

Draft chapter for the UN *World Public Sector Report****Deepening Democracy via E-Governance*****Pippa Norris** ~ Harvard University[\(Pippa_Norris@Harvard.edu\)](mailto:Pippa_Norris@Harvard.edu)*Abstract:*

Given the spread of e-governance during the last decade, have new information and communication technologies actually served to strengthen good governance and deepen democracy, as proponents claim? To consider these issues, *Part I* discusses the appropriate normative standards derived from democratic theory for evaluating the role of new information and communication technologies in the public sector. *Part II* describes the data. This study compares evidence derived from content analysis of national government departmental websites conducted in 191 nations worldwide by CYprg from 1997 to 2000. *Part III* analyzes how far the content of government websites in these countries fulfill the information, communication and action functions. *Part IV* focuses upon specific case studies of how e-voting works in practice, based on pilot schemes conducted in recent UK local elections. The conclusion summarizes the findings and reflects on the lessons for good practice in e-governance.

The last decade has witnessed growing use of new information and communications technologies (ICTs) designed to strengthen good governance and deepen democracy around the world. E-government can be understood as the use of new ICTs -- particularly the Internet and the World-Wide-Web -- as channels of interactive communication connecting citizens and the state, facilitating both the delivery of government information and services 'downwards' to citizens and also public feedback 'upwards' to government. The expansion of e-governance has moved most rapidly in affluent postindustrial societies; the UN/APSA *Benchmarking E-government 2001* survey of 190 member states demonstrated that countries at the forefront of this movement included the United States, Australia, New Zealand, Singapore, Norway, Canada, and the United Kingdom¹. Computers, electronic databases, and related technologies such as facsimile machines were used in the public and private sectors for decades. The issue of e-governance rose to prominence when the World-Wide-Web emerged as a mass medium following the launch of the first graphical point-and-click browser (Mosaic in 1993), Netscape Navigator (in October 1994), and Microsoft Explorer (in August 1995). A series of official reports highlighted the importance of e-governance as part of the reform of the public sector, notably the 1993 National Performance Review under Vice President Al Gore in the United States, the 1994 Bangemann Report in the European Union, and the 1997 Modernising Government White Paper in the UK². This development was fuelled by the rapid rise in access to computers and the Internet in these

nations, major attempts to increase the efficiency and cost-effectiveness of public services, and perceived signs of public dissatisfaction with representative government in established democracies. The growth of e-governance accompanied other related changes transforming the public sector and increasing the complexity of government during the last decade, notably the 'marketization' of government services to outside agencies; the growth of multilayered governance at local, regional, national and supranational levels; the 'new public management' exemplified by the use of performance targets, incentives, and customer-orientations; and the rise of 'mediated' governance, including the growing role of NGOs and the news media. These changes can be seen as a shift from the Weberian bureaucratic state, marked by rigid rules, standardized procedures, and hierarchical organizational structures, towards 'networked governance' with power diffused to multiple agencies in the public, non-profit and public sector, more flexible forms of implementation, greater fragmentation of decision-making, but also increased challenges of coordination to create 'joined-up' public management. By facilitating communication connections from agency-to-agency and from agency-to-customer, e-governance has been regarded as an important part of the solution to these new challenges.

The primary impact of e-governance has been in postindustrial societies but this process has also spread to many moderate-income developing nations, where the use of new ICTs can function to strengthen institutional capacity-building and the delivery of essential services. The spread is exemplified by the public sector in the Republic of Korea (ranked 15th worldwide by the 2001 UN/APSA benchmark survey), Brazil (18th), and Mexico (22nd). Yet the global digital divide means that many poorer developing countries continue to have minimal e-government capacity, with only limited and static information available through a few formal government web sites, particularly in parts of Asia, Latin America, Central Europe, and throughout much of Sub-Saharan Africa. During the last decade international development agencies came to understand that e-governance was not a luxury that could be delayed while more basic social needs were being met, like the provision of clean water, basic health care and schooling. Instead the use of new technologies to create an efficient public sector came to be understood as an essential precondition for sustainable development and the effective management of basic problems of poverty, literacy, agriculture, and healthcare³. During the late 1980s and early 1990s the downfall of many corrupt dictatorships in Latin America, Central Europe, Asia and Africa created new opportunities that were recognized by the donor community for the development of electoral democracies and reform to the state⁴. Yet subsequent experience shows that the process of deepening democracy through reform of the public sector bureaucracy, especially through the application of technocratic solutions, has proved fraught with many difficulties. The process of democratization beyond elections has seen only limited change to many states in the Middle East

and Central Europe⁵, fragile and unstable democratic consolidation in many African and Latin American nations, and even occasional reversions back to authoritarian rule, as exemplified by Pakistan⁶.

Given the growth of e-governance during the last decade, have new information and communication technologies actually served to strengthen public sector management and to deepen democracy, as many proponents hoped? Considerable debate continues to surround these issues. While case studies are often selected to highlight successful practices in particular contexts, countries, and regions, and industry-based reports emphasize the positive benefits of investment in new technologies, nevertheless systematic empirical evidence comparing the experience of e-governance in many nations is scarce⁷. The initial optimistic hopes for the revolutionary potential of the new technology were fuelled by the Internet investment bubble that peaked spectacularly in spring 2000 before subsequently bursting, leaving many skeptics in its wake. Moreover many previous studies of the impact of e-governance on democracy are limited by focusing exclusively upon one particular yardstick for assessment, commonly suggesting that government websites should fulfill certain specific goals such as strengthening citizen participation, rather than recognizing that this development may have multiple consequences for different aspects of democracy, for example strengthening transparency by publishing official information about regulations, policies and procedures; improving public satisfaction by delivering more efficient, speedy and cost-effective services to citizen-customers; or by stimulating civic activism through public consultation or providing opportunities for citizens to cast an electronic ballot. In particular, many commentators suggest that e-governance has succeeded mostly in its managerial technocratic functions of improved service delivery for routine matters such as registering for transportation permits, access to land registries, or tax payments, delivering efficiency gains by streamlining labor-intensive bureaucratic transactions, but that it has commonly largely failed in its participatory or consultative functions⁸. Embedded in these claims are certain assumptions about what role e-governance *should* fulfill and therefore certain visions of democracy.

To consider these issues, *Part I* outlines pluralist, representative and direct democratic theories, and considers the appropriate normative standards derived from these that can be used to evaluate the role of new information and communication technologies in government. *Part II* sets out the data and methods used for analysis. This study compares evidence derived from content analysis of national government departmental websites from 1997 to 2000 conducted in 191 countries worldwide by the Cyberspace Policy Research Group (Cyprg). *Part III* analyzes how far the content of government websites in many countries potentially fulfill the functions of

information, communication, and citizen action. *Part IV* focuses upon specific case studies of how e-voting works in practice, based on pilot schemes conducted in recent UK local elections. The conclusion summarizes the findings and reflects on the lessons for good practice in e-governance.

I: Theories about the role of e-governance in deepening democracy

Studies commonly assume a-priori that e-governance should fulfill certain functions, for example that government departmental websites should provide extensive opportunities for citizen deliberation and consultation on public policy issues. Yet a more comprehensive understanding suggests alternative normative benchmarks for democracy are adopted in the literature, often involving trade-offs among different values, such as the relative importance of transparency, accountability, equity, participation, and efficiency. The models outlined schematically in Table 1, rooted in classic theories of democracy, distinguish among pluralist, representative, and direct theories of democracy. Proponents of pluralist democracy emphasize that by improving access to government transactions, administrative efficiency, and effective service delivery, e-governance could improve the performance of the public sector and thereby citizen satisfaction with government, as well as facilitating competition and heightening the voice of networked groups, civic organizations, and new social movements. By strengthening government transparency, theories of representative democracies stress that e-governance could improve accountability via the electoral process, allowing citizens to become more informed so that they could evaluate the collective record of the government, the work of particular elected representatives, the contents of parliamentary debates, and the alternative policy proposals of the parties and candidates standing for office. And by facilitating new forms of interaction between citizens and the state, proponents of direct democracy hope that e-governance could channel citizens' voices and priorities more effectively into the public policymaking process. Each of these perspectives therefore adopts alternative normative benchmarks or standards that they feel e-governance should meet in the best of all possible worlds.

[Table 1 about here]

Pluralist Democracy and Interest Group Competition

Theories of pluralist democracy, derived originally from the seminal works of Joseph Schumpeter and Robert Dahl, suggest that democracy is preserved primarily through the elite-level competition and bargaining among the representatives of diverse interest groups, agencies, voluntary organizations, NGOs, and political parties representing all major sectors of society⁹. Periodic elections at regular intervals provide citizens with opportunities to hold the parties in

government to account, but pluralists emphasize that between contests it is the bargaining and competition among multiple rival groups seeking to influence the policy process which preserves democratic legitimacy and civil liberties, connecting citizens to the state through organized interests. Rich and dense civic societies with multiple voluntary organizations, NGOs, and community associations, representing the voices of all major social sectors, provide the essential foundation pluralist democracy.

