Government IT Performance and the Power of the IT Industry:

A Cross-National Analysis

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Abstract: How national governments interface with the IT industry can have an important influence upon the delivery of government IT projects, which in most advanced industrial countries will account for at least 1 per cent of GDP. Looking across seven countries (the USA, UK, Canada, Australia, New Zealand, Netherlands and Japan) we characterize the power of the IT industry in terms of three variables: patterns of contractual relations, the largest firms' market and technical dominance, and the extent to which government retains IT expertise or 'intelligent customer' capabilities. We assess the performance of government IT in terms of three factors: the extent of catastrophic project failures or cancellations, indications of the price competitiveness of government IT contracts, and the relative modernization of government IT compared with the private sector nationally. Using a 'fuzzy-set social science' approach we argue that an overall index of corporate power vis a vis central governments shows a clear negative association with government IT performance. Where governments are weakly placed in relation to powerful IT corporations, long-run performance outcomes are less satisfactory. Our cases also illuminate the different ways in which governments can ensure and maintain more balanced relationships with the IT industry, which in turn will foster better long-run results in the design and operations of government IT systems.

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Analysis

To get their IT systems built, delivered and maintained most governments in advanced industrialized countries rely extensively upon private sector corporations. Information systems are complex to analyse and design, and expensive to implement. In the seven countries covered here – the USA, UK, Canada, Australia, New Zealand, Japan and the Netherlands – government IT absorbs around 1 per cent or more of GDP. Their execution has to be planned by specialists familiar with the most current information technologies. And the building and implementation of systems has to be conducted in an integrated manner, either by government officials themselves co-ordinating numerous private sector contractors, or by using the services of 'systems integration' firms, some of which are world-wide multi-national corporations. How governments succeed in handling these relationships with private industry can have fundamental implications for the success of projects and the costs incurred in getting them finished. In addition, although most current texts in public administration/ management make virtually no mention of this dimension, we need to consider the salience of government IT systems as influences upon the development of contemporary public administration and public management, and the role which IT, automation and the advent of 'virtual' or 'zero touch' technologies currently play in shaping organizational change and evolution (see Margetts and Dunleavy, 2002).

Our central focus is how the performance of government IT varies with the power of the IT industry viz a vis government. A wide range of hypotheses seem to be relevant here. On the one hand, the formal, legal set-up of procurement systems in many countries emphasizes the importance of effective competition. But, in practice, government policies are often based upon securing the participation of large-scale IT corporations in delivering

government IT. Some critics have argued, however, that the outsourcing of government IT will lead to a progressive hollowing out of government's capacities to deliver its own critically important programs and a corporate standardization of available solutions that will undermine governments' autonomy to develop distinctive policies. Our analysis covers these and other possibilities and has three main parts. In the first we show how our case study countries can be characterized in terms of the level of IT industry 'power' viz a viz the government sector. The second section looks at how the performance of government IT varies across the countries. The final part shows how these two analyses can be combined and discusses the key finding of the paper – that the more advantaged the situation of the IT industry is in relation to government, the poorer the performance of government IT is in at least one dimension or another.

1. THE 'POWER' OF THE IT INDUSTRY
IN RELATION TO GOVERNMENT

Until recent years there have been long-standing and well understood limitations in using a small number of case studies to derive insights into wider relationships and patterns of associations. Most case study work has been understandably construed as shedding light primarily on the unique situational and interactional characteristics of individual instances, primarily in terms of illuminating the detailed pathways of causation. The problem has been that looking across cases has not been easy, since each differs from its neighbours in multiple ways, any one of which (or any unique combination of which) may be enough to set that case off from its counterparts. Hence pattern-seeking has generally been thought of as solely pursued via systematic quantitative work with large N data sets, while case studies are seen as generating insights into the distinctive features and causal mechanisms which account for unexplained variance and make each case in some respects unique.

Our approach here follows instead Ragin's 'fuzzy set social science' approach (Ragin, 2000), which in turn develops from work undertaken over the last decade on 'qualitative comparative analysis' (QCA, see Ragin, 1985). The aim of the method is to allow for a more systematic comparison and interpretation of rich qualitative case data. On the one hand the approach respects the distinctive value and insights achieved from in-depth study of a relatively small number of instances. But on the other hand it seeks to provide well-founded and well-codified rules for considering how cases may be sorted into sets, and how these sets may be combined and characterized. The approach emphasizes the sympathetic but highly organized study of diversity within small or smallish data sets, where the characteristics of the case population are understood in detail and the specification of relevant sets for analysis can be informed by a great deal of empirical and theoretical understanding.

There are a large number of possible indicators that might be used to construct an index of the IT industry's power over or influence with government agencies in the field of public sector contracting. In a quantitative cross-national study these possible dimensions of comparison are treated as continuous linear variables along which the cases are arrayed in an accessible manner, where all differences can be understood in terms of an underlying scale. In the qualitative research methodology deployed here, attention focuses instead on the existence of strong sets that define either dichotomies or polarities. In this latter case, there are two distinct end-states (given by full membership or full non-membership of a set), separated by an array of intermediate positions marking cases that are neither fully in nor fully out of the set in question, but instead are partial members and non-members of it in accordance with the specifications of fuzzy logic.

Reviewing the possible differentia of the IT industry's position in relation to government agencies on public sector IT contracts suggests that three dimensions are particularly salient:

1. The competitiveness of government IT contracting, in particular the extent to which the formal, legal requirements surrounding government IT contracts emphasize on the one hand the maintenance of 'spot' market contracting and vigorous and unfettered competition, and on the other the use of 'orthodox' procurement practices, essentially the supply of services to government agencies in small packets that are and can be easily openly competed in the market place, if not by 'all comers' at the least by all qualified corporations operating in the market.

2. The market and technical dominance of large firms in the government IT market, which is specific to the sector and can often be radically different from that in other IT markets. Our key focus here is on civilian or general purpose IT systems, excluding weapons-related IT in military agencies.

3. The extent to which government agencies retain the capacity to maintain or re-establish their own in-house IT service, to design, co-ordinate and implement substantial IT projects. A key question here is whether an in-house unit can at a minimum still act in the systems integrator role or as the procurement manager in an orthodox IT contracting set-up.

These dimensions are manageable ones but they call for different kinds of evidence to place our seven countries against them. In some cases it is feasible to come up with quantitative variable proxies which are reasonably close to the things that interest us in each of these cases, as for example, looking at market concentration data in relation to dimension 2. However, our interest is chiefly in establishing how country cases considered at an aggregate level can be classified as fully members or non-members of a given theoretically and empirically relevant set, or as having in intermediate position between complete membership and complete non-membership of the set. In this perspective, some ranges of

variation may not be relevant for us to consider. For instance, in continuous variable terms there may be large differences within the set of countries with government IT markets dominated by large firms - some countries may have 60 per cent of the market going to the top 5 firms and others having 90 per cent. Yet we may have many grounds for believing that any 'extra' level of variation above (say) 50 per cent is not relevant for the way in which government IT is contracted or for the influence which the largest corporations can wield in the contracting process. Similarly knowing market concentration ratios is a useful indication of possible large firm influence. But we need to supplement it with other kinds of information before allocating countries to the polar 'large firms dominant' or 'not dominant' sets, or alternatively trying to decide whether they are 'mixed' cases and closer to one pole or the other.

