Chapter 6

**e-Governance**

Cyber-optimists are hopeful that the development of interactive services, new channels of communication, and efficiency gains from digital technologies will contribute towards revitalizing the role of government executives in representative democracies, facilitating communications between citizen and the state. In contrast cyber-pessimists express doubts about the capacity of governments to adapt to the new environment. After reviewing theories about these issues, this chapter will examine the evidence and compare the causes and consequences of the rise of e-governance in terms of three core questions:

1. Where and what type of government departments are online around the globe?
2. To evaluate the consequences of the rise of e-governance, what are the democratic functions of government websites; in particular how far do they provide transparent information about government activities and opportunities for interactive communication between citizens and the state?
3. What explains the growth of e-governance and, in particular, how far does democratization drive this process, or is socioeconomic or technological development more important?

**Theories about the Impact of e-Government**

Like other political institutions, government departments and official agencies have adapted to the Information Society during the last few years, albeit at a more cautious pace than the private sector. The main potential of digital technologies for government, cyber-optimists suggest, lies in strengthening policy effectiveness, political accountability, and, to a lesser extent, public participation. E-governance holds great promise for the delivery of many types of public services from housing and welfare benefits to community health care and the electronic submission of tax returns, reconnecting official bureaucrats with citizen-customers. The Internet can serve multiple functions: disseminating information about the operation of government as well as public services, facilitating public feedback mechanisms like emails to government agencies, enabling more direct participation into the decision-making process including consultation exercises at local level, and providing direct support for the democratic process, such as the efficient administration of electoral registration or online voting. There is widespread concern that the public has lost faith in the performance of the core institutions of representative government, and it is hoped that more open and
transparent government and more efficient service delivery could help restore public confidence. In developing societies, the Internet can potentially help with the multiple challenges facing the effective delivery and administration of basic government services such as health and education, especially given the global reach that the technology provides, connecting medical professionals, local officials and university teachers in Oslo, Cambridge and Geneva with those in Nepal, Bangalore, and Havana.

For all these reasons, cyber-optimists have high hopes about the democratic potential of digital technologies. Yet such visions are tempered by more cautious voices stressing that it is naïve to expect technology to transform government departments as organizations that are inherently conservative, hierarchical and bureaucratic. Official documents can be published online, but it still often requires considerable knowledge and technical skills to negotiate the complexities of these information resources. An OECD study of e-governance, based on a series of interviews with information specialists, public officials and the policymaking community in eight post-industrial societies in 1996-7, presents a pessimistic scenario. The report found that new technologies had had little impact on the way that governments gathered information for policy analysis, since traditional methods like letters, written submissions and informal meeting continued to predominate. Digital technologies like email have had greater impact in the dissemination of information to senior decision-makers and policy elites, although even here traditional channels remained most popular, including press releases, official Gazettes and face-to-face meetings. The report concluded that the overall impact of the Internet has failed to increase access to policymakers, to improve the transparency of government decision-making, or to facilitate public participation in policymaking.

Similar concerns have been expressed elsewhere. Many observe that although governments have developed websites to promote ‘top down’ publicity, and even state propaganda, there are few opportunities so far via these media for genuine ‘bottom up’ interaction, public criticism, or discursive deliberation. Advocates of direct or ‘strong’ democracy frequently critic the ‘failure’ of the reality of digital politics to live up to their expectations, and then conclude that because political participation has not been transformed, the internet represents ‘politics as usual’ and nothing significant has changed. But the key issue here is whether the Internet provides an effective means of government communication and information supplementing traditional channels. In terms of the overall opportunities for political information and communication, are we better off or worse off in the Internet Age than say ten, twenty or thirty years ago? To evaluate these issues this
chapter starts by mapping where government departments have moved ahead into the 
Internet age and where governments continue to lag behind around the globe.