How will the Internet affect pluralism? For Bimber, the essential features of e-governance are that the new technologies multiply and fragment the access points for information, communications, and interaction between group representatives and public officials¹⁰. The particular characteristics of the Internet, including the low start-up costs of establishing and maintaining a basic web site to publicize the work of the organization, combined with the ability of direct mail and email to contribute towards fund-raising, mobilizing supporters in collective action, and lobbying officials, and the plethora of online information sources and informal networks, are well-suited to specialized interest groups and networked social movements which may lack other conventional organizational resources such as money, paid staff, and mass membership. Bimber concludes that in the United States, with a strong civic society, the use of new technologies in politics are likely to accelerate hyper-pluralism, with a fragmentation of new specialist organizations and agencies seeking to influence multiple access points in the policy process, exemplified by networks concerned with consumer protection and environmental advocacy. Pluralist theory suggests that in strong states, where power remains concentrated in the executive with only weaker civic societies, the role of e-governance is likely to improve the transparency of the public policy process, for example where the bidding process for public sector contracts is published online, widening opportunities for competition and reducing graft and corruption.

Moreover in this perspective one of the main functions of e-governance is to develop a more efficient and cost-effective public sector, especially for more routine transactions between citizens and the state. Such online administrative activities are exemplified by applications for driving licenses or official ID card; access to legal records such as land registries and birth certificates; and applications for housing benefits. E-governance has also been seen as a mechanism for improving transactions between business and the state, as well as for the dissemination of information, such as weather forecasts, jobs, and crop prices for rural farmers in developing societies¹¹. The ideal role of new technologies for government in this view is to improve core business operations in the public sector, reduce transaction costs, expand information resources, and deliver services faster, cheaper, and to a wider variety of

'customers'¹². To meet the requirements of pluralist democracy, at a minimum government websites need to emphasize the provision of rich information content as well as facilitating two-way interactive communication with officials in the agency and with other issue-related policy networks.

Representative Democracy and Electoral Accountability

By contrast, theories of representative democracy, exemplified by the classic liberal tradition of John Stuart Mill, focus particularly upon how democracies function through elections, as the main mechanism for holding governments accountable for their actions. Representative democracies require competition for elected office allowing citizens to choose from among alternative candidates and parties. Information should be available from parties and the news media so that citizens can understand the alternative electoral choices and predict the consequences of casting their ballot. Citizens need opportunities to formulate their preferences, signify their preferences, and have their preferences weighted equally in the conduct of government. Free and fair elections should occur at regular intervals to translate votes into seats and to allow alternation of the authorities in government. If these conditions are met then citizens can exercise an informed choice, hold parties and representatives accountable for their actions and, if necessary, 'kick the rascals out'. The chain of electoral accountability and responsibility stretches from citizens through political parties to elected representatives, legislatures and government executives, and thereby to the civil service.

How could technological development affect this process? There are three primary functions. First, for proponents of representative democracies, by strengthening government transparency and accountability, e-governance could improve how far citizens have the information to make rational evaluations of electoral choices. In particular, the plethora of political websites, including those available from the mass media, interest groups, parties, parliamentary and departmental government websites, provide a wider range of unmediated and mediated information resources about the policy performance of the government, the record of elected representatives and legislative debates, and the major issue proposals of the parties and candidates standing for office¹³. Secondly, the use of computer technologies has also long been regarded as important for the basic tasks of efficient electoral administration, including maintaining the electoral register, facilitating vote counting, and disseminating electoral results. The extension of this process to e-voting - or casting a secure and secret official ballot to electoral officials via electronic technologies at the poll site, kiosk, or remote home and workplace – is an important innovation that could potentially strength electoral turnout by reducing the costs of casting a voting ballot. Lastly, established democracies have multiple channels of political

communications in election campaigns, including newspapers, radio and television, as well as direct contact between party activists and electors. In less democratic societies, however, where such channels are less easily available because parties have not yet established mass membership organizations, or if the press is highly partisan and state broadcasting is heavily biased towards the government, then the Internet may provide an important alternative source of independent information and communication for opposition movements and dissident parties seeking to challenge predominant regimes¹⁴. Again to meet the requirements of representative democracy, as with pluralist visions, government websites need to provide official information such as laws, research reports and publications, as well as facilitating two-way interactive communication with officials in the agency and with issue-related policy networks. Ideally to strengthen representative democracy governments should also introduce a variety of e-registration and e-voting facilities as well, a stage which currently remains under development with pilot schemes tried in many countries such as Switzerland, the United States and the United Kingdom.

Direct Democracy and Channels of Public Participation

Yet advocates for 'direct democracy' (alternatively termed 'strong' or 'deliberative' democracy), advocated by Benjamin Barber, believe that the assumption that the public should have opportunities to exercise their voice only periodically at elections via the ballot box represents too narrow a vision¹⁵. Instead, it is argued, citizens need multiple opportunities to become engaged directly in the decisions within their community. Many writers have expressed the hope that the new technologies will offer the capacity for democratic deliberation, for example Etzioni envisions the Internet as advancing public affairs and virtual communities through 'teledemocracy'¹⁶. Budge emphasizes that e-governance could enable online referendums, plebiscites and public forums for direct decision-making¹⁷. Hague and Loader believe that ICTs could facilitate public deliberation and participation in the decision-making process¹⁸. In established democracies many believe that the growth of e-governance can serve to modernize and deepen democracy where the public has become more disenchanted with the traditional channels of participation in representative democracy, exemplified by falling levels of voting turnout, party membership, and community associations¹⁹. In one of the most influential recent accounts, Robert Putnam argues that the mass membership of voluntary organizations has eroded in America, reducing social capital and the capacity of citizens to work together to solve common problems²⁰. Claims of a broad 'crisis of democracy' are exaggerated; nevertheless growing numbers of 'critical citizens' are evident in affluent societies, with high expectations about democracy as ideal but low evaluations of the actual performance of the traditional institutions of

representative government²¹. The expansion of new Information and Communication Technologies in general, and of e-governance in particular, is regarded as one of the most important developments in our lifetimes that could potentially serve to reengage citizens with government, though expanding public consultations, increasing two-way interactions between citizens and public officials, and widening deliberation. In terms of government websites, proponents of direct forms of democracy emphasize action-related facilities, including, at a minimum, the ability for citizens to perform transactions, to submit forms online, to engage in online issue-related discussion forums, and to appeal procedural irregularities. More demanding forms of interaction would ideally involve departments offering public consultation processes, online surveys and polls.

Yet more skeptical commentators doubt whether e-governance has the capacity to strengthen public participation in the policy process. Critics emphasize that any attempt to engage the public directly through new technologies, rather than indirectly through elections, may in fact serve to widen social inequalities in public affairs. Margolis and Resnick conclude that the Internet produces 'politics as usual', by reinforcing the power of established institutions such as the major parties, interest groups and media corporations, that are already well-entrenched players in the policy process²². Davis and Owen conclude that the Internet provides new sources of public policy information for the politically networked, but there are good grounds to be skeptical about its transformative potential in expanding democratic participation for the uninterested²³. Golding and Wilhelm warn that social inequalities evident in conventional forms of political participation are unlikely to disappear due to e-governance, even if access to the Internet gradually widens to reach disadvantaged populations²⁴. Shenk believes that e-governance will generate more government transparency, but if citizens lack prior interest or knowledge, most will simply be swamped by the additional information²⁵. Chadwick and May argue that e-governance serves to reinforce managerialism in the public sector rather than opening new doors for public consultation and participation²⁶. Too often studies focus exclusively upon the functions of the Internet for direct democracy, concluding that so far government websites may have delivered better public services on administrative matters such as taxes and welfare benefits, but they have also usually failed to realize these interactive potentials, while neglecting the alternative conceptions of the role of information technology that exist in democratic theory. Only by broadening the understanding of the most appropriate benchmarks can we evaluate the multiple functions of e-governance for deepening democracy.

II. Data and evidence

Although a wealth of claims and counterclaims are often expressed in this debate, and a burgeoning series of case studies of e-governance is emerging in leading countries such as the United States and Britain, little systematic evidence has been used to evaluate the actual practice of e-governance and the evolution over time of the content and function of government web sites, especially across a wide range of developing and developed nations. Moreover the rhetorical promises for the revolutionary powers of new technologies to reinvent government are often exaggerated by industry-sponsored reports seeking to market commercial products to the public sector. We cannot examine evidence for all the multiple claims in the debate but we can examine the practice of e-governance by focusing upon three important benchmarks, namely how far a wide range of government websites facilitate: (i) the provision of official *information* about the agency and its policies; (ii) interactive *communication* with public officials and related policy networks; and, (iii) citizen *actions* with the agency.

