do so can be answered by recognizing that there are potential costs to not transferring control, as well as potential benefits for doing so. The potential costs lie in part in the amount of time and effort required to remain knowledgeable in certain areas’. (Coleman, 1990, p.234)

> ‘Only the expert knowledge of private economic groups in the field of ‘business’ is superior to the expert knowledge of the bureaucracy’. (Weber, 1991, p. 235)

> ‘The role of humans in capitalist enterprise is clear: humans fill the roles in productive processes that are uneconomical to mechanize. This should not be a shocking statement’. (Kennedy, 1989, p. 158)

When one set of social actors passes functions, knowledge of techniques and control of implementation in their key role areas to other actors there could be a number of possible causes and consequences. Some such transfers of control are mutually beneficial, a simple re-division of labour which acknowledges a changing social or environmental context or just the shifting balance of the preferences and priorities amongst the actors involved. But other transfers of control are less innocent and more ‘coerced’, with powers surrendered under pressure and their transfer carrying with it significant feed-through implications for future interactions, and possible ratchet-effects. This paper explores a critical area of this kind for the modern liberal democratic state, the out-sourcing of information and communications technologies (ICTs) from in-house provision by single-country government bureaucracies to multi-national service delivery and system integration companies. We consider first the extent and patterning of conventional ICT out-sourcing in the UK at central government level. Part 2 examines some key possible of the causes and consequences of the out-sourcing trend, and of the significance of a new and general public/private sector interface. The final section is more prospective, arguing that established patterns of control over ICTs have major implications for the transformation of governance now underway in advanced industrial countries towards a ‘digital state’ form, centred on Web-based public services.

1. Conventional ICTs provision

In any large modern organization it is a truism that the information technologies and networking capabilities of the pre-Internet era have already had a dramatic impact in restructuring back-office functions and methods of working, changing the methods for data acquisition and storage, and constraining or shaping the organization’s forward development path. Weber’s original emphasis upon the importance of written records and filing systems to the efficiency characteristics of bureaucracies have transmuted over in equally important ways to modern organizations’ information systems. Conventional ICTs are already mission-critical in numerous ways for public bureaucracies. If ICT systems mis-perform or become unavailable, then an agency can quickly spiral into crisis, as the UK Passport Agency did in the summer of 1999 because of glitches in a new and out-sourced computerized form-reading and checking system, affecting half its capacity to process work (NAO, 1999). More commonly, lingering defficiencies in past ICT investments, or an inability to speedily renew them, severely

constrain bureaucracies' ability to develop policy indicators, set new policy targets, improve implementation, or achieve 'modern' standards of cost-effectiveness.

To analyse conventional ICTs' impacts at the most general level it is useful to bring in the NATO[2] conceptual framework devised by Hood (1983), and partly duplicated six years later by Salamon (1989). In this view governments have five key elements in their toolbox for tackling social problems and formulating possible solutions, shown as the rows in Figure 1, and two key task sets, shown as the vertical columns in the figure. Conventional ICTs have two potential impacts; first, changing the way that tasks are carried out and second, creating new tasks and opening up policy opportunities that were not previously possible. With respect to nodality, conventional ICTs tend to be largely internal and it is not until government agencies start to use Web based technologies that there is real possibility for transformation of government's nodal resource (see part three below). But conventional ICTs have enabled the other key tools of authority and treasure to be restructured and run more cost-effectively as well as increasing their bulk-processing capacity and opening some new policy windows. The treasure processing systems of government were among the earliest to be computerised, from the 1960s onwards and almost all government departments and agencies run at least one accounting system. Financial systems have been used to create markets in areas where market relationships were hitherto restricted by transactional limits. Privatisation of electricity companies, for example, creating for the first time a market among rival suppliers on a single grid, could be viewed as a policy that could not have been implemented without complex computer systems (Hood and Margetts, 1993: 21). With respect to authority, ICTs have had a dramatic impact on policing strategies through electronic tagging and DNA testing, for example. Police databases have changed the whole nature of some policing tasks, leading to a move to more pre-emptive policing (see Wright, 1998).

Figure 1: The NATO[2] typology

Tool type	**Examples of Detectors** - ways of finding information	**Examples of Effectors** - ways of getting things done
NODALITY - government's central position in society's information systems; the willingness of civil society actors to tell governments things for free and to pay special attention to government messages.	Electronic census	Tony Blair's 'message to the people' on the No. 10 Web site
AUTHORITY - the ability to compel compliance: law-making and regulatory powers.	Electronic tax returns	Electronic tagging
TREASURE - the ability to raise tax finance and requisition other resources (e.g. land, or the time of conscripted personnel).	Consultants' analysis of government information	New markets eg. electricity privatization
ORGANIZATION 1 - the capability to set up and administer basic bureaucratic organizations	Analysis of government ICT systems eg. national insurance contributions	Replacement of staff with ICTs eg. National Insurance Recording System

ORGANIZATION 2 - the accumulation of specialist expertise and advanced professional capabilities necessary for sophisticated outputs	'Pre-emptive policing'	Recruitment of ICT professionals; ICT contracts

Note: Hood's original typology included only a single 'organization' category, so that the O^2 distinction is ours.

In later stages the key impacts of conventional ICTs have been on government's capacity to build and maintain organized expertise in high-level ways (organization^2), for ICTs are also shaped by (as well as shaping) public sector bureaucracies (Margetts, 1999). In the early days, up to the 1960s, large and innovative systems were often designed and even built directly by government agencies. Even in more contemporary times when private sector developers are the norm, client agencies exercise fundamentally important roles in defining new systems. They largely decide whether and to what extent new ICT investments should become opportunities to 're-engineer' administrative and managerial processes, or whether instead new systems will be grafted onto existing practices, essentially reproducing many of the peculiarities and intricacies of the old ways. Fundamentally important here have been the strong managerial and fiscally conservative forces for recreating separate agency and departmental 'silos' of information which have done so much to impede the development of 'joined-up' governance (Stoker et al, 1997). Departments' and agencies' influence as clients over ICT development has meant that large-scale changes claimed for new systems have not often been met, and that public agencies along with most private companies have had a hard time demonstrating that productivity is positively related to levels of ICT investment.

Public-private sector interactions over conventional ICTs have shown a very rapid pace of change and have already come to define a new and socio-economically important interface between government and the big corporate sector. As large tranches of bureaucracy were replaced with information systems through the 1960s, 1970s and 1980s, the cost of large-scale ICT systems and the reorganization of management associated with them was justified through staff savings. New professional staffs (trained in programming, systems design and analysis, business analysis and network maintenance) entered government bureaucracies, bringing with them new skills and standards. Such staff were difficult to recruit, as demand outstripped supply across public and private sectors. By the end of the 1970s, government organizations were already turning to individual contractors, contract companies and consortia to supply the expertise that government lacked.