Given the small number of country cases considered here, and the inherently complex task of classifying them on even a few fundamental dimensions, we restrict our attention to the five-category scheme developed by Ragin where the available categorizations are:

- *fully included in the set*, scored as 1

- *more in the set than out*, scored as 0.75

- *neither in nor out of the set*, the crossover point, scored as 0.5

- *more out of the set than in*, scored as 0.25

- *fully out of the set*, scored as 0.

The scorings here are not quite arbitrary but they are obviously constructed – for instance, those shown here reflect the choice of a five-way categorization schema, and would be different in a more complex ranking. We shall see later in the paper that scores for the intermediate cases play an important role in the handling of aggregate judgements about country cases' involvement in combined sets. But here the essential point for readers to assess is whether the information that we present is adequate for us to robustly make the qualitative

judgements about set membership or non-membership above. Using these set theoretic terms categories to locate and characterize cases in one way reduces the information needs required for consistent classification. It also deliberately coarsens and simplifies the implications of these judgements that are carried over into the comparative analysis of countries, expressing different cases' fundamental diversity but also screening out a potentially confusing mass of obscuring detail. Table 1 shows the summary codings using this schema for our case countries. We review the evidence for locating countries in these terms on each of the three dimensions in this section, before turning (in section 3, below) to the last two columns that cover the intersection and union of the fuzzy sets.

Table 1: Summary codings for the components of the industry's influence in relation to government, 1990 to 2003

Country	De-emphasis on open competition (N)	Market dominance of large firms (L)	Little public sector in-house IT capacity (I)	N . L . I (*minimum*)	N + L + I (*maximum*)
Netherlands	0	0	0	0	0
USA	0	0.25	0.25	0	0.25
Canada	0	0.25	0	0	0.25
New Zealand	0.25	1	0.50	0.25	1
Japan	0.5	1	1	0.5	1
Australia	0.75	1	0.75	0.75	1
UK	1	1	1	1	1

De-emphasis on open competition for contracts

The nineteenth century model of contracting developed with the rise of public companies to regulate spot-contracting in the market with secret competitive bidding against a publicly available RFP (request for proposals), publicized in open advertisements. Lowest price bids were normally accepted, unless there were exceptional and well-established grounds for doubting the credentials or capabilities of the firm with the lowest priced bid. The country which has gone furthest in government IT contracting towards formally renouncing the open

competition model is the UK. Following a lead taken from construction industry projects, where a movement to selective tendering and then to negotiated contracts took place as early as the late 1960s and early '70s, the thrust of government advice on large IT procurements moved to progressively de-emphasize formal open competition by the early 1980s. Under the 'new public management' emphasis upon agencies and departments taking direct responsibility for their own internal management, a range of internal controls on IT contracts were progressively dismantled by the early 1990s, creating a much more de-concentrated system than previously where large departments could run their own policies in their own way. Partly in response to experience of large IT projects failing, government advice also put more and more stress on carefully controlled selective tendering, with an intensive pre-qualification stage leading to the selection of no more than two or three prospective bidders.

NPM contractual innovations proceeded further and faster in UK government IT than anywhere else in the world with very large and very long-term outsourcing contracts (for instance, the IT aspects of all central government income tax and other tax collection IT operations for a decade), with huge contract prices and little or no safeguards against information impactedness problems.

Australian contracting policy was similar to the UK's in the pre-new public management (NPM) era. However, from the late 1980s under a Labour administration the government moved to remove curbs on contracting which sought to provide safeguards on the involvement of smaller, Australian-based companies in the government IT sector. Instead emphasis was placed upon a more strictly 'liberal' interpretation that prioritized price competitiveness, however obtained, and encouraged departments and agencies to involve large external corporations more in the design and development of their major business systems. The advent of a Liberal/National administration committed to downsizing the state lead to a prime ministerial initiative to force all commonwealth departments and agencies to

outsource their entire IT operations to the private sector. The vehicle chosen to achieve this objective was a centrally decided 'clustering' of departments into groups, each of which would transfer its IT operations log, stock and barrel to the largest international and Australian-based IT corporations. After 4 years this cluster scheme fell apart amidst acrimonious disputes between departments, and strong criticisms from the Australian National Audit Office and a government-appointed special inquiry team. Only a few small fig leaf clauses mandated that large firms provide a degree of support for Australian small firms and IT sector development via partnering and mentoring schemes. On the other hand, Australian processes did retain elements of real competition at the stage of the initial cluster contract allocation, and department and agency officials did their best to reduce their dependence on single contractors and to encourage relatively rapid re-contracting and preservation of core 'intelligent customer' capabilities.

By contrast to these two cases of competition requirements being marginalized or sidelined, some countries still place open competition at the centre of their contractual regimes. They have developed a number of approaches for coping with or mitigating the advent of oligopolies or the possible loss of expertise to large contractors. In the first place, contractual law is still very much based upon open, all-comers competition, rather than restricting access to forms on a pre-qualified list. Contracts are deliberately configured so as to preserve a capability for mid and small-sized firms to bid as plausible main contractors, so that giant, all-encompassing projects are rarer. Governmental staff may do more of the 'systems integration' role, letting out discrete packages of work to different corporations and managing their joint working. Rules favouring small businesses' involvement, or those advancing participation by home-country, ethnic-minority owned or female-owned firms alongside 'majors', can have the effect of broadening and enhancing competition. And in the more competitive policy regimes government ministers, agencies and officials all see the

maintenance of requisite diversity in the government IT market as an important policy goal, a key background condition that needs to be met and maintained by active steering and appropriate inducements.

In these terms the USA, Canada and the Netherlands are clearly the most wedded to competitive contracting, although their approaches are radically different ones. US departments' policy is to encourage and develop the government IT market by keeping it very vigorously competitive and encouraging the emergence and development of small technology companies. US government IT operations show tremendous scale and variations, with both civilian office systems specialists and large defence-sector based contractors having significant market shares. So maintaining a diversity of major contractors has been relatively easy at federal level. US contracts were for a long time configured in ways which also fostered frequent competition, with terms limited to three years, large-scale projects modularized into discretely contractable pieces, and considerable Congressional and OMB resistance to more innovative contractual vehicles. Although multi-year and multi-task contracting vehicles developed in the National Performance Review era have been used increasingly since the end of the 1990s, the pre-qualification criteria here were relatively easily met and the 'A' list contractors in each vehicle are still numerous and must compete in only a slightly reduced way for specific task orders. New contract vehicles also have restrictive thresholds (sometimes evaded or expanded by serially letting contracts) and are subject to periodic review. There is a vigorous culture of contract surveillance and contractors are prone to contesting any awards that seem to them unfair, although a dedicated IT contract appeals tribunal which elicited frequent tussles over contract allocations and consequent legal delays was discontinued in the 1990s. But the history of close industry surveillance and litigious contestation of any dubious contract awards by agencies have contributed to maintaining the salience of rigorously abiding by formal competitive rules. Most government

officials are keenly aware of the dangers of becoming over-dependent on one or a few suppliers, and departments and agencies take active steps to ensure that they retain options and can solicit genuinely competitive bids for all contracts.

In the Netherlands the maintenance of a competitive government IT market is achieved by radically different, corporatist means. Agencies and government departments split contracts up into what are by international standards very small packages of work – single contracts exceeding $1 million, for example, are relatively rare events. Each agency likes to develop and keep up relations with a plurality of suppliers and a conscious effort is made to ensure that this diversity does not reduce over time – if one contractor seems in danger of dropping out of the race, the agency may bring forward appropriate packages of work to keep it engaged. Agencies also have large in-house IT capabilities (see below), so that they have the option of carrying out contracts in house if competitive bids cannot be found in the private market. Large projects are always envisaged from the outset as multi-contractor and designed so that the agency maintains options for tenderers.