To analyze which government departments and agencies are online around the globe, and to consider how far these web sites fulfilled these functions, the study draws upon the content analysis dataset collected by the Cyberspace Policy Research (CyPRG) group²⁷. This database systematically coded the contents and format of government web sites in 191 nation states around the world every year from 1997 to 2000. Government agencies online were identified using the listing provided by *Worldwide Governments on the World Wide Web*, supplemented by other searches²⁸. By 2000, at least one government website was identified in 177 nation states out of 191 around the globe (92%). The database coded the websites of the following governmental institutions at national, regional and municipal levels:

- Of the executive branch (ministries, agencies, administrations, offices, institutes, councils, committees and others);
- Of the legislative branch (parliaments, state/local councils);
- Of the judicative branch (law courts);
- Related quangos (e.g. research institutes, national banks, public broadcasting corporations, cultural institutions etc).

The analysis presented in this study *excludes* websites from governmental embassies, consulates, political parties and party alliances (on national, regional and municipal level), educational institutions (universities, colleges, schools, etc.), medical institutions (hospitals, etc.), business corporations (even if they are entirely owned by the government), information about

governments which is not provided by or on behalf of a governmental institution, parliamentary groups, youth organizations etc. of political parties (on regional and municipal level), and the websites of individual politicians (members of parliament, cabinet members, etc.).

Overall during the four year project the study classified over 17,000 websites. The type of agency was categorized into twenty-five major policy areas, such as agriculture, defense and education. The content analysis coding of the online materials was analyzed and selected according to three principle criteria, matching the different understandings embodied in democratic theory: the quality of the *information* on the web site (including five items such as the provision of a mission statement, searchable index for archived materials, and availability of reports and publications), the provision of two-way *communication* (with 5 items such as the provision of the central agency's postal address, automatic email links, and the phone directory of officials), and the facilities for *citizen actions* (with 7 items instructing citizens how to perform online transactions or appeals), with the full list of items listed in Table 2. The scales were each standardized to 100-points, for ease of interpretation. The distribution of the information and communication scales proved to be well balanced, displaying a normal curve, although the contact scale was skewed towards the lower end of the distribution. To provide an overall comparison the three separate scales were also summed into a total 100-point scale, measuring the general functionality of e-governance websites. Other items coded by Cyprg, which reflected the more technical aspects of websites, were dropped from the analysis. Lastly to focus in particular upon the issue of e-voting we look at case studies from actual elections where these facilities have been used, derived from the UK local election pilot schemes conducted by the Electoral Commission in recent years.

[Table 2 about here]

III. The core functions of government websites

The content analysis developed by Cyprg provides one of the most comprehensive data available to analyze a range of questions about how e-governance works in practice. In particular, (i) which regions and countries are leaders or laggards in e-governance and what type of government departments are online around the globe? (ii) What information, communication, and action functions do government websites offer and how have government websites evolved in recent years? And (iii) what explains the distribution and functions of government websites? To explain the patterns we establish, building upon previous work this study uses multivariate OLS regression models to analyze a range of explanatory factors in each country, including levels of human development, the strength of Internet penetration and the telecommunications infrastructure, and patterns of democracy, as discussed fully later.

[Table 3 about here]

First, to map out contemporary patterns of diffusion, Table 3 sets out the comparison of the distribution of national government websites in 191 nations in 2000 classified by major world region. The results confirm the well-established tendency for e-governance to have advanced most fully in affluent postindustrial societies, with the highest distribution in North America (with, on average, 192 government websites per nation), followed by Scandinavia (169) and Western Europe (101). Most other regions clustered far below these levels, with the availability of e-governance least developed in Sub-Saharan Africa, with on average only 7 government websites per nation. Just as Sub-Saharan Africa lags behind in public access to the Internet, so it falls behind other regions in access to e-governance. Some countries in the region have gone further to establish multiple official agencies online, notably South Africa (ranking 28th worldwide), nevertheless many of the poorest African nations had only a handful of government websites or none at all.

[Table 4 about here]

To examine their contents and functionality, Table 4 examines how countries scored on the information, communication, and citizen action functions, and the combined total functionality, using the 100-point scales already described. The results confirm that in general government websites scored better at providing sources of official information (mean score 38%) and forms of communication (mean score 34%) than in providing mechanisms for citizen action (mean score 12%). As many commentators have suggested, government agencies are using their websites mainly as a way to disseminate electronically official reports, publications, newsletters, and other administrative materials about government decisions, rules and procedures that would otherwise have been published through conventional paper-based means. This does enrich the amount of information that is easily available to the online community, especially by reducing production costs and speeding notification of proposals in the policymaking process to all interested organizations and citizens. Groups and individuals monitoring specific decisions, Green papers, and the passage of draft bills can keep abreast of developments in real-time. The archival and search facilities in the best websites facilitate specialized research on any topic. Many government websites are also relatively rich in communication links, although they remain weakest to date in providing the more demanding forms of resources for citizen action, exemplified by online submissions, issue-related discussion forums, and appeals procedures. Again the regional analysis and Figure 1 shows a similar pattern to that already discussed for website availability. The government websites that scored highest on their functionality included those in North America, Scandinavia, and Western Europe. Government websites in Africa

usually proved weaker in their contents, but particularly in their citizen action functions. Figure 1 illustrates the total functionality of government websites worldwide in 2000 and confirms the patterns already observed, although there are some important variations within continents where countries score slightly better than others in their region.

[Figure 1 about here]

How does this pattern vary by type of department? We might expect that the agencies which are most closely connected to the industry, such as technology and technology, would have advanced further than others. To analyze this issue government agencies were classified into national and sub-national levels, and the analysis here focused primarily upon those departments at national level, typically ministerial departments, central government agencies, and the national legislature. These are the most important agencies politically, with the websites allowing citizens to have information, or to communicate with, public officials in the core executive and the national parliament. Moreover comparison of national agencies helped to standardize the comparison across countries. The pattern of websites at regional/state and municipal levels could depend more upon the size of the country, and patterns of federalism, devolution, and decentralization within each state, rather than the diffusion of e-governance per se.

[Figure 2 about here]

Figure 2 shows the distribution of national-level government websites classified by the type of policy area, showing that the highest number concerned departments of industry and trade, and those concerned with finance. Most of the other major agencies of state were clustered in the middle of the distribution with labor, energy and statistics clustered at the bottom. E-governance therefore seems to have gone furthest in the government departments with some of the closest links with the private sector, where use of email and the Internet is most pervasive. Nevertheless overall government websites have been developed fairly evenly across most types of departments, rather than being concentrated in a few areas, such as agencies concerned with communications or with science and technology.

[Tables 5 about here]

Turning to the information and communication functions of these websites, again there was a fairly even spread across different policy areas. Among national-level departments, the average score was 53% on the information scale and 50% on the communication scale, but nevertheless these websites were far weaker in terms of the citizen action scale (mean 19%). This confirms perceptions that government websites have gone further as a source of official information, such as the dissemination of government reports, and as a way of contacting public

officials, rather than as a two-way form of public transactions with departments. Comparison of how the functions of national-level government websites have evolved in recent years (see Table 6 and Figure 3) shows that they have improved across all three dimensions, but nevertheless the opportunities for citizens to initiate actions via these websites has always lagged behind other functions. Whether this remains a process of developmental stages, so that the opportunities for citizen online interaction will eventually 'catch up' with the other available services, as Layne and Lee suggest, or whether this reflects the primary use of government websites by public officials, remains an open question that will become clearer in future years²⁹.

[Table 6 and Figure 3 about here]

Given the pattern that we have established, what factors help to explain the spread of e-governance? The general spread of new information and communication technologies in different societies is usually explained at macro-level by three major factors. Overall levels of socioeconomic development contribute towards human capital, and thus the education, literacy and keyboard skills needed for use of the Internet. Levels of democratization are expected to influence this process, as governments with the greatest commitment towards transparency, openness, and citizen engagement in the policy process should have gone further in this development than more authoritarian regimes. The scientific and technological infrastructure in a society is also expected to play a role, by encouraging investment in new technologies. In addition certain specific secondary factors would also be expected to contribute towards this process, namely government technology policies, particularly investment in scientific research and development within each country; the structure of the telecommunications market and the pricing of services; the location of major information technology companies in the telecommunication, computer hardware and software sectors; the spread of specific computer skills and capacities through education, training and lifetime learning; and the distribution of language skills, particularly familiarity with English. It is striking that many societies at the leading edge of the digital revolution are either Anglo-American countries like Canada, the UK and Australia, or states like Norway, Sweden and the Netherlands where English has become widely available³⁰.

The regression models in Table 7 analyze how far the density and functionality of e-governance websites is the product of levels of human development (measured by the UNDP Human Development Index, combining levels of literacy and education, longevity, and per capita GDP in 1998), levels of democratization (based on the Freedom House Gastil index measuring mean political rights and civil liberties from 1973 to 2000), and the scientific infrastructure (gauged by the World Bank's estimate of the number of scientific and technological articles

published in 1997). The results in Model A confirm that the number of government agencies online are significantly influenced all these factors, explaining in total almost half the variance in the dependent variable ($R^2 .495$). The scientific and technological infrastructure is particularly strongly related to the density of e-governance in a nation. In analysis of the functionality of government websites, in Model B, shows a different pattern. Here the level of human development and the level of democratization prove significant; as observed earlier, the e-governance websites with the greatest information, communications and citizen activity functions are found in affluent postindustrial societies and in established democracies such as Sweden, the United States and the UK. Once controlling for these factors, then the functionality of government websites is unrelated to the diffusion of the Internet population or to the scientific and technological infrastructure in a society.