This trend accelerated dramatically during the 1980s, when the theme of UK public sector management was privatization. Government-wide 'new public management' (NPM) initiatives to promote contracting out, market-testing and then the Private Finance Initiative, were applied with particular intensity to ICTs. Partly this reflected internal bureaucratic and political considerations, especially the perceived risks and difficulties of directly managing information systems development after several high-profile disasters. Single-track government agencies also found it much harder to recruit and pay qualified development staff compared with consultancies and specialist ICT firms. All these pressures contributed to the outsourcing of a progressively larger part of government ICTs. In 1994, William Waldegreave, then minister with responsibility for public service, said that information technology development was an area 'from which it was best for the Government to withdraw' (Treasury and Civil Service Select Committee, 1994: xvii). According to one influential media commentator, the share of government ICTs that was contracted-out to companies rose from 23 per

cent of all civil service IT budgets in 1993, to 30 per cent in 1995, and was projected to reach 54 per cent in 2000 *(Computer Weekly*, 25 February 1999). Thus the outsourcing ratio has doubled in less than a decade.

Outsourcing relationships have varied across time and across departments, but the general trend has been for both the size of contract and the remit of private-sector responsibility to increase. Public sector agencies have experimented with new types of relationships with private sector companies, including set-ups where a share of the revenues generated or savings achieved is offered to contractors in return for an entire systems integration strategy. Central to the Private Finance Initiative is an effort to 'transfer risk' to private-sector providers, especially in the specification, design and development, and implementation of systems - in return for novel payment and contractual arrangements. By 2000, a particular style of public-private partnerships had emerged, distinctive in terms of their financial size and the long-term contractual relationship created. Table 1 shows the fifteen largest contracts currently running in UK central government, all bar two of which are shared between just four major companies. The Department of Social Security (DSS) and the Inland Revenue are between them responsible for over half of government ICT expenditure, and both have entered into major long-term contract partnerships with the EDS (Electronic Data Systems) corporation, the biggest computer company in the world. Under the Inland Revenue's contract EDS runs all the Revenue's existing systems and also develops new requirements (systems for self-assessment, for example). The deal was worth £1 billion over ten years when it was first signed in 1994. The more recent ACCORD programme from DSS aims to integrate the 200 or so DSS mainframe computer systems and to provide single and unified records across all DSS agencies for each and every individual claimant. In this area EDS leading the Affinity consortium, was awarded the status of 'preferred supplier' by DSS in 1998 to provide the department with private sector innovation and experience. The first contracts involved were worth £1 billion, initially providing for child support and income support databases, plus strategic components for the delivery of the whole project. Late in 1999 EDS won more work for the rewriting of database systems. Again in 1999, the framework agreements which DSS had drawn up with BT and ICL, the other members of the Affinity consortium were cancelled. Both firms claimed that DSS had torn up the Accord agreement, causing them to waste millions on the bidding process and establishing EDS as the most important IT contractor with the department.

Table 1: Top fifteen information and communication technology contracts in UK central government, ranked according to their annual value in 1999-2000

Parent department	Agency or Corporation	Supplier	Contract period (years)	Annual value (£m)
Treasury	Inland Revenue	EDS	10	250
Department of Social Security (DSS)	ITSA (Information Technology Services Agency)	EDS	10	125
Trade & Industry (DTI)	Post Office	ICL	10	75
Treasury	National Savings	Siemens	15	67
DSS	Benefits Agency	Sema	5	61

Treasury	Customs and Excise	ICL	10	50
Employment and Education (DfEE)	Employment Service	EDS	10	30
Environment, Transport & Regions (DETR)	London Transport	EDS	12	25
Home Office	Passport Agency	Siemens	10	23
Home Office	Prison Service	EDS	10	20
DTI	DTI IT	ICL	10	20
DSS	Contributions Agency	Andersen	7	19
DETR	DVOIT	EDS	5	14
Lord Chancellors Office	Court Service	CSL	10	13
DETR	CAA	EDS	10	10

Source: Kable.direct.com, Kable's subscriber only service; SPP database compiled from Kable data and from trade press.

These new contract relationships have been accompanied by a significant transfer of staff from public to private sector organizations, fulfilling the commonly held assumption that computer systems involve the replacement of bureaucracy with computer systems and a completely different configuration of staff. The general trend has been towards transfer of staff from the civil service to the very largest computer services providers. Only giant companies are able to easily fulfill the obligations placed on new outsourced providers by the European Union's 1981 Transfer of Undertakings (Protection of Employment) regulation (TUPE), which applies when any large-scale transfer of staffs takes place from government to private companies. TUPE essentially requires the provision of equivalent employment conditions. In 1993 when the Department of Transport sold to EDS the operations of DVOIT (the IT directorate of the Driver and Vehicle Licensing Agency), the deal involved the transfer of all DVOIT's 370 staff. The ten year deal between the Information Technology Office of the Inland Revenue and EDS involved the transfer of almost 2,000 staff. Under the DSS's ACCORD agreement, 1,600 staff will move to EDS in its role as head of the Affinity consortium. In April 1999, National Savings transferred 4,000 staff to Siemens Business Systems (SBS): virtually all staff at NS offices in Blackpool, Durham and Glasgow will become SBS employees and only a head office of 150 people will remain as employees of NS. Table 2 gives a more synoptic picture of major staff transfers from public agencies to private ICT companies in recent years, which have totalled more than 17,000.

The trend towards close linkaging of staff transfers and major capital investments together with the TUPE effect have been key contributing factors to the shift towards larger companies winning most contracts. Even by the mid 1990s observers found a market dominated by 'a few very large, increasingly global players offering the whole range of outsourcing services' (Willcocks and Fitzgerald, 1994: 134). At that time, the leading vendors in the computer services market as a whole (across both the private and public sectors) were Hoskyns (later bought by Cap Gemini Sogeti) with 33 per cent of market share, AT&T Istel and EDS with 12 per cent each, and Sema with 8 per cent (Margetts, 1999: 133). A commonly used measure amongst economists is that a market is oligopolistic where four companies account for 40 per cent or more of sales (Houghton, 1991: 20). So at this period the computer services market was clearly a pretty concentrated oligopoly, with the top four firms accounting for nearly two thirds of contracts by value.

