COMMENTARY

Managing the Transformation to E-Government: An Australian Perspective

Eugene Clark

Executive Summary

Australia is recognized as a leading country in the move to an information economy, and the Australian government has played a pivotal role in this transformation. This commentary outlines some of the key issues confronting Australia as it moves towards its policy goal of achieving e-government. Although governments differ in the pace and nature of reforms required to bring about the transformation to e-government, many of the underlying issues are the same for most governments. © 2003 Wiley Periodicals, Inc.

INTRODUCTION

The focus on the role of government is warranted for several reasons. First, it is incumbent upon governments to provide the necessary infrastructure to promote a Knowledge Economy. This infrastructure includes the adoption of laws that enable and promote the adoption by public and private sector organizations of new technologies as we move toward an "Information Age."

Second, one of the most powerful ways that governments can promote e-business is for government itself to be exemplary in its adoption and deployment of new technologies and electronic media.

Third, in most countries, government is the largest interactive force in the lives of business and consumers (Forrester Research, 2000). It conducts a large number and variety of transactions every day. Governments will increasingly meet the needs of business and ordinary citizens by offering their services online. Services need to be user friendly, and citizens need to have confidence in the system. In this process, governments need to be careful to protect their brand and credibility. For example,

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the U.S. government generated US$2.6 billion on its Web site last year, making it one of the largest earners ("'Forget Amazon," 2001).

Fourth, there is likely to be growing pressure for governments to move online. For a start, citizens as consumers of government services will increasingly expect it. Also, pressures for governments to do more with less will force governments to look to information communications technology as a means of increasing efficiency and productivity.

Finally, e-government is increasingly seen as a key factor in increasing the overall competitiveness of the economy [United Nations Conference on Trade and Development (UNCTAD), 2001, p. 91].

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Leading countries in e-government tend to share a number of characteristics. They have a vision of effective policy leading to e-government and the requisite resources and change-management skills to implement it. They are citizen-centric or customer focused, with government portals organized around the needs of users rather than traditional departmental hierarchy. Leading countries have also devoted sufficient research and resources to the task of achieving e-government. Such governments have themselves been exemplary in using information technology and quick to form partnerships with the private sector in achieving goals related to e-government and e-business.

Part I of this commentary provides an overview of some of the major issues inherent in the transformation to e-government, while Part II examines the context of e-government within the overall strategy of Australia's development of a Knowledge Economy. Finally, Part III identifies the role law can and should play in the evolution to e-government.

PART I: CHARTING AUSTRALIA'S PROGRESS TOWARD E-BUSINESS AND E-GOVERNMENT

Growth of E-Business and E-Government

Government in Australia, like its counterparts in the United States (http://firstgov.gov/), UK (http://www.ukonline.gov.uk), Canada[1] (http://www.gc.ca/), and many other countries, is seeking to transform itself into e-government while at the same time promote e-business generally.

[1]Canada is reputed to be one of the world's leaders in e-government, particularly in the procurement of goods and services. Canada's system, called MERX, provides potential suppliers around the world with a subscriber-based e-tendering service.

Although a universal standard for measuring the growth of e-business has yet to emerge, by almost every measure e-business is growing rapidly (United Nations Conference on Trade and Development, 2001, p. 3; Hobley, 2001). For example, a survey conducted by Australia's National Office of the Information Economy (NOIE; www.noie.gov.au) at the end of 2000 found that 17% of SMEs were involved in online procurement (up from 13% in 1999); 12% were paying for products online (7% in February 1999) and 37% were purchasing software via the Internet (Commonwealth of Australia, 2000).

Another survey, sponsored by Cisco, found that the Internet economy in Australia was worth about $28 billion in 2000, with 55% of Australian businesses participating. The study also found that Internet companies were 50% more productive per worker than non-Internet companies (Field, 2001). The study also noted four layers of Internet commerce: infrastructure providers, applications providers, Internet facilitators, and Internet commerce. In Australia, Internet commerce was the biggest player. This contrasted to the United States, where infrastructure providers were the major players.

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In total spending on information technology (IT), a Digital Planet (2002) study ranks Australia 10th at US$37.7 billion; with the United States first at $812.6 billion, with Japan second at $413.7 billion. The study also reported Australia did a better job than most countries in relation to assistance on backing startups (NOIE, *The Big Picture*, 2002a).

