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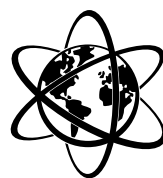Additional services and information for *International Review of Administrative Sciences* can be
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Electronic government and public administration

David Brown

Abstract

Electronic government encompasses all government roles and activities, shaped by information and communications technologies (ICTs). Going well beyond analogies to e-commerce, it encompasses the four domains of governance and public administration: the state's economic and social programs; its relationships with the citizen and the rule of law (e-democracy), its internal operations and its relationship with the international environment. E-government builds on three evolving forces: technology, management concepts and government itself. It has given rise to several phenomena that are redefining the public sector environment, including the International Institute of Administrative Sciences. Four aspects of e-government have lasting impacts on public administration: citizen-centered service, information as a public resource, new skills and working relationships, and accountability and management models. The challenges of e-government are even more acute in developing countries, although it also offers solutions. Public administration in all countries requires new thinking and leadership to ensure that e-government realizes its full potential.

The emergence of electronic government[1] — both in practice and in concept — has been one of the important developments in public administration in the past ten years. It has introduced new vocabulary, theoretical models and linkages between disciplines and between theory and practice. By its nature, e-government is an evolving phenomenon. Only provisional judgements can be made about the relationship between e-government and public administration, and it is a risky venture indeed to predict e-government's future direction and scope.

This article looks at e-government in a comparative public administration context. There is no generally accepted definition of e-government, so the article begins by proposing a description of what it is and what it concerns. It then reviews how

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e-government has arisen as a topic for comparative discussion and looks at some of the phenomena associated with e-government, including emerging institutions. This is followed by an analysis of how e-government relates to public administration, including in the development context. The article concludes with some reflections on the importance to be attached to e-government and on where it is headed.

What is e-government?

This article adopts a broad definition of e-government. To a considerable extent, the term arises by analogy to the concepts and practices of electronic commerce applied to the public sector, referring to the delivery of government services to the public 'on-line' (typically over the internet) or to the technological infrastructure required to deliver those services. The State of Texas, for example, defines e-government as

> Government activities that take place by digital processes over a computer network, usually the Internet, between the government and members of the public and entities in the private sector, especially regulated entities. These activities generally involve the electronic exchange of information to acquire or provide products or services, to place or receive orders, to provide or obtain information, or to complete financial transactions.[2]

A broader view of e-government is that it relates to the entire range of government roles and activities, shaped by and making use of information and communications technologies (ICTs). A high-level statement of this view is 'knowledge-based government in the knowledge-based economy and society'. More concretely, e-government brings together two elements that have not been naturally joined in the past. One is the environment, within government and in the society at large, created by the use of electronic technologies such as computing, e-mail, the World Wide Web, wireless and other ICTs, combined with management models such as client/citizen centricity and single-window convergence. The other is the basic model of the state and of public administration within that, linking the dynamics of democracy, governance and public management. This broader view situates e-government in the four domains into which governance and public administration can be divided.

The first domain of e-government is the jurisdiction of the state and its roles and relationships within the economy and society. Two central concerns of public policy are promotion of economic growth and prosperity and fostering social cohesion. In the knowledge-based economy, information is a new form of wealth and technology is a new vehicle for creating that wealth. E-government, then, is concerned with government taking measures to promote enterprise creation and innovation in the knowledge-based economy, through regulatory and program activity and through establishment of national technological infrastructure.

These economic concerns lead government to a number of social policy concerns. The knowledge economy requires new skills and human capital investment. It stresses informal and life-long learning, building on an expanded definition of literacy. It also creates new forms of cultural expression and digitization opens up new ways of holding and transmitting cultural information. However, differences in access to and use of information technology create economic and social divisions that are as

real as any created in earlier economic eras. E-government is called upon to take measures — removing barriers and building capacity — to help the segments of society that are disadvantaged and marginalized by the workings of the knowledge economy.

The second domain of e-government is the legitimacy of the state and its relationship with its citizens and the rule of law, entering into the realm of e-democracy and e-governance. One set of issues concerns democratic decision-making using electronic technologies, including e-voting and electronic channels for public consultation on government decisions and actions. Closely related issues concern the citizen's relationship with the state. E-government creates new vehicles for services to the public, emphasizing self-service and citizen empowerment. To a greater degree than in the past, these also create a direct relationship between the citizen and state service providers, putting pressure on traditional roles of politicians as intermediaries between government and the governed.