Table 2: A selection of the ICT contracts involving substantial transfers of staff from government to companies in the period 1990 to 2000
(ranked in terms of staff numbers transferred)

			Staff transferred	
Agency	Corporation	Initial agency staff	Number	Per cent
National Savings	Siemens	4,150	4,000	96

ITSA (Accord programme)	EDS	3,800	2,000	53
Inland Revenue	EDS	49,000	1,970	4
Defence Communications (MOD)	BT	1,520	1,200	79
ITSA (Data Services)	EDS	4,800	1,000	21
Immigration and Nationality Department (Home Office)	Siemens	2,500	600	24
Customs and Excise	ICL	24,000	550	2
Driver and Vehicle Licensing Agency (DVLA)	EDS	4,270	500	12
Chessington Computer Centre (Treasury)	Bull Systems	390	350	90
Employment Service	EDS	35,000	270	1
Passport Agency	Siemens	450	170	37

Source: Kable.direct.com, Kable's subscriber only service; SPP database compiled from Kable data and from trade press.

The position of EDS improved throughout the 1990s, and the firm became the dominant supplier to government customers. In 1997, a report produced by the US Embassy claimed that EDS had over 50 per cent of the total UK government IT services business, while the government market research firm Kable put the figure as high as 80 per cent. However, in the very large contracts market the EDS share is substantial but of less dominance. We compiled a database of 37 large-scale government ICT contracts with individual values greater than £50 million covering the period 1990 to 2000. In this market EDS has 44 per cent of market share, followed by ICL at 22 per cent and Siemens at 12 per cent (shown in Figure 2). EDS's dominant position was somewhat lessened by its losing the National Savings contract to SBS. EDS fights particularly hard to increase its lead in the public sector market over ICL. For example, when an ICL-led consortium called Courts 200 was awarded preferred-supplier status by the Lord Chancellor's Department to provide new systems to 400 magistrates courts, EDS immediately complained to the Treasury.

Table 3. The market shares of leading companies for very large-scale government contracts

Company	No. of contracts	Estimated contract value (£m per year)	Estimated market share (%)
EDS	10	451	44.2
ICL	6	226	22.1
Siemens	4	118	11.6
Sema	2	76	7.4
BT	3	36	3.5
IBM	1	30	2.9
CWC	3	27	2.6

Others	8	57	5.6
TOTAL	37	1021	100

By 2000 most of the leading companies are also involved in several major relationships within the new organisational structure of UK central government. Figure 2 shows a network diagram of the current relationships between four leading firms (EDS, ICL, Siemens and SEMA) and central departments and their agencies. The figure graphically demonstrates how key companies dominate in some policy sectors, with EDS in particular involved at the heart of the key activities of the civillian state, namely collecting income taxes and paying out welfare benefits. ICL retains control of all aspects of IT in the Customs and Excise and Court Services. SBS and SEMA are prominent providers in the Home Office's domain. The diagram illustrates how government's reliance on ICTs and computer service providers has over time *Insert Figure 2 about here: A network diagram of the leading providers and their contract relationships with government departments and agencies*

's organizational capacity and expertise.

Government policy-makers and senior officials appear to believe that these contract relationships and the restructuring of the policy 'tool' of organization are completely neutral for what the state does, or are 'policy-irrelevant'. In their view the computer services
providers are 'on tap but not on top', delivering a technical support service within contract parameters clearly laid down and controlled by the government agencies, acting as 'intelligent customers'. But more critical accounts stress that developments in ICTs are not necessarily policy neutral, because of their enormous potential for affecting government's capacity to utilise any of Hood's five policy tools, as outlined above (see Figure 1; and Margetts, 1998). And in Hood's terms, organisational capacity has a direct influence on the other policy tools: 'it is perfectly possible to derive nodality, treasure and authority from organisation' (Hood, 1983: 72). It is hard to believe that the huge new players in government, many of which are involved in equivalent contracts for other governments all over the world, play a completely insignificant role - especially when such small numbers of civil service staff remain to oversee the contracts.

The pattern of influences between government departments and corporations is also a complex and multi-layered one, which renders deeply improbable the 'on tap, not on top' metaphor. Individually and collectively, national and internationally, corporate ICT providers will exercise their own distinctive patterns of influence, sometimes in discrete exercises of corporate power and individual or concerted strategies, and at other times in unplanned forms (via interactions and inter-dependencies). Key relationships are illustrated in Figure 3 and include:

Modernising Government White Paper of 1999 and target changes a year later.

18.National governments use of technology are also powerfully influenced by trends in the global IT market (spanning across both the public and private sectors), with the public sector strongly constrained to follow the lead taken elsewhere and in the generally faster-moving corporate sector. Large multi-national companies and

trans-national private sector trade associations often

support the general operation of these influences by working in several countries at once to influence national government initiatives, seeking to create a critical mass effect among the advanced industrial states particularly. For example, EDS has lobbied hard for the introduction of smart cards into public services.

19.The global IT market also constrains and influences individual corporations, with global shifts in major corporate alliances and proprietorial technology trends changing the competition strategies of individual companies.

The patterns of influence and counter-influence created by the processes diagrammed in Figure 3 are subtle and operate at many levels. At the least, governments will repeatedly confront the same phenomena as consumers in many kinds of markets, the need to trade off price reductions from standardizing their systems on already available and widely-used goods or technologies with the potential loss of policy specificity and fine-grain control associated with maintaining distinctively-tailored systems. Government decisions are also located in a fast-moving and highly uncertain environment of choice, in which their abilities to continue acting as an 'intelligent customer' cannot be taken for granted. Inherently facing incomplete information on longer-run costs and technology trends and capabilities, government purchasers must often evaluate decisions on the basis of cues, interactions and the context of relationships, within which ICT providers play a substantial and influential role.

Insert Figure 3 about here: diagram of macro-relationships between government agencies and the computer services community.

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2. Interpreting government-business transfers on ICT contracts

Here we briefly compare and contrast three main perspectives on the causes and consequences of the transfer of ICT functions from public agencies to private providers considered above:

- the orthodox view that the organizational location for implementing ICTs is essentially a technical question, and that hang-ups about in-house provision should not matter in comparison with speed, cost and implementation considerations;
- sociological and cultural theory views that new organizational transfers and relationships commonly produce wider unplanned changes to apparently simple means-end relationships, and wider shifts in values;
- rational choice views stressing relatively complex models of officials' and agencies' preference structures in making out-sourcing decisions.