The Rise of e-Governance

The full range of new information technologies may serve multiple internal
administrative and organizational functions for governments, linking horizontally as well as
vertically. These technologies include the proliferation of fax machines, beepers and mobile
phones, email, listservs and Intranets binding together internal communications between
departments or branches, as well as the use of computers in government offices. Email
communications are particularly important for strengthening one-to-one communications
and group networks within established political organizations, as in the corporate world and
local community, as well as linking citizens and government\textsuperscript{8}. But technologies like fax
machines and mobile phones usually serve to supplement or replace older machines, just as
photocopies replaced roneoed stencils, and stencils replaced carbon paper, altering the speed
and convenience without essentially changing the function or contents of communications.
Being able to communicate faster does not necessarily mean that this will be to greater
effect. Detailed case studies and network analysis are useful tools to study the internal use of
these private forms of communications within government departments, drawing on the
growing literature in organizational theory and management studies on the use of digital
technologies in business and the non-profit sector\textsuperscript{9}. Initiatives in e-governance by local, state
and national agencies have attracted considerable interest in public administration and
management studies, such as comparisons by the 20-nation Government Online (GOL)
survey and OECD Public Management report\textsuperscript{10}. Much of the interactive government activity
conducted via digital means, including the most effective forms of interpersonal persuasion
and deliberation, may be underestimated since it occurs within communities behind closed
doors.

Government websites - the primary focus of this chapter - are the most important
public face of the Internet. Building on the literature, a simple mapping exercise helps to
establish where e-governance has developed most fully. Two sources are used. The first
estimate of the total number of all government websites in 179 countries, excluding
dependent territories, is derived from Governments on the WWW. This source provides the
most comprehensive list worldwide, and the accuracy of the list was confirmed and checked
using common search engines like Yahoo\textsuperscript{11}. The analysis based on this list summarizes the
total number of all official government websites in each country, broadly defined to include
those for the national executive (such as ministries, departments, offices, agencies, institutes,
councils and committees), as well as for the legislative branch, state and local governments,
all political party websites (including at regional as well as national levels), the law courts, government representatives in foreign countries including embassies and consulates, and other official institutions. Some of the cross-national variations may be due to specific administrative policies, such as whether government websites are hosted from one central server or dispersed across more autonomous agencies at different levels.

This initial estimate provides a comprehensive overview of all official sites but it does not distinguish between different agencies, although politically it is far more important for the transparency of government and the accountability of officials that citizens can find out about central government ministries and the core executive rather than, say, travel and tourism information from embassies. To focus on national-level government agencies such as Cabinet ministries the chapter draws on a second source of data, from the Cyberspace Policy Research (CyPRG) group\textsuperscript{12}. This database has systematically monitored ministerial-level national government departmental websites around the world since 1997. The latest year of data that is available (1999) identified 2941 such websites in 105 nations.

[Table 6.1 and Figure 6.1 about here]

The map of e-governance around the globe is illustrated in Figure 6.1. Worldwide in total over fourteen thousand government agencies were found online in mid-2000, a remarkable number given that the World Wide Web is a relatively recent development. North America and Western Europe lead the world in the spread of e-governance, followed by Scandinavia, with the Middle East and Sub-Saharan Africa ranking last. The comparison of the total number of government webs ranked by individual countries shows that Germany tops the list, in part because of the extensive development of websites at Lander level in the federal system. Other leading countries include the UK, US, France, Italy, Spain, and Sweden, all affluent post-industrial societies, but also, perhaps more unexpectedly, India (ranked 7\textsuperscript{th}) and Brazil (ranked 9\textsuperscript{th}). These exceptions strongly suggest that government priorities, telecommunication strategies, and the structure of federalism in the political system may help to drive this process, since some developing societies with relatively low levels of connectivity but a decentralized political system have forged ahead in digital government. Further down the rankings, Mexico, Taiwan and Malaysia also have far more government websites than would be expected by their levels of socioeconomic development alone. Yet the presence of these outliers should not be exaggerated since the overall contrasts between developing and industrialized nations are marked; on average, only eight government department or agencies maintain a website in each of the poorest nations whereas in contrast 240 such sites were found in each of the more affluent societies.
The more limited comparison of ministerial or national-level government websites from the CyPRG data confirms a similar pattern, with almost 3000 departmental websites online, representing on average about 27 per country. Again there are marked contrasts by levels of human development, with only three departments online in the poorest nations compared with 45 in the most developed. The disparities by level of democratization are also clear, with a dozen departments online under non-democratic regimes compared with more than three times as many (39) in the most democratic states. The regional comparison displays a familiar picture although fewer central departments in Central and Eastern Europe have ventured online than might be expected from other indicators of technological diffusion, and in contrast more government ministries in the Middle East have moved into e-governance.