Stages of and Progress Toward E-Government in Australia

The Australian National Audit Office (ANOA) Report, *Electronic Service Delivery, Including Internet Use, by Commonwealth Agencies*, (1999–2000), surveyed Australian government departments in terms of their readiness to offer their services online and identified four stages of Internet service delivery. The report concluded:

- 52% would be at stage 1, at which an agency had a Web site that published information about itself and its services;
- 25% would be at stage 2, at which an agency allows Internet users to access the agency database(s), and to browse, explore and interact with that data;
- 21% would be at stage 3, at which an agency allows users access as in stages 1 and 2 and also permits them to enter secure information, and engage in transactions with the agency; and

- 2% would be at stage 4, at which, in addition to the level of access permitted at stage 3, the agency, with the user's prior approval, shares with other government agencies' relevant information provided by that user with a view to providing a whole-of-government integrated service (ANOA, 2000–2001).

Subsequent to the ANOA survey, the vast majority of Commonwealth Government met the government commitment to the goal of all appropriate services being Internet-deliverable by 2001. Similar developments have also occurred at state, territory, and local government levels.

Although comparative data is not always precise (UNCTAD, 2001, p. 3), the larger picture of the information economy in Australia shows that:

Particular attention has been paid to developing the infrastructure to enable e-government.

- Australia has the third highest Internet usage per capita.
- Australia is further advanced than most countries in developing integrated services; the Government Business Entry Point, a one-stop shop for government business requirements, being a good example.
- Particular attention has been paid to developing the infrastructure to enable e-government.
- This has included authentication and identification. An example is the Australian Business Number.
- Privacy concerns are being addressed by the Privacy Amendment Act.
- E-procurement is also well advanced.
- The federal government was committed to paying all suppliers electronically by the end of 2001, a goal that was substantially reached.
- The Commonwealth or central government also substantially reached its goal to conduct 90% of purchase-related transactions with suppliers to government through electronic means by the end of 2001.
- Healthcare continues to be one of the most advanced applications, for example, HealthInsite, which contains multiple links to health information partner Web sites.
- Education is also an important area. In the Strategic Framework for the Information Economy, the government seeks to provide affordable and reliable access to the Internet in education and training and the development of high-quality digital education.

PART II: THE CONTEXT OF E-GOVERNMENT—TEN SIGNPOSTS ALONG THE WAY

E-Government and the Challenge of Change Management

In many ways the legal issues raised by government constitute a subset of the larger task of managing the changes required to transform government to meet the needs of an information age. The change management to e-government must occur along several interrelated tracks built upon a foundation of commitment to e-leadership, the integration of business and technical goals, and the formation of an appropriate organizational mindset, culture, and structure (Symonds, 2000). With a vision of e-government clearly in mind and a strategy to achieve that vision, government leaders and managers, aided by business analysts, must reengineer the organization's business processes. A report from the John F. Kennedy School of Government at Harvard University (2001), "Strategic Computing and Telecommunications in the Public Sector: Eight Imperatives for Leaders in a Networked World" lists, as the first imperative for leaders, the need to "focus on how IT can reshape work and public sector strategies."[2] For leaders tackling this task, the report reminds us that there is no magic bullet.

The different levels of engagement required to move a large organization to an electronic environment are considerable, especially for governments.

> If a shallow "no" to technology is dangerous, so is a shallow "yes". Leadership to help the organization adapt to information age challenges requires commitment and work from all quarters, not just directives from on high. Leaders must be engaged, and must keep their staff engaged. (Harvard Univesity, p. 3)

The different levels of engagement required to move a large organization to an electronic environment are considerable, especially for governments. For example, IT people in an organization must develop business applications, software, and IT support designed for these new processes, especially a Web-based environment. New applications will have to integrate with existing legacy systems and work together to create a new system that is also flexible and scalable so that it can respond to ongoing changes. On the technological front, this involves complex choices about processors, displays, printers, scanners, digitizers, gateways, wireless networks, storage devices, operating systems, geographic information systems, data-mining tools, voice recognition, digital signatures, applications service

[2]The other imperatives mentioned in the Harvard report are: (2) use IT for strategic innovation, not simply tactical automation; (3) utilize best practices in implementing IT initiatives; (4) improve budgeting and financing for promising IT initiatives; (5) protect privacy and security; (6) form IT-related partnerships to stimulate economic development; (7) use IT to promote equal opportunity and healthy communities; and (8) prepare for digital democracy.

providers, and much more. Then there are personnel issues, budget, resource, equity, legal, political, and other issues. In this environment of constant transformation and massive role conflict, the task of moving to e-government is far from easy. Indeed, this change transformation challenges the very notions of government bureaucracy itself, requiring flatter, less hierarchical structures, greater collaboration, and enhanced flexibility and fluidity (Bach & Sisson, 2000).