The orthodox view

In the heyday of corporate outsourcing even not very radical texts, such as James Quinn's *Intelligent Enterprise* (1992) suggested a quite draconian acid test for evaluating each of a major corporation's in-house operations. Assume that your company seeks to be 'best in world' at its core competencies, then the appropriate thing to ask of any current in-house function is whether it too is 'best in world'. If not, the next test to ask is whether it is strategically necessary in order to link together or sustain those core competencies where you *are* best in world. (For example, in-house legal services might be important in an innovations company to handle its sensitive patent procurement and protection work: even if outside lawyers are better in terms of legal expertise, they might not be as secure or as easily involved in early aspects of ensuring protection for innovations). If a function fails both tests - so that it is neither a 'best in world' operation nor strategically necessary for defensive reasons - then it follows that a corporation is sacrificing money and competitive advantage which it could get by employing another firm that *is* best in world to carry out the function in question.

From this perspective it seems axiomatic that government should not be in the business of systems maintenance and implementation directly. And that it should be able to make very substantial and unproblematic savings by outsourcing ICT operations to more competitive private corporations. These expectations seemed to be well supported by the early waves of outsourcing contracts, most of which showed private sector tender prices coming in well below estimates made by departments and agencies of the cost of a 'public sector comparator' provision. Exponents of this approach also argued that properly sophisticated contracts could be devised to protect the extended interests of government agencies, going well beyond the conventional emphasis upon achieving the lowest possible price. Thus penalty clauses could ensure system availability and performance levels. Providing for a buy-back value to be paid to contractors for well-run systems at the end of the contract period could incentivize firms to keep systems up-to-date, use general and non-proprietory technologies, and prevent contractor involvement declining as the end of the contract period draws near. With the development of PFIs much more sophisticated charging systems could also be devised, designed to bring contractors' interests into line with those of their government customers. For example, paying firms on a per transaction basis rather than a flat rate contract price means that they automatically have an interest in helping agencies to undertake the maximum number of transactions using ICTs, and should therefore incentivize the firm to optimize their system's operations. Similarly the central art of PFIs lies in ensuring that key risks in constructing new ICTs and keeping them available are sufficiently transferred to the private sector.

Sociological accounts

There are three connected sociological positions relevant to the transfer of control - conventional political sociology, the sociology of the professions, and cultural theory - which none the less share some important characteristics. All of them stress that organizations are more than the sum of their parts - that in different ways they are important in shaping the norms and values with which people within the organization approach problems, assign priorities and make decisions. In Douglas (1989)'s terms the essential importance of institutions is to select and structure how people think

The fundamental *political sociology approach* is that 'those who speak together make decisions together', that convergence of values is an almost inevitable consequence of long-term interactions between

different groups of people or actors from different organizations. Thus for Pusey (1991) the anatomy of how an administrative elite behaves can be, must be, read off from knowledge of how they have been socialized, where they went to university, what subjects they studied, what formative experiences they share - all of which are presumed to feed through directly and significantly into their values and policy orientation. Pusey saw much smaller changes in the character of Australia's administrative elites as in large part explaining a wholesale reorientation of the country's overall policy stance from neo-Keynesianism to monetarism. A longer chain of elite theorists has espoused the same view.

In these terms the implications of large corporations' involvement will be to carry directly into the heart of public services operations a distinctively private sector way of doing things. Corporate values of efficiency, and corporate standards of customer service falling significantly short of traditional public service standards, can be expected to become more influential. Of course, convergence is a two-way process, so that operating in quasi-public service environment can be expected to rub the edges off a lot of corporation practices, disseminating elements of a (somewhat degraded) public service ethic into private sector operations. None the less the central prediction is that a blurring of public/private sector differences will tend to follow on from outsourcing, with a substantial risk of unplanned changes in implementation regimes towards a private sector norm of operating, often perhaps unperceived for a long time.

A more sophisticated approach is adopted in the *sociology of the professions*, which points to the contemporary importance of these specialized and powerful occupational groups in shaping public policy in many contexts. Following the distinctions made by Johnson (1972) we can distinguish three sectors inside most key professions - a corporate patronage sector, and a state patronage sector, composed of people directly employed for salaries by large corporations or the state respectively and operating in heavily bureaucratized contexts; and an intermediate sector consisting of private practice professionals and those employed in universities (Dunleavy, 1982). The ICT professions are a particular type of occupation - highly paid, yet with little standardised education, rapidly changing requirements, project-based organisational styles, constant need for training and updating of skills and a high degree of change. In this area, (as in many other cutting edge areas such as drugs development, biotechnology or nuclear power), corporate professionals are generally the highest paid and do the most innovative work, originating and developing a stream of innovations which flow towards less numerous, less well paid and primarily regulatory state professionals. The resulting gradients of professional influence, status and capabilities tend to generalize corporate and to a lesser degree private practice professional norms, values and priorities across the whole occupational group, with only the state's ability to involve university professionals and private consultants on its side occasionally redressing the predominant balance on isolated issues. And the relative sizes and roles of corporate professionals and state professionals can have an important impact on the completeness and degree of bias of this definition of overall professionalism (see Dunleavy, 1982; 1981). In the 1960s state ICT professionals were an important group within their occupational groupings, but now large-scale outsourcing must mean that state ICT professionals become essentially a rump grouping, composed stereotypically of lower ability people willing to put up with lesser pay, lower occupational status, and work tasks composed principally of routine and bureaucratic contract-management.

The key implication here will inevitably be that government's in-house capacity to act as an intelligent customer in ICT contracting and development decisions will degrade, and at an escalating rate the longer and more completely outsourcing progresses. Of course, government can seek to compensate for these changes by buying in expertise from private practice professionals and the university sector. But in a field like contemporary ICTs they too will often confront severe difficulties in keeping pace with the rate of innovations which large corporations originate. University academics in a field like ICTs are often fairly marginal observers, deprived of the scale of capital resources needed to be very actively involved and struggling simply to keep pace with developments: they are rarely used as advisors or assessors in public procurement decisions in the UK, despite their importance in other fields (such as regulation of drugs). Private consultancies can match corporate sector salaries and attract talented staff, but they constitute an expensive, and hence only episodically employed solution to the problem of acquiring adequate expertise. Their familiarity with and identification with a public bureaucracy is normally very limited, and they tend to move on from one customer to another producing generalized solutions - with most of their customers being private sector companies with large systems. Hence private practice professionals in the ICT area are highly unlikely to filter for distinctive public sector concerns or not advocate of generally accepted solutions - and are highly unlikely to alert ministers or senior officials to any advantages from re-creating in-house ICT capabilities. In addition private practice professionals often develop strong links with the oligarchy of major ICT suppliers, so that even their relative independence as advisors may be questionable.