The Canadian federal government's IT market was described as a 'very diffuse market' by various interviewees and combines aspects of both the USA and the Netherlands. It shares the USA's strong pro-competition emphasis (with many officials claiming stronger adhesion to the formal provisions of NAFTA, the North American Free Trade Agreement than in the USA), with an appeals tribunal at which unsuccessful bidders may 'protest' awards made by the government. Canadian departments and agencies have easy access to much the same large and relatively diversified IT industry as operates in the USA as well as a strong domestic player, CGI. In addition, the federal government places a high premium on avoiding undue government dependency and retains a far larger capacity than most of the other countries to take back the direct management of failing IT projects and systems. Indeed, many of the leading vendors describe the federal government as their main competitor and

report ruefully that 'the Government of Canada have not embraced outsourcing'. The wholescale 'Design, Build and Operate' contracts common across most of the other countries apart from the Netherlands are still uncommon in Canada; rather, the government uses 'standing offers', where they put out a Request For Proposals (RFP) for various types of skills and a maximum price and use in-house expertise to manage the project, bringing in skills as needed via the standing offer. In common with the Netherlands, the Canadian government's contracts have been generally small in terms of contract value compared with the US, although the 'Secure Channel' project to create a governmentwide secure intranet, a £1 billion contract won by an 'inter-galactic consortium' of contractors, has broken with that tradition.

The New Zealand case is close to the fully competitive levels found in the USA and Netherlands, but not quite wholly in the same set. Historically New Zealand's dominant central government developed close relationships with a small number of multi-national IT industry majors, with their office blocks crowding around the civil service district of Wellington. Like other Westminster systems such as the UK and Australia, New Zealand in the early 1980s looked as if it could develop away from the open competition model of IT procurement. In fact the country's distinctively strong 'new public management' (NPM) developments in public management and administrative took it on a radically different route to the UK and Australia, one which pushed it back towards a greater emphasis upon open competitive tendering, accepting lowest cost bids, and avoiding newer contract forms and vehicles.

The centrepiece of the New Zealand NPM changes was that the chief executives of government departments and agencies all became contracted employees, appointed for very short three-year terms and tasked to implement for their client ministers detailed contracts on behalf of their department and agency. Chief executives became personally answerable for all aspects of their agency's performance. And central to most of their contracts for around a

decade and half were demanding cost reduction and cost efficiency targets, partly responding to the economic crises which sent New Zealand plunging to 26th out of 27 countries in the OECD by 2000 in terms of per capita GDP levels. The NPM arrangements strongly encouraged risk-averse behaviour by chief executives, including the break-up of IT projects into modularized smaller-scale changes where the agency's potential exposure to losses was minimized, and improvements were fitted as far as possible within chief executives' three year terms. This stance lead to a scrupulous insistence on operating all competition processes rigorously and impartially, and a strong move away from negotiated contracts. These considerations lead to us categorizing the New Zealand case as not a fully competitive one, but clearly more competitive than not, even though the key mechanisms producing competition are the NPM changes rather than the overt contract regime itself.

The final intermediate case is Japan, perhaps the most complex de facto policy situation, and the country whose *modus operandi* in government procurement is most resistant to easy classification by outside observers. On the surface Japan is apparently strongly committed to the open competition model. All government IT contracts are officially short-term, usually lasting no more than a year to three years, with the vast bulk of them being annual procurements. Longer term contracts are virtually unknown, and no formal acknowledgement is made of negotiated contracts, nor are any innovative contract vehicles in use. Open tendering is practised, so that any firm can in principle enter the race for any particular contract, with new companies bidding 'out of the blue' or established contractors elsewhere deciding to challenge an incumbent. In its dealings with the World Trade Organization Japan strongly insists on the complete openness of all government contracts to bids by multi-national or non-Japanese companies and on the absence of any pro-Japanese rules or biases of any kind.

But in practice the Japanese government IT market is highly oligopolistic and closely structured. Virtually all available systems work is distributed across the main Japanese contractors, especially NEC, Hitachi, Fujitsu, IBM Japan (which took a long time to establish itself in the Japanese government market as a distinct company), and Toshiba, each of which began as essentially hardware firms but have subsequently developed software and systems integration capabilities. The firms generally have very long-lived relationships with individual ministries, and the annual contracting round is in most years purely formalistic, since it would not be practicable for any firm except the incumbent to take over the running or maintenance of ongoing proprietary systems put in place by a rival. Very occasionally, at the end of one integrated project and the launch of another by a department, one of the Japanese majors will challenge an incumbent rival for work from a department or agency with which it has not previously had a relationship. Occasionally also another Japanese company may win a role within a consortium fronted by a Japanese major. But most annual competitions produce only one credible bid, and Japanese companies have relationships lasting at least 15 to 20 years with the departments where they have established links.

The market and technology dominance of large firms

A key set of data underpinning our scores for this dimension concern the estimated market shares of the largest firms that are shown in Table 2. They show

Table 2: The estimated market shares of the government IT market taken by the largest contractors, 2000-2001

	Estimated % market share of		
	Top 5 firms	Top firm	Score for large firm dominance
Netherlands	-	-	0
USA	74	30	0.25
Canada	-	-	0.25
New Zealand	95	57	1
Japan	70	44	1
Australia	98	50	1

UK	83	65	1

considerable differences, with the top five firms share ranging from below a fifth in the Netherlands to over 80 per cent in the UK, New Zealand and Australia. Nonetheless the middle countries in this range still show around a third to two fifths of the government IT market in the hands of the top 5 firms, a relatively highly concentrated market by any private sector standards. The UK is quite unusual in the extent to which a single very large systems integrator corporation, EDS, is on its own in a near-dominant position within the government IT market. Officials in many other countries that we visited remarked that this must be an unbalanced situation. They believed that their governments just would not allow such a configuration to arise there.

Looking briefly at each of the countries we can note some other indications of large corporations' market and technical influence, many of them specific to one country. In the USA rules mandating small business participation (and to a much lesser degree participation by black-owned and women-owned businesses) have fostered the development of small to mid-sized companies, many of which deliberately restrict the scale of their operations so as to qualify for government consideration. Consortia arrangements are also flexible and more balanced than in most other countries, with small or mid-sized firms sometimes operating as the main contractors and IT majors or even systems integrators acting as sub-contractors to them.

At the other end of the range shown in Table 2, the countries with dominant IT firms, there are also a range of patterns. New Zealand shows an interesting pattern of large firms dominating the government IT market in terms of market share, but without the IT industry as

a whole being in a strong position. With a population of only 3.5 million people New Zealand is a tiny market in world terms, and the presence of major companies (such as IBM, EDS and others) at all partly reflects the country 's active banking majors and stock market that works when other world markets are shut, plus a tradition of having a well-educated, English-speaking but relatively cheap workforce. The large companies have long had oligopolistic control of the government IT market but since the early 1990s there has been a virtual cessation of large or long-term IT projects, helped along by a major fiasco with a police IT modernization programme. The personal answerability of chief executives in government ministries and agencies and their desire to minimize costs has lead to relatively bleak conditions for all industry actors, with old systems kept in being without major replacements and with small contracts that are rigorously tendered. New contract vehicles (such as multi-task contracts, output-remunerated contracts and private finance initiatives, PFIs) have all been lobbied for energetically by the major firms and IT industry bodies, but to date have been conspicuously absent in New Zealand.