A different kind of relationship is created with the growing value of personal information to both government and the private sector. The provision of such information by citizens is increasingly analogous to the classic dynamics of citizen-taxpayers, in which the obligation to pay taxes creates a reciprocal set of obligations on the part of the state to use the revenue — and personal information — that has been collected in an accountable manner. These obligations in turn lead to the passage of legislation designed to promote privacy and protect personal information.

E-government gives rise to new law in other areas as well. E-commerce requires a statutory framework for contracts and liability, and the courts require the authority to review electronic transactions and receive electronic evidence. The law also needs to be adjusted to take account of electronic crimes, ranging from hacking to identity theft and fraud. State security measures need to take account of electronic threats. At the same time, the growing value of information increases the importance and scope of intellectual property legislation.

The third domain is the operations of state institutions, opening up issues of electronic public administration. A central concern is the impact of ICTs on government operations, ranging from creating a networked internal working environment to requirements for new skills in the civil service and new administrative processes. ICTs have a significant impact on all state actors, including the legislature, executive and courts. Harnessed with client service management philosophies, ICTs have a profound effect on relationships between the state and both its citizens and its employees. The state's dependence on the private sector to develop new technologies and frequently to manage them on its behalf creates an interdependence between the public and private sectors, while the focus on the citizen creates a convergence between levels of government and between the public and private sectors.

The fourth domain of e-government is the state in the international environment: its relationship with other state actors, international institutions and international private and non-governmental actors. Again these relationships are changed by ICTs. In the electronic environment, governments have access not only to each other, at all levels of administration and without regard to the formalities of inter-state relations but also to their respective citizens. In the same way, trans-national public sector institutions extend their reach into the constituent countries, and trans-national private

and non-governmental actors come into contact with governments and interested citizens around the world. National sovereignty remains a cornerstone of the international system but the context in which it operates and the tools with which it is expressed are altered.

How did e-government arise?

While the term e-government has only been in general use in the past five years, the phenomenon has been developing since the mid-1980s. E-government can be described as arising from the interactions between three separate sets of forces, each of which has gone through its own evolution: ICTs, management concepts and government itself. A notable feature is that most of the technological innovation and new thinking in management practices has occurred outside government — especially in the private sector — while government has been significantly influenced by external forces, notably the needs and capacities of the public. In that sense, e-government is still an evolving concept; as governments increasingly come to terms with its characteristics and tools, it is likely to undergo significant further evolution.

Technological evolution

In the past 15 years, a startling progression of technological changes has been absorbed into government and increasingly into daily living. A summary list would include half a dozen major developments. An early stage was the convergence of computing and telecommunications, resulting in the widespread adoption of distributed computing on the client-server model. This had the effect of putting personal computers on the desktops and in the travel luggage of a widening circle of public servants and of transforming them into their own typists and file clerks. This was followed by the adoption of the internet – in particular e-mail — outside academic and military circles. In 1994, the World Wide Web Consortium was launched using technologies involving extensive use of graphical as well as textual material and offering the potential for simpler access to the internet. In short order, there followed the development of government websites and web-based information provision and service delivery, making possible two-way on-line transactions between government and citizens and external access to government databases.

The 'Millennium Bug' — more simply known as Y2K, focusing dramatically on the change in year from 1999 to 2000 — was another milestone, forcing governments to take greater notice of their rapidly expanding technology assets and work forces and also to recognize the interdependency that these had created between the public and private sectors and between the two sectors and the public at large. It also focused attention on the importance of national electronic infrastructure. Most recently the technology focus has been on the rapid adoption of wireless communications and the relentless continued convergence between previously unrelated technologies, epitomized by the incorporation of computing, telephone, camera, music, gaming and radio/television in a single hand-held wireless device. The only certainty in this account is that the changes will continue.

Management evolution

There has been a parallel evolution in management thinking, increasingly influenced by the capabilities of ICTs. A foundation was provided by the New Public Management, which emerged in the 1980s and provided different models of the role and instruments of government, emphasizing perspectives imported from the private sector such as empowerment of managers, focus on results and use of benchmarking and best practices in management innovation. This also led to the perception of the private and not-for-profit sectors as partners to government and as alternative vehicles for delivering public services.