An E-Government Strategy

The transformation to e-government must be part of an overall strategy and policy of government reform. In other words, e-government should focus on strategic innovation and not simply tactical automation. This business strategy must derive from a vision of e-government that is driven from the top and reflected at all levels of the organization. The e-government strategy must articulate a conscious plan about how the department is going to change, what its goals will be, what policies it will follow to achieve these goals, and how they will be put into operation. At the same time, the department must develop its information technology and organization to assure that the new e-government strategy will work.

Strategies for e-government and the people who implement them must be flexible.

The Harvard Report recognizes the importance of leadership from the top if e-government is going to happen. Note the emphasis in the UK on e-leadership, evidenced by the appointment of Department e-Ministers and e-Envoys to oversee the implementation of government online strategy. E-Envoy's are, in turn, supported by e-Champions, a group of senior officials from each Government Department. The E-Minister must report to the Prime Minister each month (http://www.e-envoy.gov.uk/ukonline/ukonline_menu.htm).

Strategies for e-government and the people who implement them must be flexible. Strategies must be more than reactions to the latest threat or opportunity; and yet there must be some sense of urgency. One reason that e-government has not developed at the same pace as business is that governments have an inherent monopoly and do not face the same threats to their livelihood as a brick-and-mortar business may face from an online competitor. Moreover, government structures tend to be more hierarchical and formalized, and are not as responsive as the flatter, more flexible structures found in the private sector.

A key step in developing Australia's e-government strategy was the establishment in 1997, of the National Office for the Information Economy (NOIE) to develop, coordinate, and overview broad policy relating to:

- Establishing the regulatory, legal, and physical infrastructure environment for online activities;
- Facilitating electronic commerce;
- Ensuring a consistent commonwealth position in international forums; and
- Overseeing policies for applying new technology to government administration and information and service provision.

The Australian government's e-commerce strategy is set out in *A Strategic Framework for the Information Economy—Identifying Priorities for Action* in January (National Office of the Information Economy, 1998). The framework recognizes that it is essential that effective approaches to consumer protection be developed as part of the government's overall strategy for the information economy. This will ensure that work in the area of business to consumer electronic commerce is compatible with that taking place in other areas including business-to-business electronic commerce and the provision of government services online.

The Australian government has not only encouraged the adoption of e-commerce by business, it has sought to be exemplary in its own use of electronic media wherever appropriate.

The e-commerce policy framework identifies 10 priorities, including the need to develop a legal and regulatory framework to facilitate electronic commerce. This will encourage more consumers and businesses to conduct more of their business online. The *Strategic Framework* also recognizes the need for Australia to influence the emerging international rules and conventions for electronic commerce.

One of the strategy's objectives is to build a legal and regulatory framework which:

- Secures the confidence of all Australians;
- Provides at least the same level of protection for consumers engaged in electronic commerce as is provided for other forms of commerce;
- Favors market-based regulation;
- Conforms with agreed international positions.

A Policy Framework for Consumer Protection in Electronic Commerce builds on the objectives outlined in *A Strategic Framework for the Information Economy* (Australia National Audit Office, 1999–2000). The Australian government has not only encouraged the adoption of e-commerce by business, it has sought to be exemplary in its own use of electronic media wherever appropriate. In this way, the Australian government seeks to:

- Improve public access to a wide range of government services, especially by people who live in regional and remote areas;
- Provide access to certain government services 24 hours a day, 7 days a week;
- Reduce the cost of delivery of some government services; and
- Improve the quality of certain government services (Australian National Audit Office, 1999–2000).

Government promotion of e-commerce was also accelerated as a result of Prime Minister Howard's *Investing for Growth* policy statement on December, 8 1997, in which he outlined government intent and initiatives to enable Australian business to add to and benefit from the global information age (Commonwealth of Australia, 1997).