In Australia the lasting legacy of the Liberal National government's outsourcing initiative was a wholesale transfer of commonwealth government IT functions to the four or five largest Australian-located IT corporations. These large blocs of work were let by negotiated contracts which effectively excluded any competition from small or mid-sized companies. The Liberal-National government's experiment left the large companies occupying stranglehold positions as main contractors with whom the rest of the industry had to deal in order to have any access at all to the government IT market. The subsequent crises of the clustered contracts, and their eventual unravelling in 2003, came too late to open up any substantial scope for new competition to enter the market. The lengthy contractual uncertainty and turmoil involved also meant that at national level there was also much less use of NPM-inspired new contractual vehicles in Australia. However, some radical innovations occurred

elsewhere, such as move to a single IT supplier across all government departments in South Australia – but again the contract went to a large international systems integration firm.

In the UK Conservative government policies of favouring outsourcing (via compulsory competitive tendering for all IT services) placed a premium on securing the involvement of large IT companies, especially systems integrators. EU rules governing the transfer of civil service or other public agency staffs to private contractors required that their existing terms of employment be preserved, and effectively made it impossible for any but the largest IT companies to bid as main contractors to take over the running of established IT centres and operations. Wholesale outsourcing of complete IT functions was encouraged by the Conservative policy of 'strategic review' where very large blocks of work were reappraised every five years - with a strong presumption that unless government was 'best in world' at doing something then it should be outsourced. Successive Conservative and Labour governments also placed a great deal of emphasis on the development first of PFI projects and later of 'public-private partnership' arrangements, under which the ownership of key strategic government databases and computer projects could be transferred wholesale to (inherently) large IT companies.

The potential to run government IT in-house

The ability to effectively commission alternative sources of advice is also bound up with the wider capacity of government departments and agencies to act as 'intelligent customer' in their dealings with the IT industry. Here a number of different forces were evidently at work in different types of agencies and across countries:

- *A concern to retain operational IT expertise* was evident in some kinds of agencies (especially scientifically based agencies, such as patents offices) in all our countries. In some countries with competitive IT markets this stance is more

generalized. In the Netherlands retaining a high level of in-house IT capabilities within public sector agencies has been integral to maintaining relations with large numbers of contractors mainly carrying out small-to-medium projects, scoped, defined and integrated together by government personnel. The Canadian federal government retains high levels of in-house capability and over half of its $4 billion IT expenditure is devoted to the internal market. Some Canadian agencies (such as the Canadian Customs and Revenue Agency) outsource a tiny proportion of their IT work, with spot contracting for specific skills preferred over project or system-based contracts. In the USA systems integrator companies have had some success in pushing into the area of defining overall systems architectures and managing large-scale projects, but most agencies still retain a high level of IT-qualified staff – although impending waves of retirements among federal personnel may reduce governmental capacity here sharply in the next decade.

- *How resources are allocated to contract management* is a key influence upon government's capacities in countries where most IT is outsourced. In the private sector companies that outsource their IT operations to contractors will commonly dedicate between 5 and 10 per cent of the overall contract price to managing and improving their relationship, and retaining sufficient expertise available to managers. However, governments in some countries which use outsourcing a lot have often tended to assign much lower levels of resource to contract management, often as little as 1 or 0.5 per cent of the overall contract price. Where IT outsourcing reflects a political/ideological push by ministers, as in the UK under the Conservatives and Australia under the Liberal-National coalition, monitoring costs are pushed down most, as if ministers believe that so great an

alignment of interests between firms and agencies can be achieved that it is unnecessary to insure against it.

- *The concentration or dispersion of IT and contract expertise within government* is important in some countries heavily influenced by the NPM movement, such as New Zealand and UK. From the mid 1980s to late 1990s, both ran down or abolished completely previous central capabilities for monitoring or evaluating IT contracts and trends, especially following the logic of decentralizing to agencies and removing centralized hierarchic controls. Some minimal central capability then had to be rebuilt (painfully) from the late 1990s to cope with e-government demands, the need for 'joining-up', and to re-impose contract disciplines – as with the creation of the Office of the e-Envoy in the UK (assigned a £1 billion budget for putting government on the Web), a new Director General for IT directing the NHS National Programme for IT (which finally grappled ten to fifteen years late with integrated IT systems for the National Health Service, with a budget of £2.3 billion), and the Office of Government Contracting (which concentrated expertise in contract evaluation and from 2000 finally began to control the incidence of completely non-working government IT projects). In other countries, like Australia, IT and contract expertise remained with large departments throughout. In countries with more fragmented IT markets the need for central expertise is lessened because the competition process generates more information and agencies anyway retain more in-house IT expertise.

The pace at which governments learn from their experience is also an important influence on how governments concentrate or disperse knowledge. In the UK the Treasury promoted the private finance initiative (PFI) process from the early 1990s, with contractors being invited in many cases to provide the finance for new IT investments and system

developments in return for a stream of future income responding to the availability of the systems and the extent of government use of them. PFI processes were supposed to cut costs and improve deliver reliability by forcing contractors to internalise the risks of new IT systems development and to manage these processes more rigorously and tightly. For almost a decade a body of evidence accumulated casting doubt on this fundamental logic in relation to IT projects, where government could rarely bare the costs of catastrophic non-delivery and the asset value of non-working systems for contractors was also negligible. Only in 2003 did Treasury advice at last acknowledge that this was a doomed hope for government IT, withdrawing PFIs for IT projects because agencies and departments effectively had to keep intervening to bail out PFI contractors in difficulties every bit as much as with conventional procurements.

2. THE PERFORMANCE OF GOVERNMENT IT

Assessing how successfully governments manage and develop their portfolio of investments in IT systems is a difficult undertaking. A wide range of reports are regularly published which contain cross-national evaluations, usually focusing on a single aspect of performance, such as progress in developing e-government or comparative investment levels.[1] Few studies seem to have methods that sustain close inspection and most reflect judgements by small juries of experts or are based on subjective views of a wider range of respondents. Where more objective studies are conducted they seem to reveal sharply varying investment levels across countries, as with the wide variations in spending undertaken to prepare for possible Y2K problems, with countries such as the USA or UK apparently spending tens or even hundreds of times more than other advanced industrial countries, such as Italy. But even here, extensive interpretation of data is needed, with a great deal of new IT investment reprogrammed and

badged as Y2K spending in the USA and UK but in fact having much more general impacts on systems' renewal and performance.

We have no magic solutions for these well-attested problems in making cross-national judgements, except in two respects. First, our judgements are based on relatively rich sources of evidence, with interviewees' subjective views cross-checked with available objective indicators, in-depth reports and other information (see Appendix 1). Second, we focus on three indicators which are shown in Table 2 and are relatively susceptible to broad categorizations in set theory terms. We explore each of the three criteria in more detail below.