The Democratic Functions of Government Websites

The government websites that have been launched vary substantially in their levels of information and interactivity, as well as in how far there has been an attempt at linking all the available official sources into a client-oriented portal. As illustrated in Figure 6.2, some websites like that illustrated for the Norwegian government continue to be organized traditionally by ministries or agencies, which requires users to understand the responsibilities and functions of different institutions. Countries like the UK have adopted a ‘one-stop shop’ approach attempting to tie together multiple government departments and agencies at all levels. The aim is to allow citizens to find the information and transactions they need in one searchable integrated database, as well to strengthen linkages between departments, and to encourage ‘joined-up’ government. Other innovative designs, such as FirstGov.gov site in the United States and the Singapore government website, aim to provide a more customer-oriented approach organized by topics and issues, stressing how to deal with government services and regulations, such as those concerning jobs, health or taxes.

To analyze which departments were online, and to consider the role of these websites more systematically, this study can draw on the content analysis data collected by the Cyberspace Policy Research (CyPRG) group. The database has systematically examined the contents and format of national-level government department websites around the world. The analysis classifies the contents according to two principle criteria: the informational transparency of the website based on indicators such as the site ownership, contact details, organizational information, and freshness of updated material, and the communication interactivity of the website based on the provision of links and opportunities for input. Table 6.2 shows the worldwide distribution in 1999 of almost 3000 government department
websites classified by policy sector, as well as the standardized 100-point scores for different types of departments on the measures of information transparency and communication interactivity.

[Table 6.2 about here]

The results show certain significant differences by policy sector. Not surprisingly, science and technology departments were most commonly found online, followed by finance and trade, all departments which can be expected to need to maintain a high international profile in dealing with governments from many other countries. Yet there was no apparent logical pattern in the distribution of other departments, in terms of their type of dealings either with other governments or with the public. For example, despite their global responsibilities, relatively few departments dealing with foreign affairs and immigration had established a website. Despite the potential of the Internet for research, official library websites were rare, while telecommunications departments were found in the middle rank. Part of the variations could be attributed to the structure of government in different countries, for example whether immigration was dealt with by a separate department or integrated into the department of justice or home office. Another factor that is likely to prove important concerns the centralization or dispersion of websites within government, since some countries have adopted a ‘one-stop shopping’ approach for citizens while others have encouraged multiple independent websites.

The pattern by the function of government websites was clearer: most strikingly, across all policy sectors, departmental websites scored almost twice as well in their information transparency rather than their communication interactivity functions. Departments used their websites far more extensively as ‘top-down’ mechanisms for posting information such as mission statements, details about the structure and activities of the organization, and official reports and documents, rather than providing clickable links to email officials, opportunities to subscribe to an electronic newsletter, or facilities to download and upload official forms. In this regard, the Internet was used conservatively, as predicted, to replicate existing channels for the publication and distribution of official documents like reports, providing information through different channels, rather than to ‘reinvent government’, to rethink the nature of the relationship between departments and the public, or to open bureaucratic organizations to interactivity with customer-clients. Moreover there was little variations across policy sectors: the functions of the websites were relatively similar whether for departments that might be expected to generate considerable interaction with the public in service delivery, such as those of health, education and social services, or those generating minimal direct contact, such as departments concerned with the
management of internal government operations or defense. While the design usually proved conservative, the provision of electronic information resources may still have certain important consequences, since the distribution of electronic information resources becomes equally available to all actors, whether professional lobbyists or activist volunteers, the costs of access are sharply reduced, resources are searchable, and the information is in real-time for pending proposals. Those seeking to challenge the authorities on current issues of concern, -- including think-tank policy analysts, professional advocates, backbench politicians, small opposition parties, journalists, and organizational activists, -- can use these resources to be as well briefed as government ministers and civil servants about official reports, government proposals, administrative decisions, and pending legislation. Making sense of the materials remains a demanding process, but the provision of more official documents and search facilities via the Internet loosens some of the government's control over information resources and augments the transparency of the decision-making process.