Role of Knowledge Management

A component of e-government strategy that is receiving increasing attention in Australia and elsewhere is that of "knowledge management" . . .

A component of e-government strategy that is receiving increasing attention in Australia and elsewhere is that of "knowledge management" (Stewart, 2001). Knowledge management is concerned with the management of resources, processes, and knowledge to help achieve organizational objectives by focusing on the importance of sharing, acquiring, and creating intellectual property, and ensuring that there is cultural and technical support for these processes (Davenport & Prusak, 1998; Standards Australia, 2001; Stiglitz, 1999). Governments possess and create knowledge that is of immense importance and value—reality that becomes more obvious in an information society. Knowledge management is about empowering every individual in the organization to add value to the organization's data and apply it in ways that create new knowledge and wisdom for the organization. In this way, knowledge management is closely tied to innovation, whether it be the development of new products, or new ways of delivering services.

A recent survey of knowledge practices found that in the most successful organizations there existed a culture that fostered a desire for knowledge so that it is continually discovered, created, applied, and distributed throughout the organization (Hauschild, Licht, & Stein, 2001). Knowledge management, to be successful, must be integrated with the overall strategy of the organization. Also critical to the success of a knowledge management culture is the presence of incentives that reward employees who augment their knowledge and the organization's knowledge base (Hauschild et al., 2001, p. 77). In terms of application, most organizations have a large amount of information that is underutilized. In terms of distribution of knowledge, multiple channels of communication are required.

Knowledge management is not a once-off affair. It must be an ongoing process so that the organization and the individuals who comprise it continue to grow and learn (Hauschild et al., 2001, pp. 79–81). By way of example, one of the major enthusiasts for knowledge management has been Ernst & Young. It has invested $3.2 million in Australia alone. Its system is called K-web, and it has a dedicated knowledge officer and staff of 15 support the Australian operation. The system has created 260 "PowerPacks" or knowledge bundles, with 13 containing Australia specific information. If a client seeks information about a specific topic, the Ernst & Young person can search the database and find useful information and e-mail it to the client, sometimes in the course of the conversation over the phone. Started in 1997, already the package is seven terabytes in size—the equivalent of several thousand copies of the Encyclopaedia Britannica (Head, 2001).

Knowledge management is not a once-off affair.

Enhanced Access by Focusing on the Users of Government Services

Another component of e-government strategy is providing government service that is more customer/client or citizen focused. This will require a major cultural shift within the public sector of most countries. For example, citizens are far more interested in having e-government services presented by "function" as opposed to by department. Thus, Web portals and user-centric services may require significant integration and reorganization.[3]

An important goal of e-government in the public sector is the promotion of better access to government information by the public and agencies themselves. For example, this would include:

- Posting governing statutes, policies, rules, and regulation on searchable databases;
- Posting charts and directories so people can understand the departmental organization;
- Assuring the public of the capacity of performing simple and complex searches of the government site;
- Organizing material in a practical and helpful way;
- Posting notices of rule making on sites and allow the public to provide electronic comments;
- Providing a way for the public to receive regular notification of agency developments;

[3]See, for example, the Canadian Web site (www.gc.ca/), which provides information for business, for non-Canadians, for business, etc. Similarly, the U.S. portal (http:..firstgov/gov/) organized around such topics as public safety, rural and remote services, travel at home and abroad, etc.

- Developing systems to give the public access to materials once they are no longer posted; for example, archives;
- As far as possible, keeping government sites, technology neutral.

Just as with banking, e-government threatens to change the very point where decisions get made and by whom. For example, the legacy of large mainframe computing brought about administrative procedures that tended to standardize things and take out the discretion from street-level staff. E-government will bring about the potential to have mass customization and personal interactions with citizens.

E-Government as Enhancing Democratic Participation

Another use of the Internet to enhance political processes is online voting. The Australian Capital Territory employed electronic voting in the last year's Territory election. This involved setting up electronic voting stations in 12 polling places throughout Canberra. Over 20,000 Canberrans availed themselves of this new medium and, in contrast to the last U.S. presidential election, there was no problem with pregnant and hanging chads (Voting Integrity Project, 2001: http://www.voting-integrity.org/; California, the Campaign for Digital Democracy, 2001: http://www.votesite.com/; Election.com: http://www.votation.com/, and SecurePoll: http//www.SecurePoll.com/). Moreover, electronic voting is not only for governments. Corporations with millions of share holders and universities with thousands of students are also looking to electronic voting.