The scrap rate of government IT projects

There are sharp variations across our seven countries in the extent to which government IT projects are publicly scrapped, either through projects being cancelled at intermediate stages (but after significant levels of public spending have been incurred) or are acknowledged as wholly or partly non-working or non-productive

Table 3: Summary codings for the components of the performance of government IT, 1990 to 2003

Country	IT projects succeed and are rarely cancelled (S)	Government IT is competitively costed (C)	Government IT is comparably modern to private sector provision (M)	S . C . M *(minimum)*	S + C + M *(maximum)*
Netherlands	1	1	0.75	0.75	1
Canada	0.75	1	0.75	0.75	1
USA	0.75	0.75	0.5	0.5	0.75
New Zealand	0.5	1	0.25	0.25	1
Japan	1	0.25	0.5	0.25	1
Australia	0.25	0.25	0.75	0.25	0.75
UK	0	0.25	0.25	0	0.25

systems once rolled out. The UK is apparently a world leader in these stages - as Table 3 suggests, a large number of projects have been scrapped in the last decade, with significant losses of complete investments or with partial write-offs of investment (see Organ, 2003 for a list of 15 recent examples). This record is closely associated with a pattern of price rises in contracts over implementation time and of significantly less functionality for implemented systems than initially expected. The scrap rate accelerated (it was hoped, temporarily) after the introduction of the Office of Government Commerce's new 'Gateway' system for rigorously and externally assessing major capital projects at successive 'gates'.

Part of the UK's unenviable record also reflects some strong and enduring features of the institutional set-up at central government levels. The line between political and administrative decisions is blurred by the existence of a generalist civil service with restricted professional expertise concentrations, and by a tradition of political 'hyper-activism' where succeeding governments and ministers often cancel their predecessor's projects and policy lines change extensively in short time periods. An absence of effective parliamentary scrutiny of legislation and a deficit of checks-and-balances internally under some conditions both contribute to a 'fastest law in the West' policy style in the UK. For instance, new tax, welfare and regulatory laws are regularly adopted by ministers and approved by Parliament for which IT systems have not yet been planned, tested or implemented, but which instead have to be constructed post-legislation from scratch, often within very demanding timescales.

The Australian record in also poor in the recent period, but not because of the UK's pattern of a high level of individual project failures across a wide range of agencies. Instead the problem here was the failure of the mid-1990s whole-of-government initiative to outsource IT to major private companies in clusters. This ambitious programme ran into parallel difficulties across all contractors and many of the clusters, as different departmental and agency customers struggled to establish a clear client-contractor relationship. In 2001,

following critical reports by the Australian Auditor-General, the clustering initiative was scrapped at an estimated costs of Australian $4 billion, and replaced by more conventional individual contracts between agencies and substantially the same contractors. Those agencies that escaped the clustering initiative (such as Centrelink, a member of 'Cluster 1' for which the contract with CSC was cancelled), have a more successful record.

In New Zealand the record of government IT contracts has been more successful than in the UK, with only one major IT system failure in the last two decades, a new IT system for the police force for which IBM won the contract but which was subsequently cancelled when costs spiralled and the system's effectiveness was called in question. Subsequent projects have been kept smaller scale and tied to proven technologies or intermediate improvements. But given the conservatism with which projects have been set up it seems difficult to place New Zealand on more than the cusp between successful and unsuccessful performance.

In most countries the norm will be for a majority of government IT projects to work most of the time. In Netherlands there is a particularly low rate of scrapped projects, partly because their characteristic contracting approach is to parcel out to the private sector only well-defined and specific pieces of work. In addition, however, the internal public sector techniques for IT project planning in the Netherlands are well-developed and sophisticated, and there is strong political backing for proceeding in well-defined stages. For instance, new tax or welfare schemes presented to parliament have to be accompanied by certified evidence that appropriate IT systems exist to implement them.

In Japan government IT projects are virtually never publicly cancelled, (although there has been one such incident where this occurred in the last two decades). It is rare even for ministries or contractors to publicly admit problems with the functionality of systems. If problems emerge in contracts, the major companies all respond to problems by devoting enough extra resources to them to ensure that they are fixed, even if this makes the project a

loss-making one for them. Reputationally it would be much more serious for them to admit a large-scale failure, since they could then lose their established position with the ministry concerned and jeopardize their standing in the eyes of other ministries where they had work, as well as with prospective agency and corporate customers generally. So whereas in the UK there is a high level of public acceptance of government IT failures, and a weary recognition that any one case does not rule out the same company implementing other projects very well, in Japan companies fear that large public failures could create a spiral of declining reputation. Central government ministries also rarely wish to admit publicly that projects have failed, which would be bad for the department's public standing and ability to negotiate with the Finance ministry. Hence departments will often assist compliant contractors who rectify problems by drafting in more staff and resources by allowing them to recoup the costs involved, by spreading extra benefits across a series of future contract negotiations. Departments and contractors will also seek to hide functionality deficits, where they occur. So long as systems are in being on time they will generally be represented as successes. These practices have adverse implications for the costs of government IT systems (see below), but on this index they mean that Japan has an abnormally low scrap rate for projects.

The most 'normal' countries in terms of failure rates for government IT projects are the USA and Canada, which achieve relatively high but not complete levels of successful delivery. Their rate is comparable to that achieved in the private sector, which informed observers estimate at three quarters to four fifths of projects working within acceptable range of their intended major target aims. Canadian projects generally work reasonably well because major departments and agencies have retained substantial IT expertise to assess project development, and because Treasury Board (effectively finance ministry) control is also relatively close and detailed. There have been episodic major project cancellations, such as a major EDS project with the Human Resources (that is, social security) Department in 199x.

But, as in this case, cancellations, non-delivery or radical under-performance are not accepted in a fatalist way, as in the UK. Instead they represent major reputational blows for the corporations concerned and can lead to prolonged contract droughts as other agencies seek to avoid any avoidable recurrence. For instance, Canadian federal departments reacted to the EDS problems by demanding in future contracts the specified commitment of particular individuals deemed crucial managers or technologists for their new projects. EDS have had problems in increasing market share ever since.

In the USA, extensive project vulnerabilities in the IT sphere are acknowledged, but strong controls are built into the contractor-selection stage which make it counter-productive for major corporations to default completely on deals. For instance, information-sharing amongst federal departments and agencies has increased in response to Congressional criticisms of a previous willingness to separate out performance by major firms across policy sectors. Functionality downgrades have remained more common, with expectations often managed downwards in terms of systems capabilities, timelines for automation of processes extended, and projects written off and scheduled for replacement more speedily than originally envisaged – all problems which have plagued tax-raising systems after spiralling expenditure on the mega-scaled IRS tax modernization project in the mid 1990s (the total cost of which has reached $30 billion by some estimates, *Computer Weekly*, 23rd January 1997). Congress reacted to this debacle by insisting on directly controlling disbursements for future modernization work, in a more modularised way focusing on specific deliverables. The American IT industry also learnt long-running lessons from the IRS affair, recognizing both that future success with larger projects would inevitably be tied to progress on bottom-line deliverables and that the reputational costs of large failures had considerably increased. In 2001-2, for instance, the major EDS 'Navy-Marine Corps Intranet' contract ran into severe difficulties, as the company grappled with the considerable diversity of systems across navy

and marine corps shore bases which it was seeking to replace with an integrated systems architecture. The onset of hostilities in Iraq in early 2003 saw an extra-ordinary effort by the contractor to be seen to be committed to delivering flexibly on the contract, helped by extra war-related credits and renegotiation elements.

The costs of government IT

In designing, procuring and operating IT systems a successful government is one that regularly and consistently achieves pricing levels comparable to those attained in the private sector or in other countries. But this apparently straightforward criterion is never easy to operationalize because government systems are often larger than and differently structured to anything in the private sector. Comparisons across countries are also difficult because there has been little by way of convergence amongst governmental IT systems, which remain stubbornly differentiated in response to country-specific policy influences and administrative procedures.

