Designing E-Government

On the Crossroads of Technological Innovation and Institutional Change

Edited by J.E.J. Prins

Kluwer Law International

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Chapter 1

Electronic Government. Variations on a Concept

Corien Prins

In Spring 2000, a report of the virtual think-tank debate entitled *Boosting the Net Economy 2000* was put online.[1] The debate focussed on four themes, one of them being e-government. A particularly interesting topic raised on theme was the consequences and opportunities which could result from the global character of online communications for local communities and governments. The report states on this point: "There is no natural law that says a citizen must make use of his/her public services from his/her own government. Services may increasingly be delivered by private sector bodies and eventually by the government of another state, using the Internet." Although the report acknowledges that we are a long way from such a possibility, it also underscores that "governments should be aware of the growing number of alternatives available to their citizens for online services and make sure they are well-placed to compete". In an online world where borders seem to be no longer relevant and people have free access to global information, citizens become aware of the differences between what one government delivers and what another government may offer.

Whether the radical scenario of the virtual think-tank will one day indeed become reality remains to be seen. It is, however, inevitable that our online society will affect our government services, the terms and conditions under which political actors and civil servants operate, and more in general the manner in which public bodies function. According to Britains e-envoy, Mr. Allan, "Government is going to have to behave more like the innovatory businesses on the Internet in recognising the role of individual initiative."[2] Whether the implementation of the various agendas presently created for electronic governments results in radical institutional and inter-organisational changes, new forms of governance, more efficient and flexible public sector mechanisms, more empowered citizens influencing policy priorities, totally new policy-making processes, or (commercially oriented) governments that sell the public information held in their vast amount of databases largely depends on the strategies proposed in these agendas and thus the roads that public sector bodies will follow to move towards a digitisation of their services and operations. At the moment however, it is still difficult to fully grasp the meaning, opportunities and limits of the concept 'electronic government'.

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1 The debate was designed, managed and hosted by the new media and electronic publishing company Headstar (www.headstar.com) and held between April 3 and April 7 2000. The report is available at: http://www.netecon2000.com/report.html.

2 Statement in: C. Grande, 'E-envoy vows to raise Internet use by ministries', *Financial Times*, 10 December 1999.

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This does not mean that no important steps have been set on the road to a digitised government. To date, governments have widely recognised the potential of new information- and communication technologies (ICT) to bring about fundamental renewal, not only in their functioning but also in their presence towards other organisations, societal groups or individuals. Both in their relationship with the citizen (for instance: democratic processes, public service delivery, or policy implementation), inter-organisational arrangements (for instance: policy co-ordination, policy implementation, or public service delivery), and in intra-organisational activities (for instance: policy development, operational activities, or knowledge management), ICT promises enormous opportunities to increase efficiency and effectiveness in all kinds of policy sectors.

In 1993, the US government was the first to launch an initiative[3]. Subsequently agendas were issued in among others the United Kingdom (the Green Paper entitled '*government.direct*')[4], Australia (entitled '*Clients First*')[5], Canada[6] and The Netherlands[7]. International organisations such as the G8[8] and the European Commission also addressed the issue. The Commission launched the *eEurope*-initiative, which focuses among other things on government online. It is the Commission's intention to ensure that citizens have easy access to government information, services and decision-making procedures online.[9] The initiative was adopted by the European Council at its Lisbon summit in March 2000. Some countries set a step further than a mere agenda. Finland has even implemented specific legislation on the issue. On 1 January, 2000 the Act on Electronic Services in the Administration entered into force.[10] The prime objective of the Act is to improve the smoothness and rapidity of electronic services in public administration, as well as the data security.

In the meantime, the US government has already greatly expanded citizen access to online government information and services and proposed initiatives that build on the 1993 Administration's efforts, led by Vice President Gore. On 24 June 2000, the US government unveiled a series of new initiatives to give the American people - what President Clinton in his first-ever Saturday webcast addressed to the Nation claimed to be - "the "Information Age" government they deserve". Clinton stated that the new

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3 National Performance Review, Washington 1993. See also: Office of the Vice President, *Re-engineering Government Through IT*, Accompanying Report to the National Performance Review, Government Printing Office, Washington DC, 1993 (http://www.npr.gov/library/reports/it.html).

4 Office of Public Service, *Government.direct. A Green Paper on the Electronic Delivery of Government Services*, Cm 3438, HMSO, London, November 1996. Available at: http://www.citu.gov.uk/greenpaper.htm. See for a discussion: Ch. Bellamy, J.A. Taylor, 'Understanding *government.direct*, *Information Infrastructure and Policy* 6 (1997/1998), p. 3.