An interesting extension of sociological approaches is offered by *cultural theory,* whose extensive applicability in understanding public sector organizations has recently been argued by Hood (1999). The foundations of cultural theory will seem problematic for many social scientists, since the approach rests on the argument that different people are 'imprinted' *ab initio* with one of four attitudes towards risk and the natural (both the physical environment and their own bodies). This apparently 'pre-social' division of people's mental frameworks into fatalists, individualists, egalitarians, and hierarchical people, is touted by cultural theorists as equivalently important to and increasingly displacing left/right attitudes. At an organizational level cultural theory then claims that direct analogues of the four mind-sets can be identified as four strongly developed organisational cultures, varying along the dimensions of grid (level of regulation and hierarchy) and group (level of cultural unification). High grid, high group cultures are represented by hierarchalism, the culture most usually associated with both public sector bureaucracies, and to a lesser degree characteristic also of long-lived major corporations and established technical professionalism. Fatalists - low grid, low group - exist at the lower routine levels of large, public sector organisations. Individualist cultures are by contrast strongly change-orientated, convinced of the resilience of the natural and social environments, focused on project development and wealth acquisition, and characteristic of free-booting and fast growing corporations and industries. Egalitarians are primarily orientated towards maintaining group solidarity, and take a pessimistic view of the resilience of the natural and social environments - an attitude prominent in interest groups seeking to control or curb the direction of capitalist development into socially regulated ways, but also present in some private sector work practices within industries structured on more 'organismic' lines.

In this perspective outsourcing ICTs provision inside public agencies is a potent way of opening up a

channel importing new and competing organizational cultures into previously stable hierarchical public sector organizational environments. Long-term framework agreements inject the individualist cultures of large corporations, and the more free-booting individualism of growth industries and many private sector consultancies, with high reward and incentive structures contrasting with those of the public sector. Shorter term contracts based around particular projects, to build and develop specific information systems, have a more egalitarian basis, with expertise and capacity shaping peoples' influence and little hierarchical allocation of tasks or deference to seniority. Hence egalitarian workgroup structures can also be difficult to incorporate into the existing hierarchical structures of public sector organisations, a specially intense problem with new front-of-house ICT systems such as Web-enabled public services, as we show in Part 3.

Thus the move towards outsourcing, and even more the shift in the PFI era to long-standing public-private partnerships, introduces a new 'clash of cultures', an abrasive interaction loaded with extended possibilities for misunderstanding and organizational mismatching of responses, which can create systemic risks of major crises or mistakes as well as a series of lesser problems and under-performances. A classic risk example was the episode at the height of the Passport Agency saga in late 1998 where an all-civil servant management board met to consider extending their new computerized passport application processing system from one office responsible for 25 per cent of their workload to a second office of the same size. Despite a huge volume of evidence that the system was performing terribly in the first office, the top officials agreed to extend it to their second office, putting half their workload capability in jeopardy. Just two days later a different project management board meeting involving both the agency and top people from the contractors decided to scrap the whole further implementation programme for the new systems until they had been debugged and got working effectively. This example shows some of the problems which people and organizations run in longstanding hierarchalist and fatalist fashion have to grapple with in understanding and accommodating both individualist and egalitarian practices. Both cultural types represent a threat to hierarchalism. The hierarchalist response is likely to be 'more co-ordination, better procedures, more planning and foresight, clearer assignment of authority' (Hood, 1999: 25), most of which can only be implemented through the contract. Yet these management techniques are difficult to specify in output-based contracts.

Public choice interpretations

The orthodox view draws intellectual strengths from mainstream economic theory and its emphasis upon cost-efficiency, and Pusey and other sociological authors lump together mainstream economics and rational choice theory under the heading 'economic rationalism'. But in fact the three public choice approaches we consider - transactions cost models, bureau-shaping and models of rational transfers of control - all stress in different ways the potential for outsourcing not to be a straightforward cost-minimizing, welfare-maximizing exchange as the orthodox view suggests.

Transactions costs models focus on the detailed incentives acting on policy controllers - such as the legislature in the USA, or a national policy elite of ministers and top civil servants in the UK - in making delegation decisions. Policy elites can seek to make detailed decisions directly, but this will lengthen the time involved and raise their transactions costs, as well as leaving them directly responsible for the risks of decisions

(Horn, 1995). They can cut their decision costs by using an agent, or in the case of outsourcing ICT work by changing from using in-house civil servants to private sector contractors. And policy-makers can also cut their decision costs by entering into very long-term, relational contracting arrangements with initially vague terms like public-private partnerships or programme agreements or PFI deals instead of a tightly specified conventional procurement contract. However, Horn stresses that as their decision costs fall, so policy-makers' potential 'agency costs' rise - policy-makers become more reliant on the firms' performance and engagement. The potential for shirking, rent-seeking or other opportunistic behaviours by the contractors (the agents) increases as the degree of delegation vests more discretionary room for manoeuvre with them. In addition, the longer the deals and the more extended the relationship entered into, the greater the 'commitment costs' policy-makers incur - the risk of being locked into strategies which become inappropriate with changed circumstances (including changed preferences by policy-makers) or load on to policy-makers risks that they want to avoid. Critics argue that as ICTs become more mission critical for public bureaucracies, so the unavoidable risks of contractor failure are important considerations - witness the poor performance of Anderson Consulting in delivering months late the NISR2 system for processing national insurance numbers, long after the previously in-house supplied NISR1 went offline, which imposed huge unplanned costs on the Department of Social Security.

Other versions of transactions costs approaches offer a potent justification of the advantages of retaining in-house operations - the fundamental basis for the existence of private sector corporations or public agencies at all, rather than just an endless succession of spot markets. Williamson (1985 and 1975) stresses the risks of small numbers contracting in conditions where actors make asset-specific investments, or where 'information impactedness' could mean that the first foot in the door contractor becomes locked-in as the provider because of their substantial information advantages over any alternative supplier. The National Audit Office (2000) sees a clear risk in these terms that EDS has become 'locked-in' as the dominant provider of the Inland Revenue's ICT systems, able to charge not closely competed prices for contract renewals and vested with impregnable advantages in any extension work - such as the substantial payments made by government for work to introduce income tax self-assessment, not included in the initial 1995 outsourcing deal.

Bureau-shaping accounts provide essentially a more specified and bureaucrat-centred version of a transactions cost model, driven by a particular account of senior policy officials' motivations. What rational bureaucrats want is not to run large-budget, large-responsibility delivery agencies, as the older budget-maximizing models suggest. Instead they want to maximize work-related utilities; they are attracted to interesting, strategic, non-routine policy-relevant tasks close to the centre of power (Dunleavy, 1991, Chs 6-8). Rational senior officials are keen to hive off or contract out delivery agency roles and functions, and to concentrate power in small, collegial control, transfer or regulatory agencies, where they can easily top-slice a small portion of a much larger budget which they pass on to other providers, thereby insulating their welfare much more effectively than they ever could via budget maximization. Using motivations on these lines allowed the bureau-shaping model to initially predict the runaway success of the Next Steps programme, long before it was government policy (see Dunleavy, 1985). And the model seems to explain detailed individual cases of agencification very effectively (James, 1995).