Explaining the Rise of e-Governance

What helps to explain the rise of e-governance? It might be anticipated that the type of political system would be one of the leading candidates, in particular e-governance could plausibly be expected to have developed furthest in long-established democratic states which are committed to open government and freedom of information, such as Norway, Canada and Australia, rather than in consolidating and transitional democracies like Russia, Sri Lanka and Tanzania, and the contrasts are likely to be even stronger with the availability of official information online in one-party regimes and authoritarian states. Yet there may also be many exceptions to this pattern since general levels of socioeconomic development and the broader process of technological diffusion may also influence the rise of e-governance. Government departments may have developed few websites in many poorer societies lagging behind the Internet revolution in sub-Saharan Africa and South East Asia, including democracies like Mali and Bangladesh, while in contrast more public services may have transferred online to streamline administrative efficiency and maximize bureaucratic control in affluent but non-democratic countries, such as Singapore, Malaysia and Saudi Arabia. Therefore levels of democratization, technological diffusion, and socioeconomic development are all factors that may plausibly explain the distribution of government websites worldwide. Following the logic discussed in the previous chapter, the models in this
study are based on the assumption that socioeconomic development precedes and thereby helps to drive the process of democratization and technological diffusion. To examine these relationships, the standard measures were incorporated into models, including indicators of socioeconomic development, technological diffusion, and levels of democratization. Five dependent variables were examined: the total number of all government websites, the number of national-level government websites, the content analysis indicators of government information transparency and communication interactivity, and the overall e-governance index. The summary index was developed by multiplying the number of government agencies with the combined indicators of informational transparency and communication interactivity.

[Table 6.3 about here]

The results given in Table 6.3 show that even after controlling for socioeconomic development, technological diffusion measured by the spread of Internet use proved the single most significant predictor of the distribution and functions of e-governance across models, with the exception of government transparency, where none of the factors proved significant. What this pattern suggests is that much of the impact of socioeconomic development comes not from patterns of literacy and education per se, but through its close association with technological development. As Chapter 3 established, affluent post-industrial societies characteristically have the widest access to multiple forms of communication technologies, including traditional media like telephones and televisions, as well as digital ones like computers and Internet hosts, and this environment is most conducive to the spread of e-governance as well. Government organizations respond the opportunities for interaction within their broader socioeconomic and technological environment. Like a political version of Metcalfe's law, the incentive for departments to communicate via the Internet expands at an exponential rate as society moves online. The replication of the results across the two alternative indicators of the spread of e-governance, derived from different sources, increases confidence in the reliability and robustness of the models. Equally importantly, the results indicate that once models have already controlled for prior socioeconomic and technological development, then the level of democratization fails to explain the distribution and functions of e-governance. Although it is plausible to imagine that freer societies generate more open and transparent e-governance, once controls are introduced for the Internet population, this turns out not to be the case. The overall results suggest that technological diffusion proved the most important single factor driving the spread of e-governance: departments and official agencies have taken to the Internet in
societies leading the digital revolution. E-governance may help to strengthen
democratization, but the process of democratization does not appear to be its primary cause.

[Figures 6.4 and 6.5 on the same page near here]

To confirm that this interpretation was not just a statistical artifact, or a by-product
of the sequential ordering of the variables in the models, and to identify any particular
anomalies to this pattern, the main relationships were also examined graphically by using
scatterplots. The pattern comparing the level of democratization with the index of e-
governance shown in Figure 6.5 confirms the models, and explains some of the reasons for
the poor fit. It is true that established democracies like Germany, the UK and the United
States are ahead in e-governance, yet some comparable democracies such as Greece and
Belgium continue to lag far behind. The most plausible reason is that the broader structure
of the Information Society is poorly institutionalized in democracies like Greece, where
relatively few people are online, and, given Metcalf’s law about the value of networks, this
context creates minimal incentives for official departments to venture online. Similarly
contrasts can be drawn within every category of democratization, such as between India and
the Philippines, between Brazil and the Ukraine, between Egypt and Algeria. In contrast, the
scatter plots of e-governance compared against Information Society index displays a closer,
although admittedly far from perfect, fit to the data. The relationship proved robust since
similar patterns were found if the number of government agencies online was compared,
rather than the composite index of e-governance.