The Internet can enhance political processes by enabling politicians to better network with their constituency.

Another example of the use of technology to enhance democracy involves the relationship between politicians and citizens. The Internet can enhance political processes by enabling politicians to better network with their constituency. For example, the CW Parliament House Web site (www.aph.gov.au) provides the e-mail addresses of all members of parliament, their personal Web sites, and committees on which they serve and critical areas of interest. This facility makes it easier for citizens to direct their concerns to the particular politicians involved. The use of the Internet and Internet communities are likely to have a profound impact on politics. Already a number of politicians have used the Internet to develop a community of support that is independent of traditional policy machinery and more issue based. It enables political parties to marshal their forces and convey and challenge information at record speeds. More people have access to political information. It creates a network of "interests" that can defy traditional political boundaries and enables real participatory democracy at grassroots level.

Time and Planning

As Shakespeare noted in *King Lear*, "Ripeness is all." In the case of e-government, it is important to have realistic notions of the time required to make e-government a reality. E-government will not happen at the same pace for every agency at every level of government. Even within the same department, it is important to adopt a strategy of developing projects in stages so that they can be evaluated, and adjustments made by people and in systems. No organization can afford to put everything else on hold while it redesigns its software architecture, infrastructure, and IT development group. At the same time, there is a lot of common sense in Calvin Coolidge's remark that while "you can't do everything at once, you can do something at once."

As Shakespeare noted in King Lear, "Ripeness is all."

In this context, evolutionary change is usually to be preferred over revolutionary change. Departments should not fall for the hype about how much faster everyone else is going. In truth, most are holding back until some of the major issues such as privacy and security are resolved. At the same time, there may be some areas of government where the need is so great and the potential risks of not taking revolutionary action outweigh the need for a more cautious approach (U.S. General Accounting Office, 2001).

Achieving e-government thus takes careful planning. The decision to create a government Web site is relatively easy; but the decision to undergo major changes in core government and business processes and to develop e-government/business systems is a serious matter. Before departments know where they are going, they need to know where they are and commit sufficient resources to get to where they want to go. Management should allocate sufficient time, personnel, and budget resources to address testing and correction of hardware, facilities, databases, and software. The appointment of Government Chief Information Officers in Canada and the United States is a good example of such a commitment, as is the appointment of e-government "champions" by the Blair government in the United Kingdom. There should also be an established procedure for regular reporting by various e-government task forces to the organization's senior management.

Integration and Team

Related to flexibility is integration. E-government demands an integrated environment. In the past, ad hoc development of departmental applications was not concerned with interoperation. As a result, there is duplication of data and functionality and a corresponding difficulty in getting applications to work together.

Making e-government requires an interdisciplinary effort with legal, technical, and management teams all contributing. Modern organizations will increasingly rely on such interdisciplinary teams. Such teams will also collaborate with teams in related organizations to form a network, which, in a global economy, can span numerous countries (Beyerlein, Johnson, & Beyerlein, 2000; Borins, 2001).

Networks Across Public and Private Sectors

E-government must also be about seeing government as part of an integral network that involves numerous relationships that are all part of a networked system of knowledge. As suppliers to government are linked by B2G (business-to-government) chains, as e-procurement becomes more common, as clients begin to perform transactions online and across agencies, this network will have to be integrated across various applications and platforms. Eventually, we may even see a form of "naturalization" where, for example, a small business taking out a bank loan, will automatically be linked to the appropriate government bodies that provide services related to that transaction. One goal is to have people provide the information only once. This type of network holds out the promise of saving huge amounts of time and freeing government, citizen, and industry to focus on adding value in other ways, thus improving the overall quality of service.

In Australia, we need to see more public-private partnerships bring together the public sector, private sector, and not-for-profit organizations . . .

This sense of network will, in some cases, blur the line between private and public. For example, a travel agency may seek to offer the entire range of services, which may include providing travellers with all official documentation including visa and customs. In other words, the travel agency would be the retailer of services that are supplied by the government. This raises the possibility of integration between public and private sectors with common online clients.