However, from interviews with government administrators and industry respondents, and scrutiny of the publicly available information about major government IT contracts, it is possible to group countries into three categories. In three countries, the Netherlands, Canada and New Zealand, government IT prices seem on a par with those in the private sector. In the USA there are indications of limited government sector disadvantagement, with contract price levels perhaps somewhat higher than those achieved by major corporations. And in the three remaining countries, Japan, Australia and the UK, there are considerable grounds for believing that contract prices for government IT are relatively high.

The Netherlands, Canada and New Zealand have been successful in paring prices to market levels for very different reasons. In New Zealand the government's intensive contracts scrutiny regime, and strong incentives for chief executives to secure fully defensible prices

and conditions for contracts, placed some acute pressures on the major IT industry players who traditionally dominate the government market. The relative decline in major project work from government and the depressed condition of the New Zealand economy for much of the late 1980s and 1990s squeezed industry profit margins. In the Netherlands by contrast the government has been successful by becoming just another set of medium-sized customers, each dealing fluidly with a diversity of corporations on well-specified and un-gigantic contracts for tractable and easily monitorable projects. In Canada the diffuse market with its mixture of domestic and global players, as well as the capability of Canadian federal government in-house IT teams to undertake projects themselves ensures that corporations cannot bid too high.

The USA is somewhat below full comparability in pricing with the private sector. Government work was for a long time more rule-bound and relatively expensive for large- and medium-sized firms to compete for, with very formal, open-ended and time-consuming tendering procedures, long lead times, inflexible contract terms, no opportunities for joint returns or profits, and a public scrutiny regime orientated towards preventing any firm from making super-normal profits, for whatever reason. These legacy problems were made worse by the possibility of formal contract challenges by losing firms, which were often activated in the 1980s, further slowing down the delivery of products until dispute resolution procedures ground slowly to a conclusion. This background helps explain the government 'buying a 386 [PC] at a 286 price' – that is, securing delivery of last-generation IT at current-generation prices. President Clinton's National Performance Review marked a major catch-up effort by the US federal administration to modernize its procurement processes and break past the tradition of uncompetitive prices. By introducing call-off contracts, electronic market-places and open-market purchases using agency credit cards for smaller amounts of equipment, many of the earlier problems were relatively quickly addressed. The federal government has

also made intensive efforts to professionalize its procurement executives, upgrading their skills and pooling expertise across agencies and even tiers of government within the federation. But there remain indications that governmental procedural costs, and a certain level of risk associated with undertaking high-profile government contracts, contribute to major contract prices in the public sector being somewhat above those in the private sector.

In the remaining three countries, Australia, Japan and the UK, governments all seem to perform worse than the private sector for different reasons. In Australia the price competitiveness of government contracts was relatively high but unsurprisingly took a lurch downwards during the forced outsourcing of government services, which effectively created a closed market for the country's largest IT companies, in the end largely peacefully partitioned amongst them.

In Japan the apparent persistence of managed relationships between ministries and major IT companies, with little evident competition despite annual contracts, means that many observers believe that contractors are charging relatively high prices, especially for maintenance work on contracts already installed with proprietary systems. Although changes of contractor do take place, Japanese firms are reluctant to take on maintenance work for systems they have not themselves installed. And companies seem to invest quite a lot in specifying their systems in ways that insulate them from later challenges. The tradition of contractors picking up the tab for unexpected problems in rolling out new systems also means that maintenance costs can be increased, to let firms recoup earlier losses.

Lastly in the UK civil servants take great pride in insisting that competed contracts let under long terms achieve market-comparable or better prices, and point to scrutiny by the UK's strong supreme audit institution (the National Audit Office) to support their contention. And initial contracts let by departments and major agencies to contractors have often been competitively priced. However, the UK also became unique amongst the countries we

analysed in the extent to which government departments effectively acknowledged that when policy changes or other new developments made alterations of existing IT systems essential then only the incumbent IT suppliers could constitute a plausible firm to deliver these changes. Large firms dealing with government grew expert in estimating the likely scale of policy-induced changes, often effectively driving a coach and horses through the carefully specified initial contracts. It became expected practice to pitch prices for initially competed tranches of work relatively low in the expectation that later revisions and extensions would create negotiated contracts of between 4 and 6 times the initial competed contract price. Assessing negotiated contracts for price competitiveness is sometimes attempted, by means of pricing standardly-designated 'function points' in systems, suggesting that initial prices are rarely matched later on.

The modernity of government IT

The final dimension on which we seek to position countries is the up-to-dateness of government sector IT systems and networks compared with private sector provision. (A within-country focus is necessary here because of the differences in per capita GDP between, say, the USA and Japan on the one hand and New Zealand on the other, which will feed into different IT levels via varying tax receipt levels). Our focus here is both on fundamental back-office systems and large databases, and on front-office software, network speeds and capabilities and the level of development of e-government services compared with e-tailing, electronic banking and other Web-orientated sectors.

Table 4: Country's performance in e-government according to international rankings 2001 – 2003

	Combination of e-government rankings across 7 countries *(maximum =28,*	**Usage of e-government % total population** **2003 2002 2001**

	minimum = 4)			
US	23	44	43	34
Canada	22	51	48	46
Australia	22	47	46	31
New Zealand	14	45	40	N/A
Netherlands	13	52	41	31
UK	13	18	13	11
Japan	5	15	13	17

Source: For the combination ranking, countries were ranked in relative order for each of the rankings shown in Accenture, 2003; UNPAN, 2001; Economist Intelligence Unit, 2002; World Markets Research Centre, 2001; Taylor Nelson Sofres, 2003 and assigned scores (top score for 1st, bottom score for last) which were added together to obtain combination score. Usage of e-government figures are from Taylor Nelson Sofres (2003 and 2002)

We score Netherlands, Canada and Australia at the top in the extent to which their public sector agencies have fully modern IT, nearest to that in larger private firms, with different reasons for each country. The fundamental Dutch IT systems are modernized and well-structured, with less of a backlog of legacy problems than comparable countries and many large private sector corporations. Public sector offices also transitioned to fully-Web enabled networks by an early date. E-government progress has been less in the Netherlands, with the country lagging behind on the rankings produced by international organisations and consultancies, but then private sector take-up there has also lagged behind other leading European nations. In general, Dutch organisations were early and innovative users of pre-Internet technologies, so the 'dot.com' boom was less marked there. Perhaps the most important of the various indicators produced by consultancy firms, the percentage of citizens actually using government on-line services, was 51 per cent for the Netherlands, higher than for any of the other seven countries as shown in Table 4 (Taylor Nelson Sofres, 2003).

In Canada and Australia there has been a good level of investment in updating fundamental systems, and public sector offices mostly have Web-compatible networks and desktop systems of recent vintage. Both countries topped most e-government rankings from 2000 onwards, overtaking the initial US lead by dint of well joined-up policies and a more concerted buy-in from better integrated civil services with more progress-orientated

organizational cultures. However, both countries have some substantial legacy problems in major systems.