The complexity and risks attached to technology have also created a significant role in the public sector for management consultants, ranging from gurus and major international firms to self-employed individuals providing a spectrum of services from planning to project management, provision of goods to change management, and provision of individual services to outsourcing of entire areas of government administration. They have introduced government to concepts that have been developed in the private sector world of e-commence, including single-window client-centered service delivery, customer relationship management, supply chain management, business process re-engineering and IT governance models emphasizing project management approaches.

While ICTs focus on infrastructure, hardware and software, both their adaptability and their complexity bring home the reality that they can only be effectively used as a means to the ends of government, requiring care in identifying the objectives that the technology is meant to support. The technologies have also given new prominence to the data, information and knowledge that they carry and that have become a major asset of government, as important a resource as its people and finances and effective only if integrated with them.

Government evolution

In addition to these technology and management factors, other forces that are inherent to the public sector have been important influences in the development of e-government. The first has been government's need to respond to the demands and capacities of the public and of the economy and society. Politicians are also a factor: although cautious about adopting new technologies, especially in the political process itself, they have been attracted by the resource savings and efficiency potential of technology and by the prospect of bringing government closer to the citizen. Another important driver has been the public service itself, with the recruitment of technologically skilled staff and the carry-over of technological skills from daily life. Finally, an important characteristic of government in the electronic environment has been its generally larger scale and complexity compared to the private sector and the need for lay managers to take decisions and provide leadership in areas with a major technological component.

What phenomena does e-government create?

E-government has given rise to phenomena that have become features of a redefined public sector environment. These include the emergence of 'virtual communities' and also of more traditional institutions directly tied to e-government. E-government has created its own organizational culture, one aspect of which is international benchmarking.

Electronic networks, on which e-government is based, have the ability to bring together geographically and organizationally dispersed individuals into communities with common interests. Such virtual communities are both more open, because they connect people who may not otherwise have a relationship with each other, and more closed, because they depend on affinity among the members. These communities can be of short or longer duration but their importance is that they extend beyond established institutional frameworks. Networked communities also have their own vulnerabilities, whether to hackers, viruses or unwanted participants.

E-government creates its own institutions, combining traditional and new organizational models. Within many governments, e-government imperatives have led to restructuring government ministries to bring the machinery of government in line with its changed role and activities. Many governments have appointed commissions or task forces to advise on the needs of the 'information highway' and the knowledge economy. Regulatory agencies have had to deal with technological convergence and the need to develop additional electronic infrastructure, such as broadband access to the internet, to support national e-government strategies.

International institutions have also responded to the electronic environment. The internet has from the beginning been shaped by the World Wide Web Consortium (W3C), a body bringing together public and non-governmental stakeholders to develop inter-operable technologies and standards (specifications, guidelines, software, and tools) in support of full development of the Web.[3] The Internet Corporation for Assigned Names and Numbers (ICANN)[4] is also a multi-stakeholder institution that operates at both the international and national levels to regulate the use of internet addresses. Several UN agencies are actively engaged in developing an international framework for e-government. Supported by General Assembly resolutions, the International Telecommunications Union (ITU) has sponsored the ongoing World Summit on the Information Society (WSIS).[5] The World Intellectual Property Organization (WIPO) has developed internet treaties to support the knowledge economy[6] and the United Nations Secretariat's Division for Economic and Social Affairs (UNDESA), through its UN On-line Network in Public Administration and Finance (UNPAN), has actively promoted the use of ICTs in public administration world-wide.[7] The World Bank has an active e-government site and the OECD has also actively engaged its membership in experience sharing on e-government, knowledge management and the use of IT.[8]

Paralleling these developments, existing public administration organizations have gone through their own evolution in adopting an e-government agenda. To cite just one example, the International Institute of Administrative Science (IIAS) created the International Association for Information and Documentation in Public Administration (IAIDPA) as a body under the IIAS umbrella in 1983. By 1998 it was considered that

the issues that IAIDPA represented needed to be integrated into the larger IIAS program and IAIDPA was wound up. An IIAS working group on New Technologies and Public Administration was established in 2001 and, in 2002, the IIAS published a study of e-government as an outcome of ICTs in public administration.[9] In 2004, the theme of the annual IIAS conference in Seoul was E-governance: Challenges and Opportunities for Democracy, Administration and Law.[10] In the same way, international networks of technology and information professionals, such as the International Council for Information Technology in Government Administration (ICA),[11] have increasingly entered into the field of public sector management.