[Table 6.3 about here]

To check further, the overall pattern was also examined using a simple cross-
tabulation of the density of e-governance in rich and poor democracies (in Table 6.3). The
results show that government websites were by far the most common in the richest
established democracies. The poorest societies had few such webs and there was little
difference in this between countries ruled by despot or democrats. The comparison of all
these different indicators strongly suggests that the distribution and functions of e-
governance reflects levels of technological development first and foremost: this is the single
most consistent pattern to be found across all the data. Countries that have forged ahead
with the distribution of computers access and online use are also the foremost societies in e-
governance. The gradual diffusion of the Internet into people’s everyday lives is the bigger
ocean within which government organizations swim. Without wishing to suggest a strong
version of technological determinism, the analysis leads towards the conclusion that so far
the rise of the Information Society has had important consequences for the ability of citizens
to communicate with government via the Internet, and therefore for how far digital
technologies promote the process of democratization, more than democracy has driven the
rise of e-governance.

**Conclusions**

The importance of transparency in government is widely acknowledged, both to
promote greater public confidence in the policymaking process and to maximize
accountability. The evidence demonstrates that more and more government departments
and public sector agencies are using the web to publish and distribute official information
and, to a lesser extent, to facilitate the delivery of online services. As noted earlier, the full
consequences of this process remain under development. At present, societies are
experiencing a transition process where governments work simultaneously with paper and
electronic formats, duplicating rather than replacing channels of information and
communication. Potentially the gains in administrative efficiency, effective service delivery,
transparency, and accountability could be substantial, although governments are still learning
by trial and error how best to employ digital technologies.

What will be the consequences of these developments for representative
democracy? Any evaluative judgments relate to broader visions of democracy and the
appropriate functions of governments. Many accounts assume that the Internet can by itself
reinvent government, transforming old-fashioned bureaucracies into agencies of direct
democracy. Which, most authors conclude, it fails to do. It seems more appropriate and
realistic to start from the premise that governments are core institutions of representative
democracy, and to compare their online activity with their role in the non-virtual world. In
this regard, government websites should be evaluated in terms of the quality and
effectiveness of their informational and communication functions.

The criteria of transparent information is important to representative government
because citizens can only make effective electoral decisions if they can evaluate the record
and performance of the government, as well as the programs of the alternative parties and
candidates competing for office. People can thereby cast informed ballots that accurately
match their political preferences. Information can and does come from multiple sources,
more commonly the news media, as well as many unmediated channels of political
communications such as political advertisements and personal discussions. This comparison
shows that the most effective government websites provide detailed and comprehensive
policy-relevant information and the ability to research the most abstruse legislative
proposals, White Papers and official reports. The content analysis found that government
websites scored roughly twice as well on the criteria of the transparency over interactivity.
For those who are interested, more timely unmediated information about the public policymaking process is more easily available via the Internet than before. The ability to research policy issues in real-time holds potentially strengthens organizations seeking to challenge those in authority, such as non-profit advocates, journalists, policy think tanks, challenger parties and opposition movements. Insofar as much of this information is often not easily available elsewhere, and so long as the information can be compared across a variety of alternative sources, this process can strengthen the intermediary institutions of civic society in representative democracies, and therefore, in a two-step trickle-down process, ordinary citizens as well. Departmental transparency in the timely and equitable release of official records, policy proposals, and administrative decisions serves the public interest. Ordinary citizens will rarely make direct use of most of these facilities, but the potential for more efficient and targeted service delivery is illustrated by the popularity of online electronic filing of routine forms, such for taxes or motor registration.