Applying the bureau-shaping approach to the outsourcing of ICTs is straightforward. Suppose that a department or an agency runs an existing in-house ICT system which is nearing the end of its useful life, or simply becoming increasingly trouble-prone or expensive or difficult to manage. Rational senior officials then have a straightforward choice to make between engaging in a fundamental re-engineering of their administrative processes and undertaking an in-house renewal programme, or on the other hand contracting out something very similar to their current mode of operations to an external supplier, who would thenceforward take on the detailed systems design and operations functions. Essentially the bureau-shaping model says that there is nothing in it for senior officials in seeking to go with in-house renewal. They would have to assemble a project team, paying large salaries to attract talent, engage in a lot of very high cost activities re-designing systems and implementing sweeping administrative process reforms, and manage and control the project construction and roll-out phases - and all the risks and transactions costs involved in doing so would sit directly with them, including the dangers of subsequent cost over-runs or under-performance, and a possible final damning NAO report or roasting before the Public Accounts Committee.

By contrast, outsourcing or creating a public-private partnership under PFI arrangements, allows departmental top management to disengage from many of these transactions costs. They need to run an adequately competitive tendering process, and to keep the contract being outsourced to familiar territory - focusing on slightly cleaned-up versions of operations which the agency already does - so that the contract terms can be kept sufficiently simple and predictable for the agency and its advisors to keep on something like equal information terms with the tendering companies. (This point indicates a central weakness of the Quinn 'best in world' test for government departments and bodies. Whatever else they are good at, it is deeply unlikely that public agencies will be 'best in world' at writing ICT outsourcing contracts and anticipating ICT technological changes over a contract lifetime, when compared with large multi-national corporations specializing at doing nothing else). Trying to outsource radically changed administrative procedures would risk losing government agencies their key informational advantages over tenderers - their knowledge of how things work at present. Hence the bureau-shaping model predicts that government ICT operations will be prematurely outsourced in unreformed, minimally changed configurations - meeting senior officials' incentives to reduce their transactions costs and undertake apparently low risk, blame-avoiding courses of action. But the costs of this approach will be born by the agency's customers, and later by grass-roots staff, both those who lose their public sector conditions of service in transferring to a private provider and the back-office staff who remain within the agency but now have to operate with 'new technology' that is obsolescent almost from the moment that it comes into operation (Margetts, 1999). An unusually intense example of this kind of process in operation was the decision-making process which saw the DSS's brand new Child Support Agency set up in 1993 with a cheap, second-hand computer system, brought from EDS and destined to stay in operation until 2001, which featured black-and-white dumb terminal desktops, some ten years after the 'PC revolution' first started. Not surprisingly, CSA's computer systems inadequacies were a key part in explaining the agency's subsequent chronic under-performance.

A third relevant public choice approach is the *transfers of control* analysis undertaken by Coleman in Chapter 9 of his seminal book, *Foundations of Social Theory* (1990), especially his account of 'fads and

fashions'. In highly professionalized policy contexts, the cycling through of a series of professional 'fashions' (with their attendant writing off of intellectual capital and sunk costs) constitutes a critical independent determinant of public policy change in many different fields, from welfare policy through to high technology and defence. He argues that there is clear rational actor basis for fashion cycling processes, and for brevity's sake we here transpose his more general account directly into an ICT-specific form. Figure 3 shows a simple game matrix for a process involving three sets of actors - the global ICT industry, and two categories of government organizations - 'leading' agencies, and 'follower' agencies.

Figure 3: Influences shaping the cycling of fashions in the ICT sector
(cell entries show ordinal pay-offs)

	Global ICT industry			
	Trend 1		Trend 2	
	Follower agencies		Follower agencies	
Leader agencies	Option 1	Option 2	Option 1	Option 2
Option 1	2, 2	3,0	0, 2	1,0
Option 2	1,0	0,2	3, 0	2,2

The 'game' works as follows. At given time, and at any given possible problem level, the global ICT industry has a number of possible trends which could become dominant and successful, attracting the vast majority of investment and becoming the standard form of tackling a problem. We simplify these choices down to either trend 1 or trend 2, and assume that the outcome here is essentially like a force of nature, outside the game (although on the largest ICT contracts this is obviously a simplification, since national 'leader' agencies may also have something of the same effect internationally, especially in the largest advanced industrial states and inr elation to other governmental provision).

The two game matrices shown essentially chart the payoffs enjoyed by 'leader' agencies (concerned to achieve a distinctive forward-looking profile viz a viz other public sector agencies) and 'follower' agencies (which have adopted a risk averse strategy of identifying and imitating the behaviour of domestic leader agencies), given the outcome of the global ICTs industry decision. (We can think of follower agencies as akin to people who take their fashion cues from personal contacts who they see as 'in touch' with fashion trends, and we can think of leader agencies as akin to the opinion leaders envisaged in two-step flow of communication theories. Followers rationally transfer control of their own behaviour to leaders in order to economize on their information/expertise costs). If the global industry backs trend 1, the best outcome for leader agencies is that they back trend 1, while the follower agencies are still stuck on option 2. The next best outcome for leader agencies is that both they and the follower agencies back option 1. The most controversial assumption here is that leader agencies prefer to fail, by backing option 2, even if both the global industry and the follower agencies back option 1, compared with both leaders and followers backing option 2, while the global industry goes with option 1. For follower agencies the best outcome is to achieve the same decision as the domestic leader agencies, whatever happens in the global industry.

Note that the implication of Coleman's way of picturing things is that innovation by the global industry is mostly good news for the leader agencies. For instance, assume that leaders and followers are both pursuing option 1, but the global ICT industry adopts trend 2:

> 'this moves the outcome from one in which the rewards are medium for the leader and high for the followers [top left of the left-hand cells in Figure 3], to one in which they are low for the leaders and high for the followers [top left of the right-hand cells]. The leader then finds it in his interest to adopt fashion 2, both to follow the [global industry] and to separate himself from his followers. He receives a high reward. Then his followers acting on the basis of their reward as shown in the table, adopt fashion 2 as well. This gives them high rewards but reduces the leaders' rewards to medium. When the [global industry] again change to a new style, [the leader's reward is changed form medium to very low, and he must change to the new style also to regain a high reward. This initiates a change in followers, and so on. (Coleman, 1990, p. 233).