In Australia, we need to see more public-private partnerships bring together the public sector, private sector, and not-for-profit organizations to identify initiatives and collaborate in developing new models that consider the needs of multiple stakeholders and give the various sectors of society a sense of ownership and enhanced capacity in community building. Most Australian states are now seeking such public-private partnerships to get private sector investment in new infrastructure projects. Partnerships Victoria and now Qld (public private partnerships), NSW (privately financed partnerships), and WA have all embraced public-private partnerships. They extend to social infrastructure and will be developed in "noncore" services where the private sector can offer superior value for money (http: wwg.premiers.nsw.gov.au/wwg/).

Ongoing Task: Evaluation

It must also be realized that e-government is not a destination, but an ongoing process. Change has now joined death and taxes as the third certainty in life. For this reason, it is important to build into our change management models and systems a rigorous process of evaluation. In this way, organizations are able to identify mistakes and, above all, learn from them so that the system is constantly improving. Consistent with modern developments in auditing theory and practice, organizations should audit their performance so that they meet organizational goals. This will help to ensure that what is said to be done is actually done. An audit should also have much in common with an ongoing evaluation of process and outcomes. Where the organization is involved in a value chain, this audit will also have to consider the linkages with suppliers, transporters, and all others who are part of the network.

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Flexibility and Future Move to I-Government and Eventually K-Government

Because the work is never done and the environment changes rapidly, it is important build in the capacity for change and adjustment. For example, all applications should have the ability to scale up to meet growth in demand as well as in customer expectations.

As to the future, Little (2001) argues we will see the shift from e-government to i-government where intelligently designed systems capture valuable transaction-level information. Systems can be coordinated to meet the needs of citizens. They may even be made to learn about the needs, processes, impacts. These are called "complex adaptive systems." Little predicts the eventual move to "k-government." "It will involve—at a political level—the conscious construction and management of whole-of-government systems as complex adaptive systems" (Little, 2001, p. 31). K-government "will embrace almost all citizen-government interactions and will generate many innovations. Some will manifest as profound constitutional changes such as re-definitions of sovereignty and citizenship, the development of new policies and the emergence of virtual electorates . . ." (Little, 2001, p. 31).

Little argues finally that k-government will happen because:

> Better accounting for intangible assets will make very clear both the enormous value of governmental knowledge assets and the public benefits that flow from managing them property. As our understanding of complex adaptive systems improves, we'll become confident that we have the ability to do it; and we'll come to understand that government systems will always be learning and

adapting, for good or ill. And whether we want them to or not, for own good, we'd better take control of the process. (p.31)

PART III: THE ROLE OF LAW IN BRINGING ABOUT E-GOVERNMENT

New Risks to Be Managed in a Digital Environment

Although recent developments in e-government hold great promise, this new environment also gives rise to new risks. Governments and business have begun to realize that the legal climate has changed significantly. The transformation to e-government brings with it many legal uncertainties that must be resolved. Risks have to be identified and managed. Hacker attacks, e-mail defamation, intellectual property losses, loss of data due to electrical failures, computer viruses, computer fraud, occupational health and safety, privacy, and new requirements for people with disabilities are just a few of the challenges facing today's organizations, both public and private (Grabosky, Smith, & Depsey, 2001).

Only about 3 in 10 risk managers surveyed had reviewed the potential technological risks posed by a merger or acquisition involving their company.

Many people in both public and private sector organizations do not adequately understand the risks posed by technology, have difficulty identifying potential risks, and lack the tools to manage them effectively. The following major findings from a recent survey of executives at 1,500 companies in the United States and Europe [*The Electronic Frontier*, 2001 (http://www.srbi.com/pr13.htm); National Office of the Information Economy, 2002b] are just as true for public sector managers who, like their private sector counterparts, must rely increasingly on technology, employees, and citizens who have increased access to government data and information in an environment with untested and uncertain legal risks.

- Computer, Internet, and e-commerce risks are considered among the most important risks companies will be facing in the next few years. Among U.S. corporate risk managers and their insurance agents and brokers, such issues rank second only to employment-related risks. In Europe, risk managers consider technology risks to be the number one concern.
- Only 25% of U.S. companies and 30% of European companies surveyed had risk management committees or other formal structures to identify and monitor technology risk. Of those companies with such a committee or structure, only half—or about 13% of total respondents—felt it was effective. Only about 3 in 10 risk managers surveyed had reviewed the potential technological risks posed by a merger or acquisition involving their company.