Yet representative democracy requires two-way communication as well as information, at regular intervals beyond elections, so that political leaders receive feedback and maintain contact with the grassroots. Many commentators who advocate ‘strong’ or ‘direct’ democracy commonly argue that these functions are not well served by e-governance, and this criticism has some value if judged by government websites alone. The opportunities for ‘bottom up’ interactivity in communicating with official departments are far fewer than the opportunities to read ‘top down’ information. It could be that at present communications among between citizens and officials is more easily facilitated through more private electronic communications, such as one-to-one or small group emails. Government websites rarely facilitate unmoderated public feedback, for example few published public reactions to policy proposals, or used discussion forums, list-servs and bulletin boards, although there have been occasional experiments with interactive formats. In the UK, for example, the Central Computing and Telecommunications Agency (CCTA) established a number of open discussion groups to discuss issues ranging from open government to ethics, the family and women. E-governance is open to criticism that agencies have been more willing to carry out traditional functions via electronic means, rather than using digital technologies to reinvent how they conduct business, to reconnect with citizens as customers, and to strengthen public participation in government. But, given the multiple demands on the executive branch, should forms of public interactivity be the primary function of official government departments or of the broader public sphere? Public deliberation may well be more effectively organized and run by the extensive network of non-governmental non-profit organizations that host policy discussion groups, such as UK Citizens Online Democracy or
the Minnesota Electronic Democracy Experiment, not to speak of the thousands of political listservs and multiple chat rooms that exist in cyberspace. Later chapters consider the potential impact of the new communication processes for civic society, including the major intermediaries between citizens and the state, namely parties, interest groups, new social movements, and the news media. Before considering these issues, the next chapter turns to consider how far parliamentary institutions have adapted to the digital age.
Table 6.1: The World of e-Governance, 2000

<table>
<thead>
<tr>
<th>Region</th>
<th>All government websites (i)</th>
<th>National-level Government Websites (ii)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total number</td>
<td>Mean number per nation</td>
</tr>
<tr>
<td>All</td>
<td>14,484</td>
<td>82</td>
</tr>
<tr>
<td>North America</td>
<td>1,283</td>
<td>428</td>
</tr>
<tr>
<td>Western Europe</td>
<td>6,060</td>
<td>404</td>
</tr>
<tr>
<td>Scandinavia</td>
<td>1,156</td>
<td>231</td>
</tr>
<tr>
<td>Asia-Pacific</td>
<td>2,555</td>
<td>75</td>
</tr>
<tr>
<td>South America</td>
<td>1,378</td>
<td>46</td>
</tr>
<tr>
<td>Central and Eastern Europe</td>
<td>1,015</td>
<td>41</td>
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<tr>
<td>Middle East</td>
<td>446</td>
<td>32</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>599</td>
<td>12</td>
</tr>
<tr>
<td>High human development</td>
<td>10,073</td>
<td>240</td>
</tr>
<tr>
<td>Medium human development</td>
<td>3,788</td>
<td>43</td>
</tr>
<tr>
<td>Low Human development</td>
<td>272</td>
<td>8</td>
</tr>
<tr>
<td>Established democracies</td>
<td>11,771</td>
<td>163</td>
</tr>
<tr>
<td>Consolidating democracies</td>
<td>2,294</td>
<td>32</td>
</tr>
<tr>
<td>Non-Democracies</td>
<td>419</td>
<td>13</td>
</tr>
</tbody>
</table>

Notes and sources: Columns (i) in the table summarize the distribution of 14492 official government websites for the national executive (ministries, departments, offices, agencies, institutes, councils and committees), the legislative branch, state and local governments, political party websites at national and regional level, the law courts, government representatives in foreign countries including embassies and consulates, and other government related institutions found in 176 nations as at June 2000, according to Governments on the WWW. [www.gksoft.com/govt/](http://www.gksoft.com/govt/).


Level of human development was derived from the UNDP Human Development Index 1999. UNDP Human Development Report 1999. New York: Oxford University Press/UNDP.