The USA and Japan we would rate as on the cusp between being modernized and lagging behind the private sector. Some aspects of US processes show fast adoption, especially in terms of generating government Web sites and adopting new technical standards (such as XML). The competitive US IT market, especially post-National Performance Review, means that there is a relatively rapid diffusion of technical innovations within the government sector, especially in terms of front-office systems and lower cost innovations, like starting basic Web sites. However, the US federal government also shows some persistent weaknesses with very large legacy systems that have only been partially modernized or even kept running at all, of which the massive Internal Revenue Service systems are perhaps the most long-running and best known example. US departments and agencies still have remarkably siloed systems, with inter-agency communication limited even in apparently high saliency areas, such as national security. While the USA originated more government Web sites far faster than any other nation (up to 3,000 in the Pentagon alone), it also took until late 2000 to provide any effective central finder site for the federal government as a whole and longer still to create fledgling integrated e-government systems. Many superficially impressive US e-government achievements (such as 45 million Americans filing their taxes online) also turn out on inspection to rest on very long-lived EDI (electronic data interchange) systems, with far fewer transactions using Internet protocols. Set against the background of a very large and dynamic private sector, there is a small but still clear gradient between the modernity of the public and corporate sectors' IT. In Japan, the performance of legacy systems is impressive and ministries are well equipped; by 2003 they universally used laptops that would be relatively rare in other countries. However, Japan's e-government progress has to date been restricted (although a recent initiative seeks broader inter-connectedness across

government systems), the government has been very slow to recognise the significance of the Internet (Koga, 2003) and Japan is consistently lowest of all seven countries in the consultancy rankings for e-government (see for example, Accenture, 2002, 2003; UNPAN, 2001).

The two countries lagging in the modernity stakes are New Zealand and the UK. New Zealand's problem is twofold. First the country slipped dramatically down the OECD's rankings of countries in terms of GDP per head in the 1980s and 1990s, only starting a modest clawback in 2001. So resources for running the public sector have been strained in many dimensions, with renewals of major government IT systems often put off. Second, the NPM system of chief executives on short-term contracts being constantly assessed for cost savings and administrative paring back has strongly militated against IT modernization. Chief executives have strong 'bureau-shaping' incentives to avoid major IT system renewals taking place on their watch, with all the attendant risks of cost over-runs and new system shortfalls. It was far better, in their view, to restrict new contracts to essential 'patch-and-mend' operations to keep legacy systems in being and pass the problem along to the next in line for the agency top job. As a result, three crucial legacy systems underpin essential New Zealand government operations (tax, social security and policing/law and order) that industry sources regard as fundamentally anachronistic and fragile. In addition, the high level of fragmentation of systems across multiple agencies meant that New Zealand largely missed the first e-government wave, launching a joined-up programme only in spring 2001, years behind other comparable small countries like Singapore and Finland.

The UK's government IT systems also score badly, despite a superficially more centralized and better-funded effort at modernization post-1997, including an internationally well-publicized e-government campaign. During the 1980s and '90s the squeeze on public spending under Conservative governments lead to long-run under-investment in IT

modernization, which by the end of the 1990s and even into 2002 left major government agencies struggling to get by with non-Web compatible networks and extensive front-office systems that were not even PC-based, but still used dumb terminals. Legacy IT systems in the UK developed historically as jungles of interacting separate mainframes, almost 200 in social security and 100 in tax-collection, with even a small sized agency like Customs and Excise having a complex map of around 60 single-function systems which is very difficult to adapt to new policy demands. Post-1999, although the new Labour administration launched initiatives to catch up, many of these changes achieve less than may at first sight appear. For example, the UK's well-publicized e-government campaign focused for nearly four years on getting central government departments and agencies to get their services on-line, at considerable cost in terms of dedicated budgets, but presented the task as being about service availability and not about citizen usage of services. In areas like e-taxation the UK has lagged behind the USA, Canada and other nearby countries, such as Ireland and Table 4 shows very low usage figures of public sector Web sites compared with the other countries. In other areas, such as the development of joined-up IT systems in health care and law and order, it will also be many years before performance improves on current trends. Meanwhile the contrast between public and private sector IT systems is strong in the UK.

3. HOW INDUSTRY POWER AFFECTS GOVERNMENT
IT PERFORMANCE

Putting together the three dimensions of IT industry power and the three elements of government IT performance, we follow closely the suggestions made by Ragin (2000). Our primary concern in sections 1 and 2 has been to assign cases to sets, or to intermediate scaling points. In quantitative comparative studies the three different dimensions of scaling in each case would typically be averaged to give an overall scaling. But Tables 1 and 3 instead show

two quite different ways suggested by Ragin in which categorizations can be combined into overall scalings for industry power and government IT performance. The first approach is to look at the interactions between elements, taking the lowest score as indicating the case's location in relation to the combined set. For instance, in Ragin's example if we were considering how to jointly characterize people as belonging or not to the set of 'tall, blonde people' we should have to assign a low score to dark-haired people no matter how tall they might be, since possessing one characteristic a lot cannot in any way compensate for not having the other characteristic. In the 'fuzzy set' membership in the interaction set is the key index, and is obtained by taking the lowest scores across our three dimensions in the penultimate columns in each of Table 1 and 3. The second, less important but still interesting index is to look at the union of the sets, taking the maximum score across each of the three dimensions, a value shown in the final columns of Tables 1 and 3.

In these terms Table 1 ranks the Netherlands, Canada and the USA as the countries where IT industry power is lowest, and the UK as the place where it is greatest, with New Zealand located towards the low power end of the spectrum, and Australia at the higher end, with Japan as the middling case (chiefly because of the country's formal adherence to open competition practices). Looking at the maximum scoring column shows the Netherlands, Japan, Australia and the UK coming through as pure cases and different levels of variation in the other countries. Table 3 shows some substantial similarities in the interaction ranking, with the Netherlands and Canada getting nearest to the polar cases of effective government IT performance respectively and the UK and Japan sharing the other end of the spectrum. The USA is here the middling case, with Canada more successful and New Zealand as less successful. There is a much higher variation in maximum scores here, though with six of the seven countries achieving either a 1 or a 0.75 score on one index or another, and only the UK low-ranked across all the three dimensions.

A useful synoptic view of these overall scores is given in Figure 1. For each country it plots the minimum and maximum limits for IT industry power on the horizontal axis and the minimum and maximum scores for government IT performance on the vertical axis. The key co-ordinates in each case are the minima on the two dimensions, shown as the black dot in Figure 1. But looking at the rectangular space of variation from there to the joint maxima is useful. It provides a kind of visual sensitivity test, graphically illustrating the extent to which each country's scores on the six component aspects examined here are similar or more divergent. The range of shapes shown also visually captures the many differences that exist across the seven countries examined here. Figure 1 shows a clear pattern indicating a strong causal influence from the power of the IT industry to weak performance across governmental IT projects. The association is apparently a strong one, ordering the country cases into the clear sequence shown in Figure 1, but also showing the diversity or consistency of country scorings documented here.