[Table 7 and Figure 4 about here]

To explore this further, the scattergram in Figure 4 illustrates the density of e-governance (the number of government websites identified by CYprg in 2000) by levels of human development. The type of state is classified, based on the Freedom House Gastil index measuring political rights and civil liberties, categorized into older democracies, newer democracies, semi-democracies, and non-democracies³¹. The results confirm how few poorer societies have developed many government websites, with the exception of India and, to a lesser extent, the moderate-income developing nations such as Thailand, South Africa, and Malaysia. Among the affluent postindustrial societies, however, there are wide disparities, with many more government websites found in some established democracies such as the United States, the United Kingdom, France and Switzerland than in others such as Austria, Iceland and Germany. This suggests that human capital does facilitate the rise of e-governance but many other factors also play an important role, such as the communications and technological infrastructure, the market for new technology, and the leadership role for government policy initiatives.

IV: E-Voting case studies

To consider the evidence for whether e-voting will provide a practical mechanism to improve turnout at elections, as many hope, we need to examine the results of the pilot studies that have been conducted. As access to the Internet has diffused throughout many post-industrial societies the idea of e-voting has been widely debated. E-voting has been regarded as a logical extension of developments in commerce and government. Proponents claim that the introduction of this facility into the electoral process will serve numerous functions: adding convenience to the voting process, allowing the electorate to become more knowledgeable and informed, greatly increasing the efficiency and security of elections, making access to the electoral process more

widely available, and facilitating new forms of direct democracy³². Among these arguments, one of the most important and influential concerns the potential impact of e-voting on boosting electoral turnout and civic engagement, especially for the younger wired generation³³. Advocates argue that by increasing the convenience of casting a ballot, e-voting can be regarded as analogous to the use of postal, absentee, overseas, or advance ballots, facilities already widely available in many countries³⁴.

Yet critics suggest that technological and social problems create substantial barriers that need to be overcome before the practical implementation of e-voting. The first claim is that the technology required to authenticate voters and to assure the accuracy and integrity of the election system either does not exist, or is not widespread enough in society, to be equitable and effective. Task forces reviewing the evidence in many countries have proved skeptical about the idea of e-voting as an automatic 'magic ballot' that could entice more people to vote, prevent electoral fraud, improve vote-counting, and make elections more representative, suggesting that further exploratory pilot studies are required before wider adoption³⁵. Democratic electoral systems must meet certain stringent standards of security, secrecy, reliability, accuracy, efficiency, integrity, and equality, making the administrative challenges of e-voting more difficult than the implementation of many common forms of electronic commerce or government. When tried in small-scale pilot studies, so far the security and technological problems involved in casting hundreds of votes electronically have often proved problematic. In October 2001, for example, the residents of the Dutch towns of Leidschendam and Voorburg were given the chance to vote via the net on the choices for the merged towns' new name. The vote was abandoned when it became obvious that more votes had been cast than there were electors³⁶. The Arizona Democratic primary election in 2000 using online voting also experienced many technical glitches³⁷. It remains unclear whether the purely *administrative* problems revolving around the practical issues of security, secrecy and integrity might eventually be resolved by suitable technological innovations, for example how far potential problems of voter fraud might be overcome by advances in biometric voice, retina scanning and fingerprint recognition, or the widespread use of 'smart cards' as identifiers with a computer chip and unique digital certificates.

Putting these important technical matters aside for the moment, there are also barriers in terms of potential *social* problems if e-voting serves to exacerbate inequalities in electoral participation. The electoral process has to be equally available to every citizen, a principle widely recognized as important in locating traditional polling stations throughout local communities. Critics charge that access to e-voting from home or work would fail to be equitable, since the existence of the familiar 'digital divide' in Internet access could further skew electoral

participation, and therefore political power, towards more affluent and wired socioeconomic groups. While not actively harming poorer neighborhoods, e-voting facilities would still prove unfair by potentially advantaging some social groups over others. This argument holds less force when it comes to Internet voting through special dedicated public terminals located in the community, such as any facilities established in libraries, schools, or even supermarkets, where similar principles would apply to those determining the location of traditional polling stations. But the argument becomes relevant if e-voting is available from any home or work-place terminal, which is the most radical application of this principle. If e-voting were to be introduced into elections within the next few years, thereby reducing the barriers to participation, then the unequal patterns of Internet access in society could be expected to widen many of the familiar socioeconomic disparities in electoral participation that already exist, including those of social class, education, gender, and income³⁸.

What evidence would allow us to evaluate these claims? Pilot schemes using e-voting have been explored in local areas such as Geneva³⁹. Internet voting has also been employed as an option for shareholder elections by companies such as Chevron, Lucent Technologies and Xerox, as well as in student elections such as at Stanford and the University of Arizona, and many U.S. states are considering introducing Internet voting in elections⁴⁰. One of the best sources of evidence concerns the results of the pilot studies that have been conducted under the supervision of the UK Electoral Commission in selected areas in the UK May local elections on three occasions, in 2000, 2002 and 2003⁴¹. Building on previous experience, the 59 pilot studies conducted in May 2003 used the context of a real local election with real votes, explored innovative ways in which people can vote electronically using techniques such as mobile phone text message services, touch telephones, digital television, as well as on-line voting methods using home computers, local libraries, and council-run information kiosks. In total 17 e-voting pilot schemes were tried using a range of electronic technologies. The format of the Internet voting facilities is illustrated in Figure 5. In the same contests, 32 pilots replaced the traditional ballot process in polling stations with all-postal voting. Another seven pilot schemes involved mobile polling stations or changes to polling hours. Experiments were also conducted in North East Lincolnshire in official election websites providing impartial information about all candidates, parties and local issues featured in the election⁴². These pilot studies provide one of the most rigorous tests of how e-voting works in practice under different conditions and, in particular, whether turnout is boosted by the opportunity to cast an official electoral ballot through a variety of electronic technologies. The results of the electronic voting pilots can be compared with alternative attempts to improve electoral turnout through more conventional means, including all-

postal ballots used in other wards. Overall the pilot schemes in May 2003 covered 6.5 million eligible electors.

[Figure 5 and 6 about here]

The results in Figure 6 suggest that although there are considerable hopes for the role of new technologies in elections, in practice the use of more conventional voting facilities such as the introduction of all-postal ballots provided a far stronger and consistent boost to voting participation, as well as being cheaper and more straightforward to implement. On average use of the all-postal voting schemes produced a 10% increase in turnout (rising from 34% in the same wards in the previous local election to 44% in May 2003). In a few wards using all-postal voting turnout rose by more than 20%. By contrast the overall impact of all the e-voting schemes proved ineffective overall and inconsistent, with some pilots such as Vale Royal and South Somerset experiencing a rise in participation while others such as Chorley and Stratford-upon-Avon suffered equivalent falls. This largely confirms the experience of the pilot schemes conducted in previous years in a smaller range of wards, where the vote in all-postal areas went up by 15%. Further evaluation of these schemes remains in progress, with surveys conducted by the Electoral Commission after the event to monitor the experience of users. But a simple comparison across local councils suggests that the variations among areas were not associated with the adoption of any particular technology, such as text-messaging over Internet voting, or the telephone versus digital TV. On average, only about one in ten elector chose to use the e-voting facilities that were made available, a pattern that could increase in subsequent contests if people became more familiar with the available technology; in Swindon, 10,000 people used the internet connection from home to vote, up from 6,000 the previous year. Moreover the implementation of the new technology was not always effective. In St Albans, problems with British Telecom's installation and connectivity of computers in polling booths meant returning officers had to abandon machines for the more old-fashioned paper checks and similar problems occurred in Sheffield.

V: Conclusions and Implications

The issue of e-governance remains a process under development, with innovations being tried in many different countries as part of broader reforms of the public sector. The early optimism that the Internet would transform the relationship between citizens and the state have been tempered in more recent years by greater skepticism about the power of technology to alter bureaucratic government organizations, deep-rooted patterns of civic engagement, and the structure of the state. Nevertheless the first decade of the Internet allows us to draw some

conclusions about how e-governance has evolved and its consequences for democracy. The results presented in this study suggest three main conclusions.