Type of Democracy: The level of democracy for each country was classified according to Freedom House 7-point scale of political rights and civil liberties. Countries were then classified as established democracies (1.0 to 2.5), consolidating democracies (3.0 to 4.5) and non-democracies (5.0 to 7.0). Freedom House Survey of Political Rights and Civil Liberties 1999-2000. [www.freedomhouse.org](http://www.freedomhouse.org).
### Table 6.2: e-Governance by Policy Sector, 1999

<table>
<thead>
<tr>
<th>Policy Sector</th>
<th>Number of departments online</th>
<th>Mean Transparency Index (Information)</th>
<th>Mean Interactivity Index (Communications)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science &amp; Technology</td>
<td>236</td>
<td>42</td>
<td>25</td>
</tr>
<tr>
<td>Finance</td>
<td>200</td>
<td>43</td>
<td>24</td>
</tr>
<tr>
<td>Trade</td>
<td>193</td>
<td>40</td>
<td>21</td>
</tr>
<tr>
<td>Defense</td>
<td>172</td>
<td>36</td>
<td>17</td>
</tr>
<tr>
<td>Government Operations</td>
<td>141</td>
<td>37</td>
<td>19</td>
</tr>
<tr>
<td>Justice</td>
<td>139</td>
<td>36</td>
<td>20</td>
</tr>
<tr>
<td>Interior</td>
<td>138</td>
<td>37</td>
<td>18</td>
</tr>
<tr>
<td>Culture</td>
<td>135</td>
<td>37</td>
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</tr>
<tr>
<td>Health</td>
<td>134</td>
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<td>24</td>
</tr>
<tr>
<td>Environment</td>
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<td>37</td>
<td>21</td>
</tr>
<tr>
<td>Industry</td>
<td>132</td>
<td>39</td>
<td>18</td>
</tr>
<tr>
<td>Education</td>
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<td>21</td>
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<td>Agriculture</td>
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<td>41</td>
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<td>Social Services</td>
<td>115</td>
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<td>Telecommunications</td>
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<td>Transportation</td>
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<td>Miscellaneous</td>
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<td>Executive</td>
<td>95</td>
<td>32</td>
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<tr>
<td>Foreign</td>
<td>94</td>
<td>41</td>
<td>22</td>
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<tr>
<td>Legislative</td>
<td>84</td>
<td>40</td>
<td>23</td>
</tr>
<tr>
<td>Regional/ Local</td>
<td>77</td>
<td>39</td>
<td>26</td>
</tr>
<tr>
<td>Labor</td>
<td>77</td>
<td>39</td>
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</tr>
<tr>
<td>Energy</td>
<td>66</td>
<td>43</td>
<td>22</td>
</tr>
<tr>
<td>Library</td>
<td>26</td>
<td>36</td>
<td>22</td>
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<tr>
<td>Immigration</td>
<td>19</td>
<td>41</td>
<td>22</td>
</tr>
<tr>
<td>State</td>
<td>11</td>
<td>36</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2976</strong></td>
<td><strong>39</strong></td>
<td><strong>21</strong></td>
</tr>
</tbody>
</table>

**Note:** All indices have been standardized to 100-point scales for ease of interpretation. For the methodology classifying the Transparency and Interactivity Indexes see [www.cybrg.org](http://www.cybrg.org).

**Data Source:** Cyberspace Policy Research Group, 1999 [www.cybrg.org](http://www.cybrg.org)

### Table 6.3: Explaining e-Governance
<table>
<thead>
<tr>
<th>Total number of government websites</th>
<th>Number of national-level government websites</th>
<th>Information Transparency Scale</th>
<th>Communication Interactivity Scale</th>
<th>e-Governance Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beta</td>
<td>Sig.</td>
<td>Beta</td>
<td>Sig.</td>
<td>Beta</td>
</tr>
<tr>
<td>Human Development</td>
<td>.154</td>
<td>.079</td>
<td>.071</td>
<td>.521</td>
</tr>
<tr>
<td>Technological development</td>
<td>.381</td>
<td>.000</td>
<td>.502</td>
<td>.000</td>
</tr>
<tr>
<td>Political development</td>
<td>.106</td>
<td>.203</td>
<td>.054</td>
<td>.598</td>
</tr>
<tr>
<td>Constant</td>
<td>-.106</td>
<td>-.216</td>
<td>24.1</td>
<td>-.17</td>
</tr>
</tbody>
</table>

**Adjusted R²**

<table>
<thead>
<tr>
<th>Adjusted R²</th>
<th>N. of nations</th>
</tr>
</thead>
<tbody>
<tr>
<td>.288</td>
<td>179</td>
</tr>
<tr>
<td>.314</td>
<td>108</td>
</tr>
<tr>
<td>.076</td>
<td>106</td>
</tr>
<tr>
<td>.371</td>
<td>105</td>
</tr>
<tr>
<td>.404</td>
<td>105</td>
</tr>
</tbody>
</table>

**Sources and Notes:** The standardized beta coefficients represent the results of OLS regression models predicting the distribution and function of government websites in June 2000.