- Nearly all U.S. and European companies have taken similar steps to protect themselves from technology-related risks, such as installing antivirus software and firewalls, establishing standard security procedures, and auditing the security of their systems. But only 6 in 10 companies have implemented employee-training programs to lower their technology risk.
- U.S. and European corporate risk managers' understanding of technology risk is less than adequate, according to the managers themselves. About 4 in 10 risk managers say they have only a "fair" to "poor" understanding of technology risk. Very few (about 10% overall) say their understanding is "excellent." Only 52% of U.S. corporate risk managers have inventoried and quantified the technology risks their companies face, compared to 67% among European risk managers. Corporate risk managers both in the United States and Europe (65% and 57%, respectively) defer to their IT departments as having primary responsibility for identifying and monitoring technology risks.
- Corporate risk managers consider their current insurance coverage for technology risk as "somewhat adequate" at best. European risk managers are slightly more confident in general of their current coverage than U.S. risk managers.
- The "Y2K" issue, which required companies to prepare their computer systems for the rollover to 2000, sensitized many companies to technology risks, but 42% of U.S. corporations and 38% of European corporations said the rollover had little impact on their firms' approach to technology risk. (The Electronic Frontier, 2001; Executive Summary by Mr. Lovaas of St. Paul Comapnies).

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Question of Balance

Not only are legal risks uncertain, but these risks often are in conflict with other goals. In the new environment of e-government there are many challenges and the need to balance these conflicting tensions. For example, the need for systems integration and knowledge management may conflict with privacy protection.

Another example of the need to balance tensions is in the area of security. In an environment characterized by business-to-government relations (B2G), e-procurement, outsourcing, and so on, external clients will be coming into government systems as end-user Web customers and as partners (Commonwealth of Australia Revised Procurement Guidelines, 2001). Because e-government operations require this kind of access, security can no longer be premised on the old military model of limiting access points. New mechanisms must

be used that restricts clients from using certain resources or doing certain types of operations based on how they accessed the system. These mechanisms must be used in addition to traditional user-identification (login-based) security. A fully integrated government information system gives rise to the potential for unrivalled capacity to engage in data matching, warehousing, and invasions of privacy (Jackson, 2001). How will governments handle the tension between the values of efficiency, effectiveness, and integration with the need for secrecy, protection of privacy, and freedom from unwarranted government intrusion into the lives of its citizenry (Hawker, 2000)?

Such a major shift will, at certain points, give rise to questions of constitutionality, authority, responsibility, and definition.

Questions of Governance

Some of the most challenging legal issues arise from the fundamental nature of the transformation from a model of industrialized government (centralized, bureaucratized, paper-based, impersonal, rule-based, disconnected, and organized into departments) to that of e-government (decentralized, digital, personalized, client-focused, interconnected, and organized in new ways). Such a major shift will, at certain points, give rise to questions of constitutionality, authority, responsibility, and definition. Governments can contract out services, but not contract away overall responsibility. We are presently witnessing the continuing evolution of notions of governance through which department heads, officers, and others must find their way. As the public becomes more involved as "shareholders" in e-government, one would predict that risk management policies such as audit committees will become more prevalent. The challenge for twenty-first-century government leaders will be to know when to take risks and when to play safe and to have in place policies and procedures so that one can balance entrepreneurial flare with appropriate caution.

Law as Strategy: Building a New Architecture for Government Online

Turning from risk management to law as strategy, there is also a place for law in helping to design the architecture for e-government. At the highest levels, this will mean the introduction of a legal and policy framework upon which e-government can be built. At the departmental level, this framework must be filled in so that it becomes a working and functioning reality. Again, law can serve a useful role in helping to structure transactions and build new models that enable government to function in this new electronic environment (Symonds, 2000).

If e-government is to become a reality, risk management is not enough. The old paradigm of legal leadership is deferential, reactive, monitoring, and compliance focused. It is all too easy in this uncertain environment to suffer from "paralysis analysis" and overlawyering—a

phenomena that has stopped some e-government initiatives in their tracks and in other cases has meant a poor takeup by citizens and business. We require a new paradigm that challenges the conventional views and focuses instead on empowerment, achievement of legislative and policy goals, constant improvement, and a willingness to be proactive. In this new environment, it is more crucial than ever before for lawyers to work closely with their counterparts in other disciplines to achieve a "workable balance" that both manages risks and empowers the agency to get on with the job and realize the goal of effective e-government.