First, the 'digital divide' among affluent and poorer countries in public access to the Internet is reflected in the gap in the distribution and functionality of e-governance. During the last ten years municipal, regional and national government agencies have greatly expanded their presence on the Internet in North America, Scandinavia and Western Europe, so that in these societies it has become far easier for citizens to locate and download official information, to communicate with public officials through email, and to conduct transactions view electronic channels. Many public sector agencies have created at least a rudimentary informational website and the most innovative designs have gone a lot further towards interactive capacities. Yet at the same time e-governance is far less developed in many parts of the developing world, especially in Sub-Saharan Africa where there are relatively few government agency websites in most countries, and those that available have lower functionality. The regional and national differences in e-governance can best be explained by longstanding contrasts between North and South in the level of investment in human capital, in patterns of democratization, and in the technological infrastructure.

Secondly, e-governance can achieve many functions, especially those of providing information, acting as a channel linking the communication of citizens and public officials, and facilitating citizen actions. The comparison of the websites provided by public agencies suggests that these succeed primarily through the former functions rather than the latter. For proponents of pluralist visions of democracy, the role of the Internet as an information resource remains vital, as the greater transparency allows groups, parties, and organizations to become more active in the policymaking process, reducing the costs of detailed background research on policy proposals and legislation, allowing developments in the decision-making process to be monitored in real-time, and facilitating lobbying of public officials. For proponents of representative democracy, these functions are also important, particularly the role of the internet in civic society among government departments, legislatures, political parties, individual candidates, and the news media, as a way to encourage political competition and more informed citizens during election campaigns. Advocates of direct forms of democracy have often been more disappointed that e-governance has not encouraged greater civic engagement, such as online political discussion forums, community initiatives, and electronic referenda. Yet the Internet remains under development and some of these functions might still emerge as access spreads more widely.

Lastly the idea of e-voting has been widely discussed, with hopes that this would prove an attractive way to improve electoral turnout, especially among the younger generation who are most tuned into this technology. The gains in convenience are hoped to make a difference for

'circumstantial' non-voters, who are deterred from casting a ballot because of difficulties of getting to the polling station, such as care of dependents, bad weather on polling day, or long working hours, although without affecting 'deliberate' non-voters who are not participating due to alienation or disaffection with the available electoral choices or the political system. The implementation of e-voting schemes are being studied in many places but the initial results from the pilot schemes conducted in Britain suggest that, although a potentially useful addition to supplement existing practices, e-voting by itself will not radically improve turnout and simpler facilities such as all-postal ballots may prove more effective, straightforward, and cheaper. On balance, therefore, the new communication and information technologies have greater potential for deepening pluralist and representative democracy, by strengthening government transparency, and by improving public satisfaction with the delivery of routine public services, more than by stimulating new forms of civic activism.

Table 1: Models of democracy and e-governance

	Pluralist democracy	Representative democracy	Direct democracy
Concept of democracy	Elite-level competition among rival interest groups, parties, and leaders	Electoral accountability of representatives and governing parties	Citizen consultation and participation in policymaking process
Role of e-government: <i>good governance</i>	Managerial efficiency in public service delivery Transparent information published about major policy proposals and the decision-making process Extensive interest-group consultation Open pluralistic competition for government contracts and reduced corruption	Managerial efficiency in public service delivery Transparent information published about major policy proposals and the decision-making process Extensive interest-group consultation Open pluralistic competition for government contracts and reduced corruption	Managerial efficiency in public service delivery Transparent information published about major policy proposals and the decision-making process Extensive interest-group consultation Open pluralistic competition for government contracts and reduced corruption
Role of e-government: <i>electoral accountability</i>		Transparent information about the government's record, policy proposals, administrative decisions, and legislative Acts Efficient and transparent electoral administration Opportunities for e-voting in elections	Transparent information about the government's record, policy proposals, administrative decisions, and legislative Acts Efficient and transparent electoral administration Opportunities for e-voting in elections
Role of e-government: <i>Public participation</i>			Two-way interaction and communication between citizens and public officials Extensive public consultation, information-gathering, open public forums, and systematic user feedback Opportunities for e-voting in plebiscites, referendums, surveys and polls
Indicators from web sites	Information and communication functions	Information and communication functions	Information, communication <i>and</i> action functions

Table 2: Classification of the functions and content of government web sites

Information scale	Communication scale	Action scale
Provides an agency's mission statement	Provides central agency postal mail address	Explains requirements of agency for citizens
Provides a senior official's vision of the future of the agency,	Provides phone numbers for employees beyond senior officials	Instructs citizens how to perform actions
Provides laws, research publications, regulations and reports in easily readable form	Provides email address for person responsible for the site	Provides online issue-related forum
Provides automatic update announcement or newsletter via subscription	Provides email clickable link to senior official	Provides online forms for submission
Provides searchable index for archived newsletters, laws, regulations and reports	Provides email clickable link to senior employees	Provides automatic reply notifying expected time of response from the agency
		Instructs citizens about appeals procedures
		Provides link to appeals process
5 items standardized to 100 point scale	5-items standardized to 100 point scale	7-items standardized to 100 point scale
Mean=44.8 Std. Dev. 21.7	Mean=38.9 Std.Dev=25.7	Mean=13.2 Std.Dev=15.5

Source: Cyberspace Policy Research Group (Cyprg)

Table 3: The distribution of national-level government websites by world region, 2000

World Region	Mean number of government websites per nation	Number of nations	Std. Deviation	Total number of government websites
North America	192	3	152.3	575
Scandinavia	169	5	109.4	843
Western Europe	101	19	115.3	1927
South America	35	32	53.5	1131
Asia-Pacific	32	38	48.3	1224
Central & Eastern Europe	26	26	22.5	666
Middle East	26	19	32.3	491
Africa	7	49	13.6	364
Total	38	191	66.3	7221

Note: The data covers 7221 government agency websites identified in 191 nations worldwide by CYprg in 2000. See text for the definition of a 'government agency' website.

Source: Cyberspace Policy Research Group (Cyprg)

Table 4: The function of government websites by world region, 2000

Region	Information scale	Communication scale	Action scale	Total functionality scale
North America	65	67	40	60
Scandinavia	65	64	15	49
Western Europe	54	44	20	40
South America	44	40	20	39
Middle East	40	37	15	33
Central & Eastern Europe	37	38	2	25
Asia-Pacific	32	26	12	22
Africa	30	25	7	19
Total	38	34	12	29

Note: For the content and construction of each of the 100-point scales see Table 2. The data covers 7221 government agency websites identified by CYprg in 191 nations worldwide in 2000. See Table 3 for the distribution of websites per region.

Source: Cyberspace Policy Research Group (CYprg)

Table 5: The function of national-level government websites by policy area, 2000

	Information scale	Communication scale	Action scale	Total functionality scale	N. agencies
Agriculture	55	63	19	47	133
Communication	51	48	17	40	100
Culture	45	55	14	40	92
Defense	55	40	19	37	100
Education	52	49	21	42	115
Energy	54	55	22	45	45
Environment	56	51	17	42	91
Executive	51	38	12	34	140
Finance	54	46	23	41	225
Foreign	56	52	19	47	106
Government Op.	54	58	22	46	83
Health	52	46	19	40	123
Industry/Trade	50	48	19	40	276
Interior	54	48	21	41	132
Justice	57	54	25	46	133
Labor	55	48	22	42	62
Legislative	56	56	20	45	96
Regional/Local	42	45	9	35	119
Science/Tech.	55	53	17	42	88
Social Services	56	57	23	46	94
Statistics	48	59	20	42	14
Transportation	51	50	20	42	105
<i>Total</i>	53	50	19	42	2485

Note: For the content and construction of the 100-point scales see Table 2. The data covers 2485 government agency websites identified at national level in 191 nations worldwide in 2000, excluding regional and local government websites.

Source: Cyberspace Policy Research Group (CYprg)

Table 6: The evolving function of national-level government websites, 1997-2000

	Information Scale (%)	Communication Scale (%)	Action Scale (%)	Total Functionality Scale (%)	Number of agencies (N)
1997	34	31	6	23	1304
1998	39	32	10	27	2198
1999	48	38	14	32	2537
2000	53	50	19	42	2485
<i>Mean</i>	<i>45</i>	<i>39</i>	<i>13</i>	<i>32</i>	<i>8524</i>

Note: For the content and construction of the 100-point scales see Table 2. The data covers 8524 national-level government agency websites identified in 191 countries worldwide, 2000.

Source: Cyberspace Policy Research Group (CYprg)

Table 7: Factors explaining the density and functionality of e-governance websites

	Density of government agencies online, 2000				Functionality of e-governance websites, 2000			
	Model A				Model B			
	B	Std Er.	Std. Beta	Sig	B	Std Er.	Std. Beta	Sig
Human Development	65.5	38.9	.14	.095	34.0	8.3	.38	.000
Level of democratization	.203	0.07	.24	.006	.031	0.02	.19	.047
% Of the population online	2.02	0.73	.24	.007	.179	0.16	.11	.258
Scientific/technological infrastructure	.002	0.00	.29	.000	.000	.000	.03	.693
Constant	38.5				16.3			
Adjusted R ²	.495				.363			
Number of countries	134				134			

Note: The result of ordinary least squares regression analysis models in 134 nations including the unstandardized beta (B), the standard error, the standardized beta, and the significance of the coefficients.