5 *Clients First. The Challenge for Government Information Technology*, 1 March 1995. Available at: http://www.dofa.gov.au/pubs/itrg/itrg-tc.html).

6 *Blueprint for Renewing Government Services Using Information Technology*. Available at: http://www.ifla.org/documents/infopol/canada/tb-bp.txt

7 *Actieprogramma Elektronische Overheid*, TK 1998/1999, TK 26387. Available at: http://www.minbzk.nl/e-overheid.

8 See: http://www.open.gov.uk/govonline

9 Available at: http://europe.eu.int/comm/information_society/eeurope/

10 http://www.om.fi/2838.htm

initiatives will "cut red tape, make government more responsive to the needs of citizens, and expand opportunities for participation in our democracy."[11] By the end of 2000:

- Citizens must be able to search all online resources offered by the federal government from a single web site called 'firstgov.gov';
- Citizens, small businesses and community groups must have one-stop access to roughly $500 billion in grants and procurement opportunities.

In the UK, also, follow-up recommendations and targets have been published: by March 2001, 90 percent of routine government procurement is to be done electronically with all public services capable of being delivered electronically by 2008.

Shaping new forms of governance in an information age requires knowledge of the dynamics of the electronic processes and structures in the public sector as well as an adequate insight in the capabilities associated with information- and communication technologies. It also asks for close attention to (new) practical and ethical obstacles and dilemmas touching upon security, fraud, liability, intellectual property, free access, national security, equality and – perhaps most important of all - privacy. In the end, the success or failure of establishing a (fully) digitised government highly depends on an adequate understanding of all dimensions of the endeavour. Only when the dimensions and implications are fully grasped, we are able to answer questions such as if there is a need for specific measures (law making, subsidies, and education) to stimulate certain directions of change. For does not the scope and effect of such measures depend on whether a single design for electronic government is derived from the developments, or that diverging developments towards electronic government, governments, or even governance, are to be perceived?

This book aims to support further understanding of and knowledge on the dynamics of electronic government and hence, the future of this endeavour. The aim of this book is to draw lessons (cross-national, between policy sectors and across administrations) from the design of electronic government and from evaluations of electronic government in practice. Prime impetus for the book was an international conference held in Tilburg, The Netherlands, in May 2000 on electronic government. The book contains both papers presented at this conference as well as chapters specifically written for the occasion of this book.

The book explores both visions on electronic government and gives examples of an already active electronic government. Its prime goal is to focus at directions of developments on the crossroads of technological innovation and organisational change in governments, together with evolving barriers and opportunities for further change. Thus it aims on providing lessons for learning from both designing future electronic government and outcomes of electronic government in practice, across countries, policy sectors, and technological innovations.

Given the aim of this book and the limitations of this traditional - paper-based - medium, not all of the issues which have been risen in relation to electronic government

11 See: http://www.whitehouse.gov/WH/New/html/e-government.html

can addressed. Several topics, some of them even high on the policy agenda (such as access to government information[12]), have therefore not been approached here.

The book starts with three chapters that deal with the different clusters of electronic government activities: e-governance, on-line democracy and electronic service delivery. In Chapter 2, Perri 6 focuses on the first cluster: the use of ICT to support policymaking. After discussing the rise of e-governance and tools used, he focuses on the different theories that have been developed on the impact to e-governance systems across government. John Taylor and Eleanor Burt look in Chapter 3 at the second cluster: on-line democracy. They argue that ICT is infusing all democratic impulses within the polity, whether those impulses are towards direct, representative, or pluralist forms of democracy. ICT offers important opportunities to re-shape and revitalise democracy in all its forms. Charles Raab subsequently discusses, in Chapter 4, the third cluster: electronic service delivery. He thereby focuses on proactive service provision. After these three contributions on the individual clusters of electronic government, Klaus Lenk and Roland Traunmüller deal with the overall concept of electronic government. In Chapter 5, they advocate a broadening of this concept, thereby discussing four perspectives on a digitised government: the citizen's perspective, the process perspective, the (tele)co-operation perspective and the knowledge perspective.