ICTs have also had a major impact on society and culture. New technologies are an increasingly commonplace element of daily lives, while the workplace in both the public and private sectors is seen as populated by information or knowledge workers. This has changed how people work, introducing multidisciplinary, team approaches and emphasizing professional development and continuous learning[12] and sharing of best practices. A related phenomenon is the considerable role played by consultants in shaping e-government, introducing both formula approaches and a global marketing of ideas, establishing a different boundary between business and public administration. No less important, and still emerging, is the linguistic impact, in view of the prevalence of English as the medium for ICTs and for discussion of their use.

One other international phenomenon of e-government is the use of intergovern-mental comparison and even competition as a tool of public sector reform. A number of international benchmarking initiatives have become well established, each with its own particular features, but cumulatively creating a sense of competition while sharing experience. Five examples (in alphabetical order) are regular — usually annual — surveys conducted by Accenture,[13] the Bertelsmann Foundation,[14] Brown University,[15] the Economist and IBM[16] and UNPAN.[17]

How does e-government relate to public administration?

E-government has had a significant impact on public administration, changing the environment in which the public service operates, adding new concepts and methods to its operations and changing the relative weight and relationships among established elements of public administration. As with government as a whole, the changes are ongoing and it is difficult to predict where they will lead. This discussion, however, focuses on four areas where there have been clear and lasting impacts.

Citizen-centered service

Perhaps the single most powerful concept inherent in e-government is client-centred service delivery. Borrowed from the private sector, and predating the internet, this concept has come into its own with the World Wide Web. In this view, government services should be designed from the starting point of meeting citizens' needs or of helping citizens to meet their civic obligations. The formal organization of govern-ment assumes secondary importance and instead different parts of government or even levels of government are brought together by their common relationship with

identifiable communities within the larger population. In the electronic environment, citizen capacity is a factor as well as citizen need and public administration is pulled to present itself where the public is located, physically and on-line.

The approach, then, is for government to be designed from the outside looking in. Such a focus on the citizen/client also highlights the ultimate purpose of the service being provided and the procedures followed by government to achieve those purposes. Technology is seen as an enabler. However, both the logic and the costs of electronic technology-intensive systems call for simplifying the steps involved in service delivery, focusing on ends over means. This has led to an emphasis on service 'transformation', using the methodologies and insights of business process re-engineering and continuous improvement.

An integral part of the citizen-centered model is self-service, in which the 'client' assumes many of the administrative tasks performed by the service provider. In the context of on-line services, these tasks can be performed on a round-the-clock ('24/7') basis. Taken together, these two elements are major sources of cost savings. Experience has shown, however, that not all government services are amenable to delivery only on-line and, by the same token, not all members of the public are willing or able to seek them only electronically. This has given rise to a renewed effort to provide integrated service delivery, bringing together the various 'channels' of interaction between government and the public, including in person, by telephone, by mail and through kiosks as well as on-line.[18] The client and purpose orientation has also given renewed emphasis to the proposition that public goals do not necessarily have to be met through public vehicles, leading to the development of alternative instruments for delivering public services, including through other levels of government and even non-governmental actors.

The considerable power of the client-centered service model does have its limitations. It works best in the context of service transactions involving an exchange of information or money for a tangible return, such as a certificate or a reservation. This model, based on electronic commerce, is well suited to local government and areas of national government that have significant interaction with the public. It works less well in areas of government that are oriented towards scientific research — where knowledge management models are more appropriate — or in government's policymaking activities. Even in these areas, however, adopting a service-oriented approach has provided useful insights for introducing technology tools.

Information as a public resource

A second characteristic of public administration in the e-government context is the emergence of information as a key resource of government, requiring its own legislation, policies and institutions. While activities such as records management and documentation have always been an essential feature of government, it has only been with the development of e-government that the information assets of government have been understood to be as important as the financial and human resources that have been the traditional focus of public administration.

A characteristic of information management in government is that it can be thought of in lifecycle terms, a concept long in use by archivists. The stages of the

government's information holdings begin with its collection and production and include use, storage, retrieval, dissemination, protection, disposal and longer-term retention. Information collected for one purpose can be re-used for other purposes, and storage of information in electronic databases opens up significant possibilities — and related issues — for sharing information and creating new information and knowledge. Such information can be retained as individual data elements, as combinations of data to support decision-making and, with the application of judgement, as accumulated knowledge and wisdom.