The density (number) of government websites, 2000: Cyberspace Policy Research Group (CYprg)

The functionality of government websites, 2000: Cyberspace Policy Research Group (CYprg)

Level of democratization: Classified from the Freedom House Annual Survey of Political Rights and Civil Liberties (Mean 1973-2000). www.freedomhouse.org/survey/2000/

Level of Development is measured and classified by the UNDP Human Development Index 1999. UNDP. 1999. *Human Development Report 1999*. NY: UNDP/Oxford. Human development: 100-point Human Development Index 1998 (UNDP)

% Of the Population Online. Calculated from How Many Online? 2000. www.nua.ie

Scientific and technological infrastructure: The number of scientific and technical journal articles published in 1997. World Bank *World Development Indicators, 2001*. Table 5.11.

Figure 1: Distribution of the total functionality scale of government websites, 2000

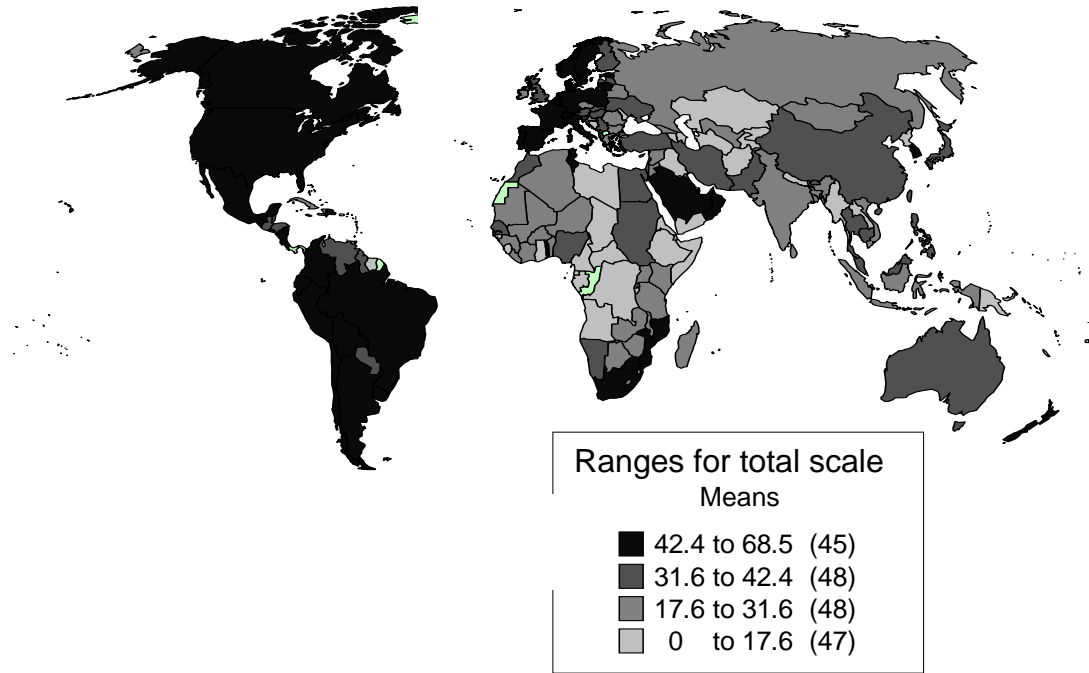
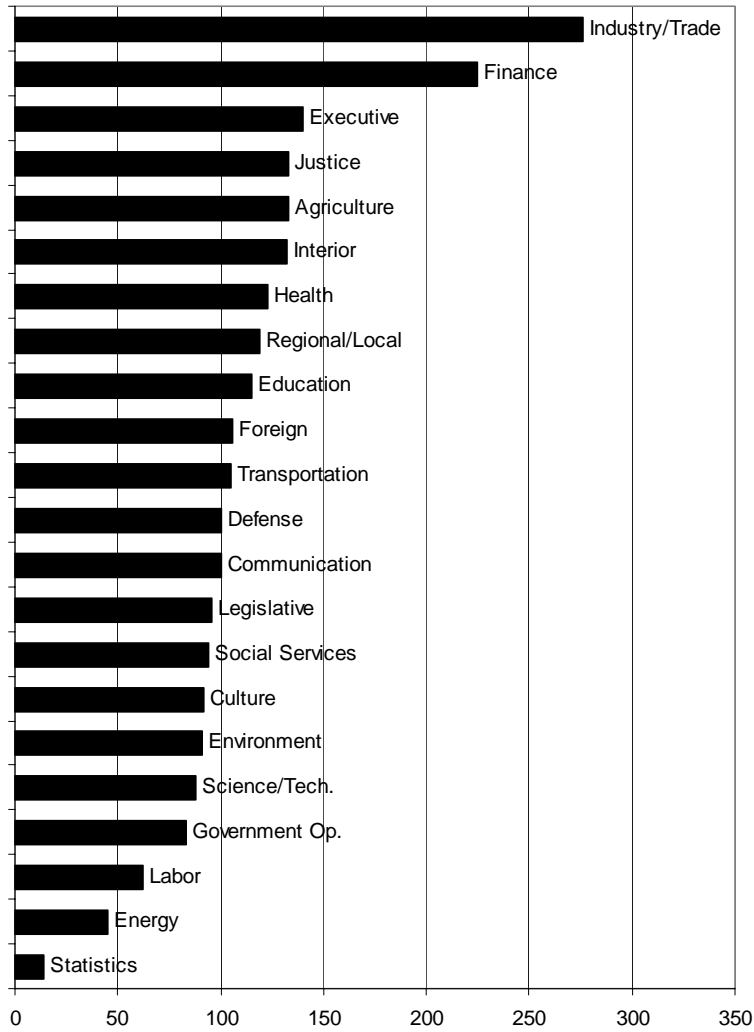


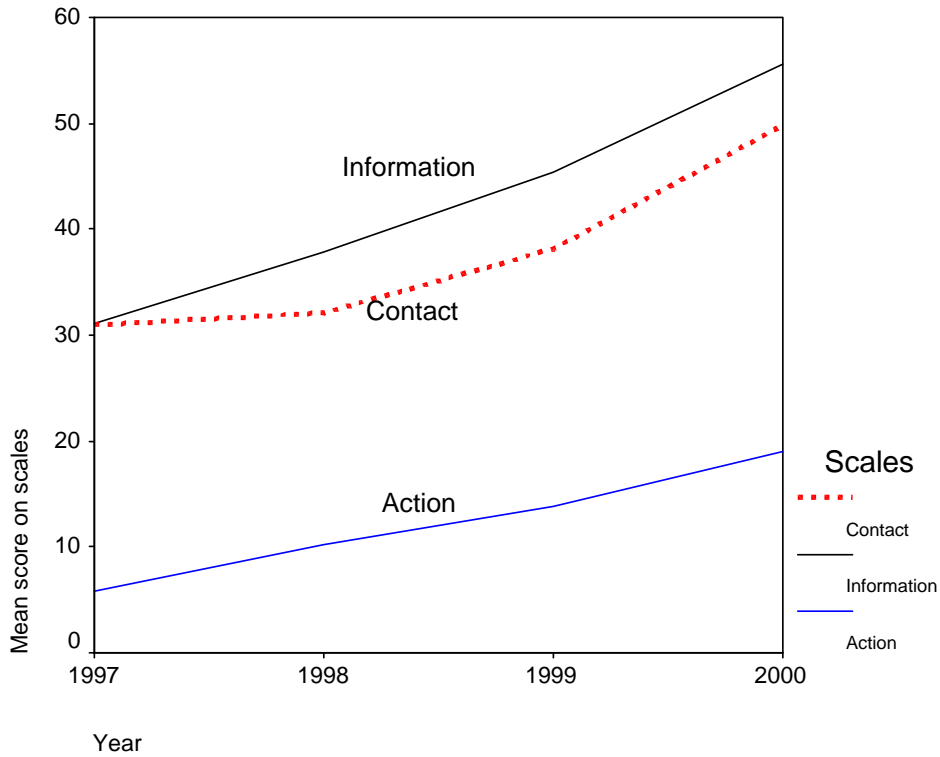
Figure 2: The distribution of government websites by policy area worldwide, 2000



Note: The number of government websites identified in 2000, classified by major policy area.