In this way, the law can be used by government to sculpture the transactional architecture that achieves a particular organization al outcome. The legal infrastructure required to support this new architecture includes:

- Electronic transactions legislation (Snedon, 2000);
- Digital rights protection (Hugenholtz, 2000);
- Appropriate consumer protection (Wilhelmsson, Tuominen, & Tuomola, 2001);
- Creation of a regime of public key infrastructure (Smith, 2001);
- Provision of electronic procurements and e-payments (Baker & Hurst, 1998; Ellison & Schneier, 2000; Lim, 2000);
- Development of open and fair competition (Stecher, 1999).

Everyone in government should possess the basic legal literacy that will enable them to recognize when there is a problem and to work with the legal team to resolve the issue.

These are just a few of the Australian government strategic initiatives by which the legal infrastructure has been put into place to facilitate and enable the transformation to e-government (Chissick & Kelman, 2000; Forder & Quick, 2001)

Need for a New Type of Government Lawyer

The new environment of e-government will require a new breed of government lawyer and a new appreciation by all of the best use of the legal expertise that a lawyer can bring to a particular task. In too many departments lawyers become part of a "subculture" and are seen by nonlawyers as a problem to be overcome rather than as a source of problem solving and a vital input into strategy. It is important that government lawyers work closely with their nonlawyer colleagues to assist in the transformation to e-government. This assistance should take various forms. One need is for legal literacy. Everyone in government should possess the basic legal literacy that will enable them to recognize when there is a problem and to work with the legal team to resolve the issue. As a shield, the law is a crucial tool for risk identification and management. Good risk manage-

ment practice should include a recognition of potential legal problems together with a proactive management team that puts into place measures that minimize the risks and prevent problems before they arise.

For the transformation process to e-government to work, lawyers are required who can speak and write in plain English. Also required are lawyers who are creative problem solvers, builders, and transformers. It is not very comforting for a department head to hear 10 legal reasons why something can't be done and not a single suggestion about how to make progress on a policy that the department must implement. We also need lawyers who have enough technical/IT literacy and management experience that they can work in a multidisciplinary team or task force dedicated to bringing about the transformation to e-government.

For the transformation process to e-government to work, lawyers are required who can speak and write in plain English.

Lawyers also need to become more comfortable with change. As government changes, so must those who serve them. Traditional contract law is built upon the context of an industrial age. Society, government, and business are rapidly transforming to an information age, and lawyers in government and the profession must keep pace, and if possible, even lead the way.

CONCLUSION

Leading countries in e-government tend to share a number of characteristics. They have a vision of effective policy leading to e-government and the requisite resources and change management skills to implement it. They are citizen-centric or customer focused, with government portals organized around the needs of users rather than traditional departmental hierarchy. Leading countries have also devoted sufficient research and resources to the task of achieving e-government. Such governments have themselves been exemplary in using information technology and quick to form partnerships with the private sector in achieving goals related to e-government and e-business.

Yet we must keep in mind that e-government is not an end in itself, but only one of many vital components that must work together. Leaders in e-governments have recognized that they must develop the necessary legal framework to promote the use of electronic media and remove uncertainties about its use. This legal infrastructure includes legislative reform that promotes the use of electronic transactions, digital signatures, and public key infrastructure. Legislation must also be in place that ensures an adequate level of privacy pro-

tection and certainty regarding such areas as digital copyright. The country must also develop an IT infrastructure that leads to a rapid uptake by the population of the Internet, broadband, mobile phone networks, and so on (McConnell, 2001). A country must also have in place a sound system of innovation that provides sufficient venture capital, incentives, competitive taxation scheme, competitive environment, a world-class education system, and commercialization skills to ensure that the dream of a knowledge economy becomes a reality (Koops, Prins, & Hijmans, 2000).

Notwithstanding the media's attraction to major disasters, such as the failure of dot coms, it is often true that what goes on behind the scenes is more important than what is prominent in the headlines. In the case of the transformation to e-government, the exciting story behind the scenes is that so much has been achieved in such a short period of time. In Australia, these achievements have come about by the remarkable effort and spirit of cooperation evidenced by multidisciplinary experts in government. These leaders have forged a new vision for government in an information age and worked hard to implement it with sound legal, technological, and management practice and performance. These efforts must continue if we are to ensure that Australia will continue to be among the leaders in e-government.

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