The Chapters 6 through 9 describe electronic government developments in several countries around the world. From these chapters is becomes clear how e-government strategies are designed in individual countries and how the governmental organisations of these countries implement the concept of electronic government. Miriam Lips explores in Chapter 6 the policy agenda's in countries that played a key role in initiating the concept of a digitised government. She discusses developments and experiences in the US, Singapore and Australia. By comparing the e-government developments in these countries, she explores a possible tendency towards a single model of e-government. Koen Zweers and Kees Planqué subsequently discuss in Chapter 7 the initiatives in the United States, both at a federal and a state level. They analyse various state web sites and consider the trend from an organization-based approach toward a client-oriented e-government approach. Frans de Bruïne, in Chapter 8, looks at e-government developments from the perspective of the European Union. He describes the ambitious *e*-Europe initiative, explores the strengths and weaknesses of Europe when it comes to introducing electronic government and stresses what is at stake in Europe. In Chapter 9 Roger van Boxtel explains the developments in The Netherlands. He touches upon several policy documents and projects he initiated as the Minister responsible for e-government developments. Finally, Silvio Salza and Massimo Mecella discuss the steps taken by the Italian government in Chapter 10. It becomes clear from their discussion that various legal and organisational questions emerge in the process of introducing e-government activities and that an adequate implementation of a digitised government requires legislative action on a large number of relevant issues.

Having gained both an understanding of the concept of e-government as well as an insight in the initiatives of major countries around the world, the book subsequently focuses on several of more specific developments and challenges surrounding e-

12 New electronic media such as the Internet provide such new and far-reaching information processing functions that they cry for application to government information. It is recognised in various policy documents that the availability of these media asks for a re-interpretation of the governments' duty to provide access to government information.

government. Wim van der Donk and Bram Foederer focus in Chapter 11 on social movements and the influence of ICT on their way of functioning. They aim at generating conceptual tools that may help designing a more systematic comparative research into the hypothesis that ICT's are changing social movements. Matt Poelmans further explores the client-oriented (in his words 'citizen centred') approach, by describing, in Chapter 12, the Dutch initiative 'Public Counter 2000'. Customer orientation, meaning focussing on citizen's needs and establishing citizen's demand patterns are concepts at the very heart of this initiative.

The book ends with two chapters on challenges the concept of e-government faces. First, Herbert Kubicek and Martin Hagen discuss, in Chapter 13, the inevitable interaction between e-government and e-commerce and the implications of this interaction. They argue that e-government and e-commerce need to be integrated to an overall concept of electronic services, because that is what customers and citizens will in the end claim. Using the ongoing Bremen Online Services project in Germany as an illustration, they claim that an integration is the only way to achieve economically sustainable solutions. In the final Chapter 14, another key challenge to e-government is explored: the implications of the use of mobile telephone. Christopher Theunissen describes the present use of this new technology together with possible scenarios relating to its future potential use for electronic government purposes. He thereby specifically addresses the benefits it may have for developing/partially developing states such as South Africa.

In conclusion, having read all of the chapters of this book, it becomes clear that we are standing on the crossroads of E-government development. In the coming years many choices will have to be made regarding the direction E-government ambitions will, can and must evolve. This will at least require an optimal interaction between the goals and ambitions stipulated in the various action plans and day-to-day practice of those who have to implement these. What also becomes clear is that various similarities exist between E-government developments around the world. However, various factors restrict the evolution of a uniform E-government model. These are, among others cultural differences, diverse approaches to public policy as well as technological developments. The E-government of the future thus depends on the choices which are going to be made in the coming years. This book is thus intended to provide the reader with some of the necessary tools to find the possible variations on the E-government concept.

Finally, some acknowledgements are in order. I first would like to thank all of those who contributed to this book. Their willingness to make creative and stimulating contributions is highly appreciated. I further own thanks to all of those who organised the May 2000 conference: Miriam Lips, Monica den Boer, Luuk Matthijssen, Marcel Boogers and Marijke Nobel. This book greatly benefited from this occasion. Likewise, it benefited from the views presented by those who participated in this conference, either by delivering a paper or by contributing in the workshops. Finally, I am indebted to Vivian Carter, who took care of organising the contacts with the authors and edited some of the contributions to this book. She was crucial in helping to make this book what it is.

Chapter 2

E-governance. Do Digital Aids Make a Difference in Policy Making?

Perri 6[1]

1 Introduction

Across the world, politicians make much of their strategies for modernising government, using new technologies (Heeks, 1999). Under that rubric are three different clusters of activities:

- electronic service delivery: Most of the effort, money and political attention available for electronic government is devoted to the provision of services on-line to citizens and businesses through the phone, the personal computer or the digital television (6 et al, 2000).
- electronic democracy: New legislatures, such as those in Scotland and Wales, are using electronic voting systems in their chambers, and there is some interest in on-line consultations with citizens (6, 2000b).
- e-governance: Less attention has been devoted to digital support for policy making; decision making; group work between ministers and their juniors, senior civil servants working on policy formulation, development and management, and with policy advisors who are contracted to provide confidential policy support.