Source: Cyberspace Policy Research Group (CYprg)

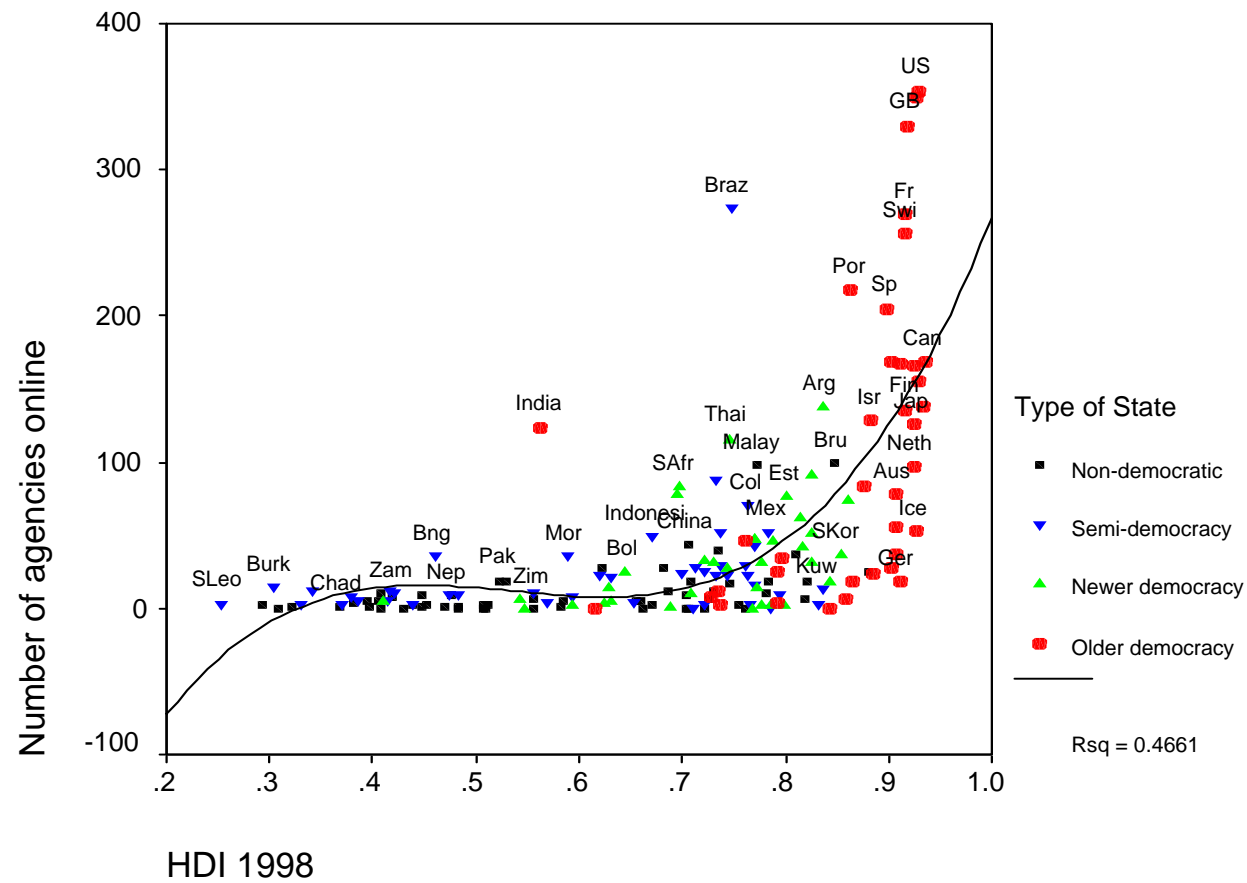
Figure 3: The evolving functions of government websites, 1997-2000



Note: For the items contained in the 100-point scales see Table 2.

Source: Analyzed from data provided by CYprg, 1997-2000.

Figure 4: Distribution of e-governance by level of human development, 2000



Note: Human Development Index, 1998 (UNDP) Number of government agencies online 2000 (CYprg)

Figure 5: Examples of e-voting pilot schemes used in Sheffield, UK.

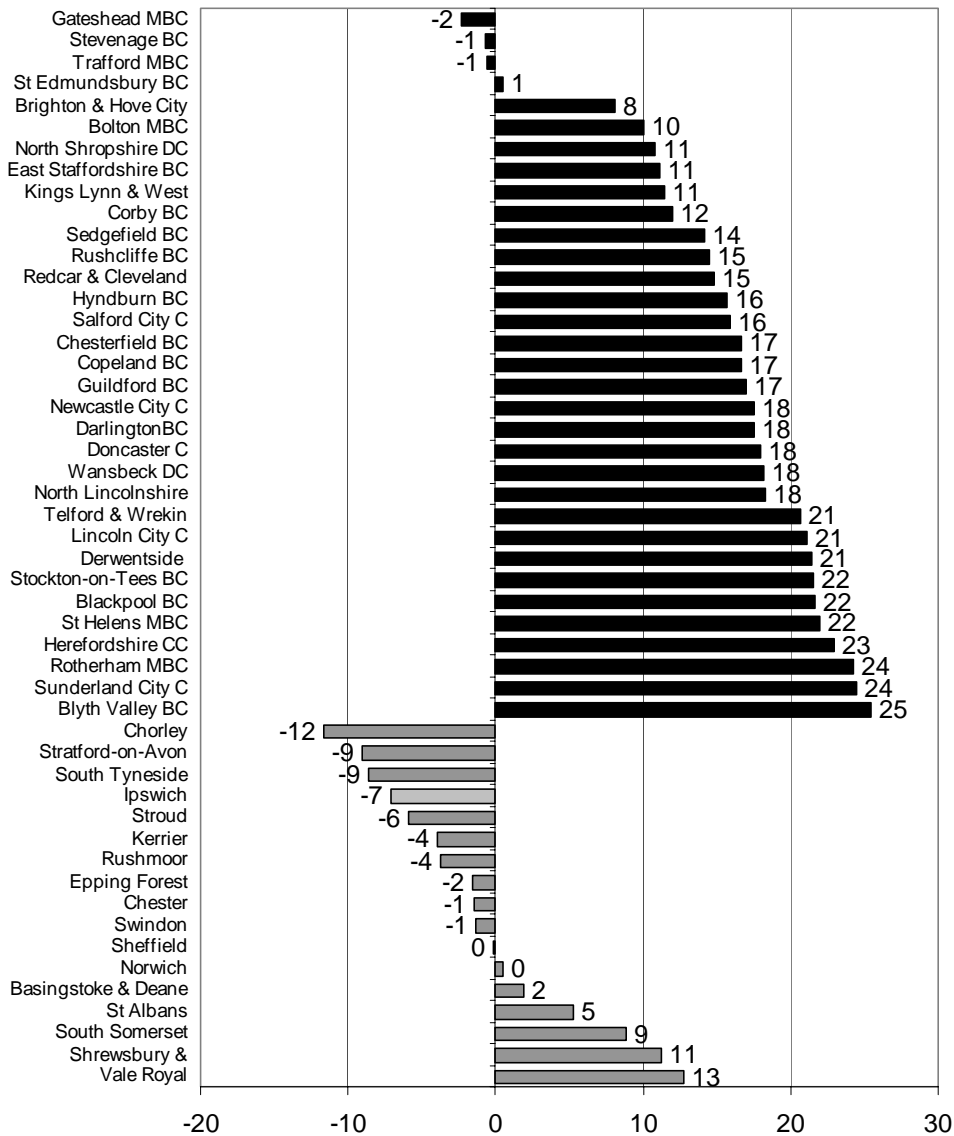
The screenshot shows the Sheffield City Council logo and the text "Sheffield City Council Elections 2003". Below this is a header: "Your voter identification and password can be found on your voting card". The main area contains two steps: "Step 1 - Enter Voter Identification" with a text input field and a "Press to select" button; and "Step 2 - Enter Password" with a text input field and a "Press to select" button. At the bottom are two buttons: "Exit voting" and "Continue". A "Copyright 2003" notice is in the bottom right corner.

The screenshot shows the Sheffield City Council logo and the text "Sheffield City Council Elections". Below this is a header: "Vote for 1 candidate(s) only". The main area is a table with four rows of candidates. Each row has a number, the candidate's name, their party affiliation with a logo, and a "Press to select" button. The first row (1) shows "BRINNER JOHN BRINNER Independent" with a large 'X' in a box instead of a button. The other rows (2-4) show "DAVIES RAY STEVEN DAVIES The Labour Party Candidate", "DICKINSON PAUL DICKINSON The Conservative Party Candidate", and "GIGGS LUCY ALICE GIGGS The Labour Party Candidate". At the bottom are two buttons: "Exit without voting" and "Press to vote". A "Copyright 2003" notice is in the bottom right corner.

Vote for 1 candidate(s) only		
1	BRINNER JOHN BRINNER Independent	
2	DAVIES RAY STEVEN DAVIES The Labour Party Candidate	Press to select
3	DICKINSON PAUL DICKINSON The Conservative Party Candidate	Press to select
4	GIGGS LUCY ALICE GIGGS The Labour Party Candidate	Press to select

Source: http://www.voteyourway.org.uk/portal_tryitnow.html

Figure 6: Comparing changes in turnout in e-voting and all-postal ballot pilot schemes



Note: The change in the vote from the previous election following 59 pilot schemes covering 6.5 million eligible electors conducted by the UK Electoral Commission in UK local elections, May 2003, using all postal ballots in selected wards and a variety of electronic facilities for voting in others. Key: All-postal ballots ■ Electronic voting facilities ■

Source: UK Electoral Commission

¹ United Nations/American Society for Public Administration. 2002. *Benchmarking E-government: A Global Perspective*. New York: United Nations/DPEPA. See also Pippa Norris. 2001. *Digital Divide*. NY: Cambridge University Press. Chapter 6.