% Online: Calculated from How Many Online? www.nua.ie (see Table 3.2 for details)


e-Governance Index: Number of national-level government websites * (transparency + interactivity).
Table 6.4: e-Governance by the type of society and democracy

<table>
<thead>
<tr>
<th>Type of Democracy</th>
<th>Low Development</th>
<th>Medium Development</th>
<th>High Development</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5 (9)</td>
<td>17 (18)</td>
<td>10 (2)</td>
</tr>
<tr>
<td>Non-Democracies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consolidating Democracies</td>
<td>9 (25)</td>
<td>46 (40)</td>
<td>40 (4)</td>
</tr>
<tr>
<td>Established democracies</td>
<td>4 (1)</td>
<td>56 (29)</td>
<td>275 (36)</td>
</tr>
</tbody>
</table>

Notes and sources: The figures in bold represent the mean number of government websites and those in parenthesis represent the number of nations within each category.


Total number of government websites: Governments on the WWW. [www.gksoft.com/govt](http://www.gksoft.com/govt). See Table 6.1 for details of the classification.
Figure 6.1: The world of e-Governance
Figure 6.2: One-stop e-Governance in the UK, Norway, Singapore and the United States
Figure 6.3: E-Governance and democratization

Notes and sources:
E-Governance Index: This is calculated as the number of national-level government websites multiplied by the content analysis measures of their informational transparency and communication interactivity. Calculated from CyPRG 1999. [www.cyprg.arizona.edu](http://www.cyprg.arizona.edu)
Levels of Democratization: Reversed Freedom House 7-point scale of political rights and civil liberties, 1999. [www.freedomhouse.org](http://www.freedomhouse.org)
Figure 6.4: E-Governance and the information society

Notes: e-Governance Index: This is calculated as the number of government websites multiplied by the content analysis measures of informational transparency and communication interactivity.

Infosoc Index: For details of the construction and data sources see Table 3.2

Source: Calculated from CyPRG 1999. www.cyprg.arizona.edu


11 Governments on the WWW. www.qksoft.com/govt/

12 I am most grateful to the CyPRG group, particularly Todd M. La Porte (George Mason University), Chris C. Demchak (University of Arizona), Martin de Jong (University of Amsterdam) and Christian Friis (University of Roskilde) for access to this database for secondary analysis. Full details about the methodology and coding are available from www.cyprg.arizona.edu. For more details of the results see Todd M. La Porte, Chris C. Demchak, Martin de Jong and Christian Friis. 2000. ‘Democracy and Bureaucracy in the Age of the Web: Empirical Findings and Theoretical Speculations.’ Paper presented at the International Political Science Association World Congress, Quebec, August 2000; Chris C. Demchak, Christian Friis, Todd M. La Porte. 1998. ‘Configuring Public Agencies in Cyberspace: Openness and Effectiveness.’ www.cyprg.arizona.edu/Tilburg98F.htm

13 UK Online www.Open.gov.uk
I am most grateful to the CyPRG group, particularly Todd M. La Porte (George Mason University), Chris C. Demchak (University of Arizona), Martin de Jong (University of Amsterday) and Christian Friis (University of Roskilde) for access to this database for secondary analysis. Full details about the methodology and coding are available from www.cyprg.arizona.edu. For more details of the results see Todd M. La Porte, Chris C. Demchak, Martin de Jong and Christian Friis. 2000. 'Democracy and Bureaucracy in the Age of the Web: Empirical Findings and Theoretical Speculations.' Paper presented at the International Political Science Association World Congress, Quebec, August 2000; Chris C. Demchak, Christian Friis, Todd M. La Porte. 1998. 'Configuring Public Agencies in Cyberspace: Openness and Effectiveness.' www.cyprg.arizona.edu/Tilburg98F.htm