This third cluster is the present focus. It has been too little studied (Kraemer and Dedrick, 1997), and yet may well be of fundamental importance to the nature of democratic life.

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1 Acknowledgments: I am grateful to Cisco Systems Ltd and to Nick Penston in particular, for financial support for the programme of research on which this paper is based. I am grateful for their comments on earlier draft of a longer paper from which the present one is taken, to Christine Bellamy, Paul Frissen, Brian Hogwood, Helen Margetts, Lawrence Pratchett, Fred Thompson and Steve Woolgar. None of them should be assumed to agree with my arguments, still less be held responsible for my errors. A slightly different version of this paper was given at the Political Studies Association 50th annual conference at the London School of Economics, 10-13.4.00 and a shorter version will appear in 2001 in the PSA Yearbook 2000, MacMillan, Basingstoke

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One way to classify e-governance systems is roughly according to the main tool for which they are used; of course, there are overlaps because some tools are put to more than one use. There are tools for:

1. generating understandings simple data systems enabling dictionaries of key terms in the dialects of different policy-makers from different professional or organisational cultural backgrounds who are collaborating to understand one another's vocabulary;
   idea generation tools; graphical problem structuring tools (modelling in software procedures such as soft system methodology, robustness analysis, strategic options development and analysis: Rosenhead, 1989); mental mapping and mental representation tools that enable users to develop graphical representations of their own or others basic conceptual approach to problems; argumentation support tools to help multiple groups of decision makers working simultaneously to generate options, identify pros and cons, track multiple flows of argument and debate (Conklin, 1999; Buckingham Shum, 1998; Dennis et al, 1997); electronic whiteboards for graphical representation of connections between ideas (Massetti, 1998); and scenario building tools;
2. collecting data or observations search agents; digital agents based on neural nets for context sensitive searching or editing or précis or transactions (6, 1999a); sensors; and communication recording and storage systems;
3. organising and analysing data on events, conditions, problems, processes that have been observed spreadsheets and budget systems, one of the earliest areas of large-scale e-governance (e.g. the French 1980s SIAD Mairie system: Klein, Roux and Villedieu, 1991); organisational memory tools (Buckingham Shum, 1998); document profiling systems in shared work spaces that enable users on saving documents to provide hypermedia linkages to related documents, to identify key relationships with key organisation documents; some electronic document management systems use bar codes on paper documents to enable their linkage with electronic versions (Prinz and Syri, 1997); hypermedia geographic information systems (GIS); training simulation systems for decision makers, for example for crisis management; and formal models;
4. supporting communication and transaction e-mail, electronic conferencing; video-conferencing systems (Mosier and Tammaro, 1994); meeting management tools (Niederman et al, 1996); tools to model and manage conflict, come to consensus or operate a decision procedure such as weighted voting or arbitration (Watson et al, 1994); argumentation support systems; and electronic document interchange;
5. modelling decisions and advising on possible consequences spreadsheets; expert systems e.g. to test consistency and precision in draft legislation in e.g. social security (Portman, 1988, 77-9) or immigration (Frøkjaer, 1989); neural nets (Whitby, 1996; Berry et al, 1998); modelling systems for problems such as criminal activity, integrated with resource allocation tools (Borins, 1998, 132-133); and there are
6. environments that provide integration and storage for the other categories intranets and the world wide web are the most important example; however, in many cases only the simplest functionality of intranets is actually used (NAO, 1999).

Categories 1, 3, 4 and 5 include the tools often called (group) decision support systems (GDSS) (Finlay and Forghani, 1998; Jones, 1994; Karagiannis et al, 1994).

This category is not wholly distinct from that of "knowledge management" (KM) tools, but the general difference is that KM tools are supposed to manage stocks of knowledge, while GDSS tools manage flows.