² For a discussion see Andrew Chadwick and Christopher May. 2003. 'Interactions between states and citizens in the age of the Internet: 'e-government' in the United States, Britain and the European Union.' *Governance* 16(2): 271-300.

³ See for example InfoDev. 2002. *The E-Government Handbook for Developing Countries*. Washington DC: World Bank. <http://www1.worldbank.org/publicsector/egov/E-Gov%20Handbook.pdf>

⁴ See Thomas Carothers. 1999. *Aiding Democracy Abroad: The Learning Curve*. Washington DC: Carnegie Endowment.

⁵ For a study of the role of e-governance in the Middle East see Khalid M. Al-Talwil and Sadiq M. Sait. 'E-governance: where do we stand?' <http://www.worldbank.org/mdf/mdf4/papers/altawil-sait.pdf>

⁶ For an annual assessment of the state of democracy and changes worldwide see Freedom House. *Freedom in the World*. See www.freedomhouse.org.

⁷ For a series of case studies see *E-Government* Washington DC: World Bank. <http://www1.worldbank.org/publicsector/egov/>. The most systematic overview is provided by the UN/APSA 2002 Benchmarking E-government study already mentioned. See also the UK National Audit Office. 2002. *Government on the Web II*. House of Commons 2001-2002 Session HC 764. London: Stationery Office; Marcus Franda. 2002. *Launching into Cyberspace: Internet development and politics in five world regions*. Boulder, Co: Lynne Rienner

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¹⁰ Bruce Bimber. 1998. 'The Internet and Political Transformation: Populism, Community and Accelerated Pluralism.' *Polity* XXXI (1): 133-160; Bruce Bimber. 2003. *Information and American Democracy: Technology in the Evolution of Political Power*. Cambridge: Cambridge University Press.

¹¹ See, for example, Tony Kinder. 2002. 'Vote early, vote often? Tele-democracy in European cities.' *Public Administration*. 80(3): 557-582.

¹² See Karen Layne and Jungwoo Lee. 2001. 'Developing fully functional e-government: A four-stage model.' *Government Information Quarterly* 18: 122-136; William H. Dutton. 1999. *Society on the Line: Information Politics in the Digital Age*. Oxford: Oxford University Press.

¹³ Richard Davis. 1999. *The Web of Politics*. New York: Oxford University Press; Anthony Corrado. 2000. *Campaigns in Cyberspace: Toward a New Regulatory Environment*. Washington, DC: The Aspen Institute; Kevin A. Hill and John E. Hughes. 1998. *Cyberpolitics: Citizen Activism in the Age of the Internet*. Lanham, MD: Rowan & Littlefield; Jens Hoff, Ivan Horrocks and Pieter Tops. Eds. 2000. *Democratic Governance and New Technology*. London: Routledge.

¹⁴ Although for a detailed case study of the limits of the Internet in authoritarian states see Shanthi Kalathil and Taylor C. Boas. 2003. *Open Networks Closed Regimes: The Impact of the Internet on Authoritarian Rule*. Washington DC: Carnegie Endowment for International Peace.

¹⁵ See Benjamin R. Barber. 1984. *Strong Democracy*. Berkeley, CA: University of California Press; Benjamin R Barber. 1999. 'Three scenarios for the future of technology and strong democracy.' *Political Science Quarterly*. 113: 573-590.

¹⁶ Amatai Etzioni. 1993. *The Spirit of Community*. NY: Crown Publications.

¹⁷ Ian Budge. 1996. *The New Challenge of Direct Democracy*. Oxford: Polity Press.

¹⁸ Barry N. Hague and Brian D. Loader. 1999. *Digital Democracy: Discourse and Decision-making in the Information Age*. London: Routledge. P.8.

¹⁹ Michel Crozier, Samuel P. Huntington, and Joji Watanuki. 1975. *The Crisis of Democracy: Report on the Governability of Democracies to the Trilateral Commission*. New York: New York University Press; Seymour M. Lipset and William C. Schneider. 1987. *The Confidence Gap: Business, Labor, and Government in the Public Mind*, rev. ed. Baltimore: Johns Hopkins University Press; Joseph S. Nye, Philip D. Zelikow and David C. King. (Eds). 1997. *Why People Don't Trust Government*. Cambridge: Harvard University Press; Susan Pharr and Robert D. Putnam. 2000. *Disaffected Democracies*. Princeton, NJ: Princeton University Press; Russell J.

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²⁰ Robert D. Putnam. 2000. *Bowling Alone: The Collapse and Revival of American Community*. NY: Simon and Schuster.

²¹ Pippa Norris. Ed. 1999. *Critical Citizens: Global Support for Democratic Governance*. Oxford: Oxford University Press; Pippa Norris. 2001. *Digital Divide*. NY: Cambridge University Press; Pippa Norris. 2002. *Democratic Phoenix*. NY: Cambridge University Press.

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²⁷ 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.'

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²⁸ *Governments on the WWW*. See www.gksoft.com/govt/en/world.html.

²⁹ Karen Layne and Jungwoo Lee. 2001. 'Developing fully functional e-government: A four-stage model.' *Government Information Quarterly* 18: 122-136.

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³¹ *Older democracies* = 39 nation states with average Freedom House ratings of political rights and civil liberties of 2.0 or less in 1999-2000 (plus India rated at 2.5) and with at least twenty years continuous experience of democracy (1980-2000) based on the mean Freedom House rating 1972-1999.

Newer democracies = 43 nation states with average Freedom House ratings of political rights and civil liberties of 2.5 or less in 1999-2000 and with less than twenty years continuous experience of democracy (1980-2000) based on the mean Freedom House rating 1972-1999.

Semi-democracies = 47 nation states with average Freedom House ratings of political rights and civil liberties from 3.0-4.5 in 1999-2000.

Non-democracies = 62 nation states with average Freedom House ratings of political rights and civil liberties of 5.0 or more in 1999-2000.

For details see Freedom Around the World. www.freedomhouse.org.

³² See, for example, Christopher F. Arterton. 1987. *Teledemocracy*. Newbury Park, CA: Sage; Edward Schwartz. 1996. *Netactivism: How Citizens Use the Internet*. Sebastapol, CA: Songline Studios; Ian Budge. 1996. *The New Challenge of Direct Democracy*. Oxford: Polity Press; Wayne Rash, Jr. 1997. *Politics on the Net: Wiring the Political Process*. New York: W.H. Freeman; Howard Rheingold. 1993. *The Virtual Community: Homesteading on the Electronic Frontier*. Reading, MA: Addison Wesley; Benjamin R. Barber. 1998. 'Three scenarios for the future of technology and strong democracy.' *Political Science Quarterly*. 113(4): 573-590.

³³ J. S. Stratford and J. Stratford. 2001. 'Computerized and networked government information.' *Journal of Government Information* 28 (3): 297-301; T. Borgers. 'Is Internet voting a good thing?' *Journal of Institutional and Theoretical Economics*. 156 (4): 531-547.

³⁴ For details of the availability of these facilities see www.ACEproject.org

³⁵ *Report of the National Workshop on Internet Voting*. March 2001. Internet Policy Institute for the National Science Foundation. http://www.internetpolicy.org/research/e_voting_report.pdf; The Independent Commission on Alternative Voting Methods. *Elections in the 21st Century: From Paper-Ballot to e-voting*. Electoral Reform Society. January 2002.

<http://www.electoral-reform.org.uk/sep/publications/books/exec.pdf>

³⁶ http://news.bbc.co.uk/1/hi/english/in_depth/sci_tech/2000/dot_life/newsid_1746000/1746902.stm

³⁷ Rachel Gibson. 2002. 'Elections online: Assessing Internet voting in light of the Arizona democratic primary.' *Political Science Quarterly*. 116 (4): 561-583; F.I. Solop. 2001. 'Digital democracy comes of age: Internet voting and the 2000 Arizona Democratic primary election.' *PS-Political Science & Politics* 34 (2): 289-293.

³⁸ For an analysis of the social disparities in turnout see Pippa Norris. 2002. *Democratic Phoenix: Political Activism Worldwide*. NY: Cambridge University Press. Chapter 5.

³⁹ Andreas Auer and Alexander H. Trechsel. 2001. *Voter par Internet? Le projet e-voting dans le canton de Geneve dans une perspective socio-politique et juridique*. www.helbing.ch

⁴⁰ Derek Dictson and Dan Ray. 2000. *The Modern Democratic Revolution: An Objective Survey of Internet-Based Elections*. www.securepoll.com

⁴¹ For details see the UK Electoral Commission. 2002. *Modernising Elections: A strategic evaluation of the 2002 electoral pilot schemes*. <http://www.electoralcommission.gov.uk/>.

⁴² <http://www.electionsuk.org/>