The main difference that we need to introduce into Coleman's model is that the definition of 'leader' and 'follower' agencies can vary around amongst agencies over time. Sometimes a public agency with a very out-of-date system can become a leader because of the arrival of new ambitious top officials and because it can cost-justify more radical changes than other agencies with currently tolerable ICT systems - a distinctive feature of the public sector context, in contrast with pure fashion examples, where leaders are normally better-off younger people able to innovate repeatedly. It is also inherent in most professional contexts that innovations are made episodically, with individual professionals normally acting in line with generally accepted standards of good practice, but exceptionally making innovations in some specific areas once or twice during their lifetime. Thus a stochastic series of 'leader agencies' will emerge at any given time making major investments in the public sector, and establishing secondary trends which other agencies may have incentives to follow. Processes of these kind would strengthen the bureau-shaping and transactions costs incentives acting on agency senior management and top policy-makers to emulate general public sector trends, and to follow their perceptions of global ICT industry trends, but with local clustering effects following influential leader agencies' closer-to-home examples.

Coleman draws a summary typological table of the roles played by actors or organizations in a social system, depending on whether they transfer control to others, and whether others transfer control to them:

	Others transfer control to the actor	
Actor transfers control to others	Yes	No
Yes	Amplifier	Follower
No	Leader	Independent

In the ICTs area the vast majority of government agencies will be followers, and at any given time a few will be amplifiers. But in this synoptic characterization the leader role would be dominated by the corporations to whom agencies increasingly delegate the design and implementation of their ICT systems.

Overall the issues raised by the combined theoretical perspectives are very significant ones indeed. Both sociological models and public choice interpretations agree that outsourcing decisions are potentially much more significant than the purely technical character or the fully- contract-definable implications envisaged in the orthodox view.

3. The advent of the 'digital state'

After years of technological changes in ICTs being associated with internal organizational processes, the cumulation of innovations in the internet era poses unparalleled challenges for the whole government sector, thrusting the task of Web-enabling public services into the forefront of attention. Current dominant administrative strategies developed in the 'new public management' era focussing on cost-reducing, piecemeal ICT changes within un-re-engineered administrative processes have become suddenly out of date. Equally the huge 'big bang' back-office automation schemes beloved of the main ICT company providers have been suddenly exposed on their flanks, as in many cases inappropriate to the tasks of helping agencies digitize their interactions with citizens and enterprises, and move forward using zero touch technologies.

Some of the most forward-looking agencies, those with a clear vision of digital future, are those which have retained either in-house ICT provider teams or close involvement with their company providers in mixed model provision. To see the scope of digitization consider one example, Companies House (CH). In its old model of operation CH was a regulatory agency suffocated by paper. It sent out 4.5 million paper forms a year to businesses for them to complete, and had huge proportions of its 700 staff occupied in simply handling paper. Seventy people worked in its post room alone, just moving cartloads of forms around the office; 150 people were in its examiners section, trying to implement a few basic checks on forms sent in for completeness, consistency and possible mistakes; dozens more people scanned the paper forms so that they could be held more manageably on micro-fiche, or re-keyed information from paper forms into databases; and more people again ran the main CH revenue generating activity, supplying companies information on fiche to business customers, principally in bulk sales to the 14 large business information companies in the UK. Under the new CH strategy for moving to a fully digital environment, the need for these tasks will disappear, and staff numbers could fall by around 40 per cent. Firms will have to send in their data on electronic forms (which check from the outset for consistency), either via the internet or on disc; once in the agency the information will drop automatically into the agency's databases, and zero touch technology systems will allow much more extended data quality checking than in the past; and the dissemination of companies information to customers has moved extensively onto the Web, with customers notifying data needs, paying for services, and receiving back information electronically.

For the vast majority of central government agencies (and many local state ones also) the potential for digital changes to transform their operations is every bit as extensive as it is for Companies House. But the rates of progress achieved by the major government agencies so far, especially those with outsourced ICT systems vested with major corporation providers, have been quite dismal, raising real fears that the slowness of

public agency responses risks embedding them a catch-up cycle years behind private sector provision (Dunleavy and Margetts et al, 1999 - the source for all other details in this paragraph). By 1999 the DSS had managed to achieve no Web-based transactions at all with its customers, and did not anticipate making any by 2002 either - the date when a target set by the Prime Minister in 1997 envisaged that 25 per cent of transactions between citizens and government would be achieved 'electronically'. In the Benefits Agency, out of 68,000 staff in late 1999 only 100 had access to desktop PCs capable of running a Web browser - meaning that the agency's Web site was effectively invisible to all the agency's staff. The Inland Revenue by 1999 was managing to achieve 1.5 per cent of tax returns being submitted via the internet, and anticipated a massive increase to 4 per cent by 2002 - while more than 70 million US tax returns were being submitted electronically to the US Internal Revenue Service in 1998.

The reasons for government agencies and their big corporate providers being so badly wrong-footed by Web-based service developments are not hard to find. The fundamental requirement for effective Web developments is not amassing huge amounts of money to implement 'big bang' retooling of mainframe and back-office systems, as the DSS's Accord programme assumes. Instead, agency staff have to be directly and closely involved in electronic interactions with customers, seeking for ways of Web-enabling services and discovering what the service users will and will not do on-line. Under the existing contract relationships the inter-position of an ICTs provider between agencies and their customers, and the externalization of responsibilities for ICTs provision away from agency front-line staff and service definition sections, are both fundamentally antipathetic to agencies making incremental commitments to Web-based services. Without that involvement, staff in the big agencies have not been able to make the small-scale, build-and-learn investments in interacting with their customers, and their providers have fundamentally opposed to them developing rival interfaces with the public outside the providers' control, still less welcoming of methods for 'lashing together' non-Web-enabled mainframe systems with discrete Web interfaces, as many private sector companies have done.

Instead most of the biggest government departments largely ignored Web developments, seeing them as 'below the radar' in financial or budgetary terms, and apparently caring little for the cost-saving potential of displacing their interactions with citizens and enterprises from high marginal cost forms (like letters and phone calls) to the very cheap marginal cost of Web accesses. And while corporate sector firms have been seeking to rehouse control of their Web and new media operations internally, or deploying a vast army of smaller and more flexible Web-design consultancies located outside the traditional ICT industry and ICT professions to introduce changes, the major UK agencies have remained dependent on their big corporate providers - which are in many cases as far adrift from the hectic pace of change in the Web/new media sector as are senior public officials.