2 The Rise of E-Governance

The early decades of computing, however, e-governance was the area in which most progress was made. The development and relatively cheap availability of spreadsheet software had an enormous impact on the process by which budgeting was done in government, initially on mainframe systems in central government in the 1970s, and then in the 1980s, on PC based systems at every level including the smallest local authorities. France was well ahead of the UK when by the mid-1980s many local authorities were using the SIAD Mairie – systems which provided at least finance directors rather few elected politicians used it themselves in those years – with an integrated financial management, project planning and transaction data interrogation system with an underlying expert system engine for modelling alternative budget scenarios which allowed a variety of scenarios to be tested on a wide variety of data and projections, including non-financial data where relationships could be identified or modelled (Klein, Roux and Villedieu, 1991) At least, these tools should have enabled policy makers to ask the kinds of questions that would make it possible for them, if they had the political courage, to explore, propose, and justify larger than normal scale changes. Of course, there were many other factors at work in those years that also put pressure on governments to raise incomes, invest capital, and spend differently. Spreadsheet technology can have provided no more than a means by which those pressures could be responded to, and by which policy makers could gain a better understanding than traditional paper methods offered, of the options that were believed to be available and their implications. Policy makers were able using such tools in very short spaces of time to compare costs and expenditures, assets and liabilities in a variety of different ways, and to run projections based on different assumptions. It seems reasonable to hypothesise that, insofar as any one development can shake the long-standing and institutionalised tendency of governmental bodies to make budget changes incrementally, this development should have equipped politicians willing to do so to make decisions of a more radical kind: van de Donk, 1998 offers some evidence of non-incremental decision-making. However, the thesis requires more testing: to date, rather little work of a cross-national nature has been done to evaluate the success, even in their own terms, of the reforms to the budget process adopted across the developed world in the 1980s and 1990s (Caiden, 1998) However, the quantitative methods developed by True et al 1990, lend themselves well to this question.

But the spreadsheet was by no means the whole story. Techniques of modelling and simulation brought new analytical capabilities to economic policy makers in the post-war years. Indeed, after the military applications, probably the next major category of central government use of computing power in the age of the punched card and the mainframe was the running of assumptions on economic models. Today, the British Treasury's model of the British economy is available on the World Wide Web and analysts can run their own favoured assumptions on it and see what consequences it would project.

From the 1960s onward, analysis has been conducted electronically of data captured from transaction processing systems in, for example, social security, immigration and

other fields, in order to alert policy makers to trends, exceptions, anomalies, patterns, which can at least stimulate further questions if not always rigorously test hypotheses. Spreadsheets and statistical packages have been used to construct scenarios and projections from these kinds of administrative and performance data, to support decision making. Early commentators had high hopes that the widespread use by salaried professional policy analysts of such systems would herald an era of more sophisticated, better informed, more rational policy making (Stevens and McGowan, 1985, 177-183)

By the early 1980s, modelling and simulation was being attempted in the field of environmental policy making, as evolutionary change models came to be tractably modelled in the "artificial life" tradition (Ward, 1999), at the same time as environmental policy makers began to demand systems by which environmental impact assessments of proposed initiatives could be undertaken.

Expert systems were first used in such policy making contexts as social security benefits in the 1970s in the USA and then employed on a much larger scale in the UK in the second half of the 1980s, in order to test the consistency of current regulations, identify anomalies and vague areas, and to explore the implications for proposals to change entitlements and help policy analysts prep are instructions to legal draughtspeople (Portman, 1988, 77-9). Today these systems are used by every front-line benefit officer to calculate entitlements on individual cases, and by every Citizen s Advice Bureau worker to provide entitlement advice, but their first uses were policy analytical in nature rather than in service provision. Expert systems to model British immigration and nationality law in the language Prolog were developed in the 1980s by Professor Robert Kowalski of Imperial College London, but were not extensively used inside the Home Office (discussed in Frøkjaer, 1989).

Models based on neural nets only came into use in government at the end of 1980s initially on a modest scale, and then principally in assisting professionals in such fields as public health epidemiology, civil engineering and some technical aspects of financial management, to analyse and diagnose complex systems.

Moving for a moment to a level that is at least in analytical theory below if not always in practice separable from that of policy and strategic decision making, by the 1980s, management and case decision making in government was beginning to be able to draw upon more sophisticated tools. For example, by the end of the 1980s, central police agencies were being equipped with quite sophisticated modelling systems for criminal profiling and analysis of data in order to support detective work on particular investigations. Electronic document interchange (EDI) systems were introduced to handle legal, financial and procurement systems, and some systems were designed to support extensive integrated analysis and oversight of flows. Some departments have experimented with shared work space systems and accounted document flow systems to track the movement of copies of documents between individuals, identify editing changes made, alert owners to documents that have not been edited or passed on, etc. For example, there are studies that suggest successful experimental use of such systems in some German federal ministries (Prinz and Syri, 1997)

Geographic information systems (GIS) have been developed since the mid-1980s to bring together, ideally from a small number of visual cartographic images, hypermedia databases of information relating to territories and localities. Data packaged in such systems include census, epidemiological, economic profile, land use and environmental information. These have been used by policy makers for various purposes, but the first and perhaps still the most extensive use is in local land use planning. More sophisticated