Information that is gathered and held this way can acquire tangible value, both in a financial sense and in terms of its ability to do good or harm, according to how it is used. From this perspective, information held by government is of particular value, both because of its quantity and because of government's ability to require individuals and businesses to provide reliable information about themselves that they would wish to safeguard in other circumstances. Privacy and the protection of personal and commercially-sensitive information have, therefore, become major e-government public policy issues, together with their companions, security and intellectual property.

As with financial and human resources management, e-government has fostered its own environment of public administration institutions, laws, policies, procedures and skills. In some cases, these are new; in others, they have provided a new context and importance for existing institutions. In all cases the environment is evolving and it will be some time before it can be regarded as fully mature as the management of the civil service or of public money.

The new information discipline is itself multidisciplinary, bringing together elements as disparate as archivists and librarians with publishers and marketers, engineers and computer scientists. In the government context, a vital component of information management is its identification as government information (or, when on the internet, as government space) to ensure proper accountability.

In the nature of their public role, governments are concerned with the quality of the information they hold — including its accuracy and availability to the taxpayers who have 'paid' for it — and they also have a responsibility to ensure that members of the public have the information they need to fulfill their rights and obligations. This leads to a concern with information dissemination and freedom of/access to information. The collection of sensitive personal and commercial information creates reciprocal obligations between the providers of such information, to be honest and complete in what they tell government, and government, to ensure that it is well managed and with due regard to its sensitivity. The sensitivity of information collected and generated by government is also the basis of approaches to security, both of the information itself and ultimately of the state and society.

New skills and relationships

A third characteristic of e-government is the role played by technology in shaping the environment in which public administration operates and the knowledge and skills required by public service managers and workers. For practical purposes, the public service workplace is one where there is a computer on every desktop and routine use

is made of e-mail, word-processing suites and the World Wide Web. This situation contrasts with the environment of ten or even fewer years ago, where the telephone and the post were primary working tools. The adoption of electronic technologies in government has been a remarkable story of organizational learning and adaptation that is still unfolding.[19] The networking that is inherent in e-government has also given a new emphasis to working methodologies that emphasize group collaboration and information sharing, typically cutting across the vertical division of labour that is a characteristic of classic bureaucracy.

From a management perspective, the introduction of electronic technologies has been a major challenge, as lay managers have been called upon to make decisions about costly investments in highly sophisticated information systems. A further challenge is the open-ended nature of the investments — all too frequently the technical and costing assumptions that can be made at the beginning of a major project are overtaken by the time it is completed, with the result that risk management has become a major preoccupation of government decision-makers.

The increasingly technical, multidisciplinary and risky nature of e-government — or at least of the technologies that are its underpinning — creates a more interdependent relationship within government between policy-makers, program administrators and technical specialists. It also creates a new relationship among the traditional disciplines of public administration: the administrative disciplines are all adopting information technologies for their own purposes and new linkages are developing between them. Perhaps the most significant is the link between information technology and human resources, which in combination provide the foundation for knowledge management.

Another feature of e-government is the relationship between government and the private sector. Unlike other areas of public administration, governments cannot be self-sufficient in their adoption and use of electronic technologies and, of necessity, they have developed a variety of collaborative relationships with the private sector, giving a new context to the traditional issue of 'make or buy'.

Although governments can and do develop a significant technological capacity within the civil service, they are typically in the position of responding to the rapidly evolving external environment in acquiring electronic technologies and in thinking about their use. Governments are, therefore, heavily reliant on consultants — ranging from self-employed individuals to multinational firms that, in some cases, are larger than the governments themselves — for policy advice and for assistance in implementing new systems and technology-enabled programs and services. In some cases, government is its own project manager in implementing and operating new systems, in others it relies on the private sector to do so on its behalf through a variety of outsourcing and public–private partnership arrangements. The latter include private firms and other non-governmental organizations providing services to the public on behalf of government.

Another facet of the public–private partnership is that government is a major purchaser of technology-related goods and services and, therefore, has a major influence on the nature and development of that sector in the national economy. Governments are subjected to pressures to balance internal efficiency and productivity with national economic development concerns. This frequently involves making

choices between established multinational partners offering wide experience and economies of scale and national firms that include the small and medium enterprise sector that in the knowledge economy is regarded as one of the key engines of innovation and wealth creation.