Conclusions

Telling governments that competitive markets are a better context in which to do large-scale IT procurements (or private finance initiative) projects is hardly radical news. Many government officials in some countries and agencies made clear to us that this proposition is still axiomatic for their agencies. Yet some governments under pressure to deliver better IT performance, and perhaps unhappy with their existing in-house capabilities, have extensively departed from the older approach. Industry and public management exponents of such a shift have argued apparently persuasively that a more concerted style of contracting with a more heavily concentrated or oligopolistic industry is no danger at all to successful government IT operations. Alternatively they suggest that shifting to closer and more negotiated relationships with an oligopolistic industry *does* carry some risks, but that reasonably managed the shift can

also generate important compensating benefits which more than make up for the loss of a competitive context. Neither of these key propositions finds support here. Instead it seems clear that government-IT industry relations have become dangerously unbalanced in at least one major country (the UK) and that in Japan and Australia the predominance of (more) large firms has also had significant drawbacks. In each of these cases politicians and public sector managers and top officials have responded to long- and short-run market forces, operational pressures and project contingencies, but in ways which have caused or tolerated substantial shifts in the government IT market towards oligopoly. By contrast, countries like the Netherlands, Canada and the USA have fostered competitive markets in innovative and well-disciplined ways and have enjoyed substantial benefits, illustrating that there is no inevitability about the onset of a degenerative picture.

A more general sidelight can also be shed on the government IT sector and state-industry relations in this critical area. Although the tasks of government across our seven countries are remarkably similar, and the service needs, GDP levels and political contexts are comparable, the range of variations in government-IT industry relations charted here is substantial. In our research we looked constantly for 'policy transfer' and 'policy learning', concepts triggered as significant by our research sponsors, yet found little evidence of these processes beyond a residual level. Equally our own older theoretically-based speculation that government IT would prove to be fertile ground for 'the globalization of public services production' (Dunleavy, 1994; Dunleavy and Margetts, 1995) found little support, despite the presence of the same few globally-sized and structured systems integrator or hardware corporations across many of the case study countries. In an allegedly globalized world, in a policy sector with some of the most standardized technologies and products and some of the largest trans-national corporations, the patterns of government-IT industry relations are still resolutely nationally defined. So the seven cases drawn on here are genuinely and importantly

Netherlands **Canada** **USA** **New Zealand**

Japan **Australia** **UK**
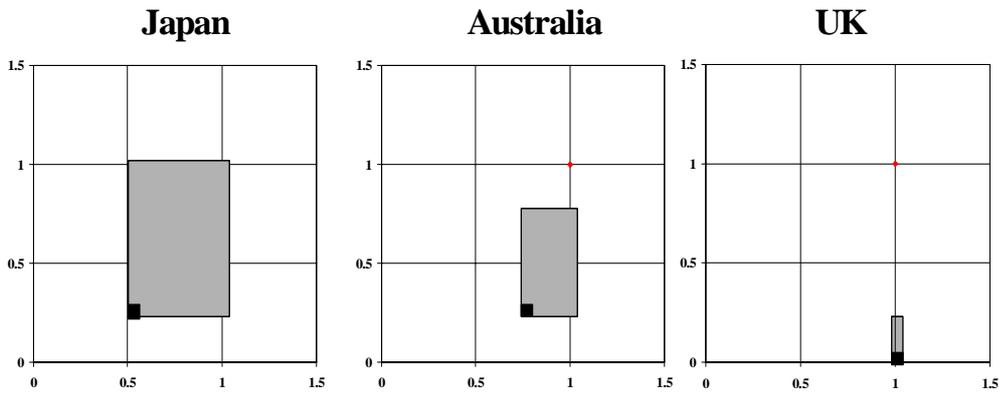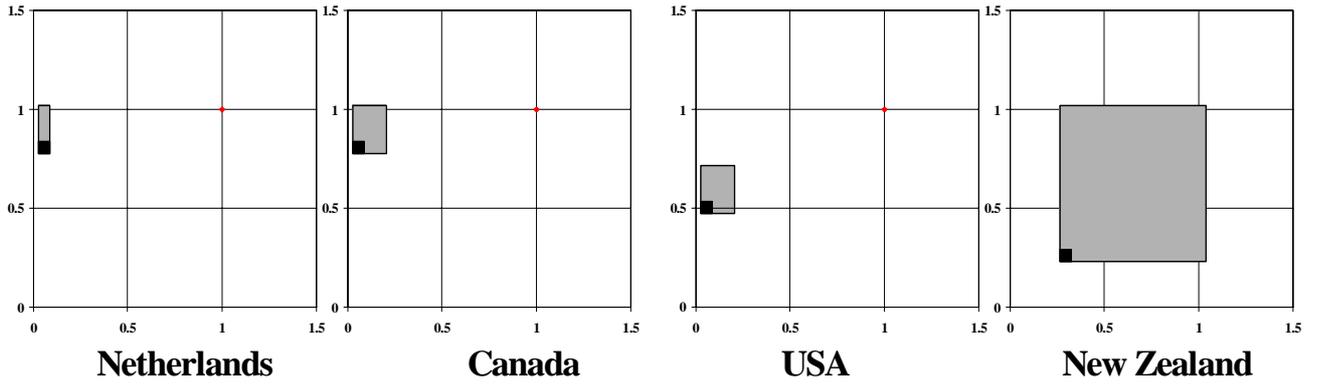
Figure 1: Mapping the codings for seven countries in terms of IT industry power (horizontal axis) and the performance of government IT (vertical axis)

■ Minimum points

Spread from minimum to maximum points

differentiated, not in any sense seven facets of a single globalized picture. One implication

here is that our conclusions must inevitably remain vulnerable to reconsideration with the

production of new cases showing different patterns of state-IT industry interaction, as well as

to the contestation of our detailed country codings set out here.

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Appendix 1: Research Sources and Methods

The paper reports the findings of a research project for the UK Economic and Social Research Council (ESRC) called 'Public-private Partnerships in Central Government ICT Systems', award no. L216 25 2030, carried out by a joint UCL/LSE team based at the School of Public Policy at University College, London (2000 – 2003) and forms part of the ESRC 'Future Governance' Research Programme.

Key methods of the research were systematic documentation research at a distance using the Internet; analysis of international on-line media, trade press, government documentation, reports of international organisations and private sector consultancies; radio and print press. Extensive and systematic use was made of Lexis Nexis Executive, the press database containing electronic national, international and local print press archives. All information thus collected was stored in a database using Access software (IMRAN) with records for all major ICT contracts between civilian central government agencies and private sector computer services providers across the seven countries. IMRAN contains data on 225 contracts, with an estimated mean value of $85 million. The majority (155) are between 5 and 10 years in length.

A core element of the research was the intensive elite interview programme with public and private sector officials across the seven case study countries. Public officials with IT and e-government responsibilities in central agencies and in tax, social security and immigration agencies were identified via the web, particularly from government web sites and documentation, local media outlets in governmental cities and trade press. Leading vendor companies were identified in each country from data collected as above and officials identified through the web, particularly company outlets and press resources (especially trade press). Academics carrying out research in this area were also interviewed. A comprehensive interview schedule was prepared in advance for each research trip, and a cascade technique was used to identify additional interviewees during the visit. All interviews with officials were recorded and many were transcribed. In total over 200 officials were interviewed across the seven countries. . The summary codings presented here are established from the database of contract information; wide-ranging analysis of press sources and reports from international organisations and consultancies; and the extensive interviewing programme with over 200 officials from public and private sectors.

For further results of this and related research see the dedicated web site
www.govenrmentontheweb.org. The full research findings of the project are to be published in
a book entitled *Government, Contracts and IT Corporations: How Bureaucrats and
Business Drive Global Public Policy Change, by* Patrick Dunleavy, Helen Margetts, Simon
Bastow, Jane Tinkler. The material from this paper summarises the findings of chapters 2, 3
and 4: 'Comparative ICT Contract Regimes', 'Government Business Relations: Markets and
Firms' and 'E-government Policies'.

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