The future prospects for government to catch up with changes in the private sector, or even amongst civil society organizations like universities or pressure groups, do not currently seem very hopeful. Top civil servants still marginalize the importance of the technology shifts which the internet era has set in train, with most Whitehall departments getting on e-mail only in 1998, few agencies having developed effective intranets yet, and most government Web sites limited only to 'brochureware'. The management boards of Whitehall departments rarely if ever reviewed Web investment options until now, and the appointment of 'information age

champions' at board level in every department has yet to show much impact. Senior officials think of Web challenges with a largely inappropriate set of cultural assumptions inherited from the 'new public management' (NPM) era. They associate Web sites and technologies with conventional ICTs, failing in most cases to see their radically different implications and motors for change. Government organisations are far less likely than private sector organisations to have 'new media' groups, responsible for capitalising on innovation and Web provision is generally handled by old-style IT divisions or by communications/public relations personnel, both of which have a hard time appreciating what new media possibilities really mean. And digitization of government processes can only really extend beyond 'brochureware' and one-off transactions when interfaces are developed with departments' legacy ICT systems. So public agencies' existing computer service providers will inevitably play a key role in constraining the tempo and shaping the pattern of development.

It is now quite clear that Web-based trends will have a major influence on the future shape of government. In March 2000 the Prime Minister brought forward by three years to 2005 the deadline (originally set in the 1999 White paper on *Modernizing Government*) for central government agencies to achieve 100 per cent capability for conducting transactions electronically with citizens and firms. And comparative experience from further advanced public bureaucracies suggests that the state organization patterns of the past may yet be extensively reshaped. As a senior official from the Australian Tax Office told us: 'The ATO become its Web site', putting the public-private partnerships that control the ATO's ICT systems squarely at the centre of its future. For less advanced agencies, such as the UK DSS, with still only a vestigial toehold on a digital future, relationships with contract providers may act as major delaying constraints.

The contrast between ATO and the DSS illustrates two alternative scenarios for the digital state of the future. In the first, which we call 'open-book governance', government becomes more transparent. Government organisations 'become' their Web sites and the public are given partial access to internal Web-based systems, and intranets, thereby opening up internal processes to the outside world. Government-citizen relationships are transformed, with transactions available 24 hours a day. Routine administrative tasks take place in a 'zero-touch' way, freeing up government staff for more sophisticated citizen-focussed service. There are more opportunities for citizen participation, through policy fora and electronic deliberation. Policy making becomes more responsive, as Web based systems are developed in response to citizen behaviour. In this scenario, Web-based technologies bring a real possibility for the transformation of government's nodal resource, in contrast to the internally based conventional ICTs (Margetts, 1998).

A second scenario, however, is for a 'disconnected government' to emerge, which is in danger of becoming less open and transparent than before. Here confusion of 'ownership' of ICT systems (in many different sense, legal, technical, organizational and cultural) means that government agencies find it hard to control their Web sites. Proliferation of sites, through a fragmented organisational structure dominated by radically inappropriate agencified structures inherited from the NPM era, makes government organisations hard for citizens to find and use. As government organisations lag behind in the crucial process of developing a Web presence, the state sector as a whole loses nodality in comparison to private sector and civil society organizations. As it did throughout the 1990s by being unable to handle e-mails, so the state sector lags behind with every new Web possibilities - for phone-based communication using WAP technologies, for audio

communication using internet radio, for video processing of transactions - and so on. Because developing Web based technologies is an incremental process of introducing innovations, testing customer behaviour, and then acting upon results, delays in the early stages of these developments cannot easily be leapfrogged. Agencies cannot 'miss out' on learning in an exploratory way about how their customers behave on the internet.

There is no middle way between the 'open-book' and 'disconnected governance' scenarios . Not to choose the first option means that government organisations lag behind other sectors of society, with their inner processes becoming simultaneously less efficient in relative terms, more expensive, more off-putting and less accessible. But to capitalise on digital developments, government has to have some understanding of its own technology. Government organisations in the UK especially emerged from the twentieth century fragmented and hollowed out of critical skills in what should be 'core competencies' for them, while their private sector 'partners' have continued to grow in size, interconnect markets and standardize solutions. The 'shock of the new' in the Web era means that in objective terms big ICT company providers are not necessarily well placed to extend their influence over future developments, certainly viz a viz major private industries now fast 'inhousing' their Web provisions and new media expertise. But the market power achieved by the largest ICT firms viz a viz government agencies looking increasingly stranded by the pace of change puts the key firms in a very different position viz a viz their state sector presence.

Conclusions

The changing fortunes of the state in political and social terms are closely bound up with its organizational capacities and the tools available to discover information and get things done. ICTs now occupy such a central role in state sector operations that how they are structured and organized can have important unacknowledged implications, extending well beyond the apparently 'technical' questions involved in how implementation is handled. UK government has seen a large-scale shift creating a new public-private sector interface at the heart of its operations, and the implications of this change have only begun to be explored empirically. But we demonstrated in Part 1 that as unprecedented transfers of control by central departments and agencies a few large corporations now play very central roles in public service delivery and specification chains. In many ways the corporations' importance and influence is beginning to parallel in significance some of the impact upon policy development previously ascribed to the civil service itself. And in Part 2 we reviewed a number of important theoretical perspectives which stress that such organizational role shifts cannot be neutral in other dimensions, nor represented as simple technical decisions. Both sociological and rational choice accounts predict important unacknowledged transfers and policy implications.

In the current era these changes and their implications are brought into sharp focus by the transition of government services onto the Web and towards a digital state form. The challenge for the modern public sector is fundamentally to retain people's attention first and affection second, in an electronic environment where currently the salience of government messages is fading further into the white noise background with every passing day. If it is not to see its salience decline further, government *as a sector* must begin to find out peoples' needs much more sensitively than ever before, and then put its resources into front-of-house service

provision that meets those needs rather than back-office managerial imperatives. And public organizations need to do this in a humbled, learning mode, really *listening* to customer priorities instead of blundering on with NPM's dogma-laden travesty of the public's concerns (as the Passport Agency so notably did). The technology push will not slow down for a decade ahead at least, and nor will the pace of private sector change. There are huge potential risks for government of getting pushed to the margins of a wired-up world while still relying on paper-driven processes, or even the call-centre technologies of a decade ago.

It remains to be seen whether this is a challenge that state agencies are any longer capable of meeting. Having opted out of re-engineering their administrative processes in the 1980s and '90s in favour of simply outsourcing a mess of ICT operations, much of the UK government seems badly placed to organizationally understand let alone control and innovatively respond to current opportunities. If so the government-business interface at the heart of state sector operations may yet prove even more important in shaping the direction of policy development than it has already proved to be. A 'Trojan horse' future in which not only government ICTs but also much more extensive public service delivery and specification functions become corporatized within the private sector remains a real possibility (Dunleavy, 1994).

Notes

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