Impact on accountability and management models

The fourth notable impact of e-government on public administration is on accountability and management models. The client-service orientation of e-government changes the relationships between the public, the civil service and elected representatives in practice and raises issues in principle. At the very least, the emphasis on providing service — preferably good service — to the public broadens the focus of civil servants from their traditional concern with supporting their political masters. This risks being extended into a perception that their real accountability is to the public and not to ministers. By the same token, politicians can feel that their role has been reduced. These are all dynamics that need to be addressed if e-government is to succeed.

Traditional accountability models are built on the view that leadership comes from above and is linked to the process of giving authority to subordinates and holding them to account for the results. New Public Management has built on this to encourage maximum autonomy (empowerment) of subordinates, on the proposition that management practices should be tailored to the needs of the 'business'. E-government introduces two important variations. Much of the actual leadership and innovation in applying technology in the public sector comes from more junior and front-line civil servants, in particular those dealing with the public. Senior management is often less experienced and capable in the skills that it is supervising, and its role becomes one of sanctioning and enabling leadership provided by more junior staff. In addition, the networking technologies that are inherent in e-mail and databases are a centralizing as well as a decentralizing force, adding renewed emphasis (but in a very different context) to 'old' public management values such as consistency and coherence and to the perspective of the government as a whole as well as to its individual components.

E-government in the development context

If e-government has been a major challenge in the developed economies, it is even more so in developing countries. It permeates the four domains of government: its role in fostering economic growth and social cohesion, its relationship with the governed, its internal administration, and its relationship with the international environment. In each of these areas developing countries are faced with limitations on institutional capacity and infrastructure, financial resources and civil service skills that characterize — and prolong — lower levels of development. The gaps between them and the developed economies risk being accentuated as the latter move increasingly aggressively into the knowledge economy, paralleling the 'digital divide' that has been identified within developed countries.

This situation calls for attention to the application of e-government models to the

development context and, in particular, to strategies for development. There is considerable effort being paid to harnessing the potential of electronic technologies in the development process. It is less clear, however, whether the implications have been worked out, for development strategies, of the fact that the post-industrial economies are increasingly defining themselves as knowledge-based economies and societies, with knowledge-based public administration to support and lead them. A working hypothesis is that this points to a need to develop knowledge-based theories of development (i.e. ICT-led development) with technology-literate and enabled public administration playing its appropriate role.

The challenge is compounded by the problems that developing countries face in areas that are central to e-government. For most developing countries, electricity and telecommunications infrastructure (whether land-line based or wireless) are areas of national weakness. The equipment and skills required for e-government to be effective, both internally and in its relationships with the public, are generally expensive — and imported — and not widely available. Local demand, both by the public and by the locally-based private sector, is significantly weaker than in developed countries, while the major international consulting and technology firms are relatively stronger than in developed countries, with fewer counterweights inside government or in the national economy.

While daunting, the situation is not altogether bleak. Many middle developed countries have undertaken ambitious programs to introduce e-government as a driving force in their national development. Even the poorest countries have begun to take basic steps, both in adopting appropriate technologies and in introducing information management practices to underpin their move to e-government.[20] Bilateral and multilateral donor agencies are devoting increasing attention to the use of ICTs in development and harnessing the power of the internet to share best practices and support initiatives on the ground.[21]

One of the most hopeful elements of these developments is that global technologies can reach into local development situations, providing a much richer support base to development efforts at the community level as well as in public administration.[22] Just as the networked environment changes the management and accountability model within governments, so too is it likely to change the relationship between developed and developing countries, in the longer term bringing them closer together, highlighting interdependence and breaking down isolation. This will not be an easy process on either side — and will have profound implications — but it does, more than any other element, suggest that the e-government story has a good many chapters ahead of it.

Where is it headed?

A popular line of speculation in conferences about e-government is whether it will last, either because the 'electronic' will be replaced by newer technologies or because it succeeds in permeating all aspects of government. A related view is that the nature of the 'e' will change, from an emphasis on technology to one that is more managerial ('enabling'). While there is likely to be some truth in all of these views, the issue being in what combinations will they influence the future, there is no doubt that the

changes that have occurred to date are not a passing phase, more likely a sea change.

With its features of convergence and interdependence, e-government is part of the accelerating process of globalization, which has a public sector as well as private sector and civil society dimensions. These features will not allow a permanent imbalance between developed and developing countries, which itself will guarantee that e-government is on the public agenda for the foreseeable future.

Within governments, ICTs show every sign of being a permanent, dynamic agent of reform. In the traditional public administration model — of interacting internal forces, political and bureaucratic leadership, and external forces — there has been a permanent shift towards external forces, combining technology, new management philosophies and internationally driven public policy agendas. This is probably a healthy development. In any case, it creates an environment that is open to what ICTs have to offer but that also needs to address both the incentives to making use of complex concepts and tools and the obstacles that must be overcome for ICTs to be used effectively.

This is a major challenge for public administration. At the moment there are few theoretical underpinnings for addressing the impact of ICTs on public administration.[23] Nor is e-government yet fully in the mainstream of the public administration professional and research communities. The challenge is one of leadership within the public administration community itself, forging new disciplinary alliances and rethinking its own assumptions in the face of a dramatically changing landscape.

Notes

1 The term e-government is used in the balance of this article, both for brevity and because it is more commonly used.

2 State of Texas E-government Task Force (2003) (www.dir.state.tx.us/taskforce/Surveys/State_Survey/app_b.htm). The London Borough of Kensington and Chelsea uses a similar definition: 'Electronic government is about using new technology (like computers and the Internet) to improve the way central and local government deliver their services, communicate, consult and work with others' (www.rbkc.gov.uk/Consultation/General/glossary.asp).

3 http://www.w3.org

4 http://www.icann.org

5 http://www.itu.int/wsis

6 http://www.wipo.int/freepublications/en/ecommerce/450/wipo_pub_l450in.pdf

7 http://www.unpan.org/

8 .http://www.oecd.org/topic/0,2686,en_2649_34129_1_1_1_1_37405,00.html

9 Gudrun Trauner, *E-government – Information and Communication Technologies in Public Administration* (Linz/Brussels: Linz University/IIAS Publication, 2002).

10 Twenty-sixth International Congress of Administrative Sciences, 14–18 July, 2004. For details of the agenda and proceedings, see http://www.iiasiisa.be/iias/aicor/aikorea.htm

11 http://www.ica-it.org/

12 The remarkably smooth introduction of personal computers and e-mail and the associated learning curve by both individuals and organizations are worthy of a study in their own right. Another area for investigation is the impact of the widespread introduction of softwares such as PowerPoint on how information is conveyed within organizations and on the decision-making process.

13 http://www.accenture.com/xd/xd.asp?it=enweb&xd=industries\government\insights\ leadership_customerservice.xml&c=gov_cussvile_0405&n=ghome
14 http://www.begix.de/en/PPPsum_eng.pdf
15 http://www.brown.edu/Administration/News_Bureau/2004-05/04-020.html
16 http://graphics.eiu.com/files/ad_pdfs/ERR2004.pdf
17 http://www.unpan.org/
18 See for example, Kenneth Kernaghan, 'Moving Toward the Virtual State: Integrating Services and Service Channels for Citizen-centred Service Delivery', presented to the IIAS 26th International Congress of Administrative Sciences, Seoul, Korea, July 2004.
19 A related development is major events such as the Canadian Government Technology Week (GTEC), which combines a 'Professional Development Forum', a major private and public sector exhibition and an awards ceremony to recognize leading e-government initiatives in all three levels of government. http://www.gtecweek.com/
20 For example, the International Records Management Trust (IRMT), with support from the Commonwealth Secretariat and the World Bank, has carried out pioneering work in developing electronic records management capacity in developing countries as an underpinning to democratic accountability and to combatting corruption. See http://www.irmt.org/
21 See the World Bank e-government development portal http://topics.developmentgateway.org/egovernment. The role of UNPAN has already been noted; the United Nations Development Plan (UNDP) is another part of the UN system that is looking at the application of ICTs in the context of democratic development http://sdnhq.undp.org/it4dev/. The Commonwealth has taken a different approach, creating a think tank, the Commonwealth Centre for Electronic Governance (CCEG): http://www.electronicgov.net/
22 One noteworthy example is the the International Development Research Centre's Bellanet, which, in its words, 'promotes and facilitates effective collaboration within the international community, especially through the use of ICTs'. See http://home.bellanet.org
23 For a description of one research program to address this deficiency in a comparative context, see the website of the Information in the Public Sector project: http://www.publicsectorit.ca/