government on the web

a report by the comptroller and auditor general

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This report has been prepared under Section 6 of the National Audit Act 1983 for presentation to the House of Commons in accordance with Section 9 of the Act.

John Bourn
Comptroller and Auditor General

National Audit Office
3 December 1999

The Comptroller and Auditor General is the head of the National Audit Office employing some 750 staff. He, and the National Audit Office, are totally independent of Government. He certifies the accounts of all Government departments and a wide range of other public sector bodies; and he has statutory authority to report to Parliament on the economy, efficiency and effectiveness with which departments and other bodies have used their reserves.

This report represents a landmark for the National Audit Office as it is the first value for money report to be fully contracted out - to a team from the **London School of Economics and Political Science** led by Professor Patrick Dunleavy and Dr Helen Margetts (from University College London).

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executive summary

1 In mid-1998 approximately 7.3 million people in the UK had access to the Internet and the World Wide Web either at work or via home PCs. A year later the numbers involved had grown to over 10 million people, and in some estimates even higher. As citizens and enterprises shift towards electronic means of communicating with each other, they will increasingly expect to interact electronically with government also.

Why is the Internet important for government?

2 The development of the Internet, and of the World Wide Web in particular, presents a key opportunity for government to provide higher quality services directly to citizens in innovative ways at lower cost. Government departments may be able to achieve significant improvements in the provision of information to the public, especially allied with 'open government' and 'freedom of information' policies. Information can be made available 24 hours a day whatever location people are accessing from. Customers who know their own personal circumstances in detail can search for exactly the information they require. Eventually, many citizens may have the opportunity to conduct most of their business with government electronically.

3 Web-based technologies can also be used to facilitate 'joined-up' government. Web sites can provide virtual 'front-ends' or entry points to otherwise fragmented organisational arrangements, allowing citizens to transact with several departments and agencies and across different tiers of government simultaneously. Someone newly out of work, for example, might use government Web sites to look for and apply for a job, claim and receive benefits, obtain all information about starting up a business or retraining and apply for educational courses. Similarly, citizens should soon be able to notify many different public agencies that they have changed their address by sending a single electronic form to a central Web address, from where the information will be automatically forwarded to multiple government departments and public agencies. In the near future citizens will also be able to make electronic transactions with government, for instance paying their taxes in the same way that they conduct e-commerce.

4 Government departments and agencies could already achieve substantial cost savings by encouraging citizens and enterprises to seek information and conduct dealings with them in lower-cost ways. Once Web provision has been made, the marginal cost of someone accessing an agency Web site is virtually zero, while the marginal costs of handling letters, phone calls or front office visits are considerable. (Poorly presented Web information will tend to erode this advantage, however, if it generates avoidable e-mail traffic). Web technologies generally involve modest investment outlays in relation to other administrative costs which they can displace. They also lend themselves to an evolutionary 'build and learn' approach, where the risk of large-scale mistakes apparent in some other public sector information technology projects is greatly reduced.

5 Web-based technologies are not just important for external communications and interactions. In the form of 'intranets' they also can have important implications for large organisations in expanding their ability to make a range of business information more accessible to staff and allowing costs to be cut and efficiency improved. Key applications include human relations, cutting administrative costs, providing a front-end for databases, and providing internal access to the organisation's Web sites. And by adopting their business processes to make them 'Web-enabled', government departments and agencies may be able to achieve very significant improvements in the quality of their services, and in the provision of information to the public sector.

6 Government on the Web raises some salient possible problems for future social policy though. It will be very important to ensure that citizens (and very small firms) without Web access are treated equally and do not become disadvantaged in their future dealings with public agencies. There is a clear potential for the skewed development of Web access across social groups to lead to greater levels of social exclusion or to new forms of inequality. The government has recently signalled initiatives designed to counteract such a possibility, including measures to make cheap access to PCs available in areas of social exclusion and to connect local libraries, colleges and other public facilities to the Web without per-minute phone charges. Electronic information provided by citizens or firms to government must also be appropriately secured and citizens' privacy and commercial confidentiality protected. And as in the private sector, the development of

Web dealings with citizens also needs to be controlled and policed to prevent new opportunities for fraud, misuse or risk to public agencies' IT systems being created.

7 But it would be a mistake for government to delay implementation too late by being overly risk-averse. Government relies heavily on four tools for getting things done: - law and regulations to compel citizens and firms to behave in particular ways; financial provision to provide subsidies or support; government staffs arranged into expert organisations capable of tackling social problems; and its central position in social networks - the fact that citizens will provide government with free information, and also pay special attention to government messages. As British society becomes increasingly Internet- and Web-orientated, a government not on the Web will become less and less visible, and its central position in social networks will decline. If government becomes less prominent in society's information networks it will have to rely instead on the much more expensive tools of authority, finance and government organisation to accomplish tasks.

What we covered in the report

8 This study aims to establish a baseline for monitoring the future progress of government on the Web. First, we looked at leading private sector organisations to see how they handled the challenge of the Internet (see Comparator A on page 60). We found a wide range of innovative strategies used by firms to communicate electronically with their customers. Internet shopping and e-commerce in particular are rapidly expanding the markets of retail companies. All the firms interviewed stressed the strong commercial value of Web sites, substantial cost savings achieved through displacing activities onto the Web, improved perceptions of customer-care, and the advantages of using Web sites as part of an incremental process of continual organisational learning and improvement.

9 Next, to establish overall patterns of Web use across central government, we conducted a census of all departmental and executive agency sites, coding objective features of the sites' design (Part 1). We also surveyed departmental permanent secretaries and agency chief executives to gather their views, achieving a 75 per cent response rate. We followed up with an e-mail survey on more detailed issues sent to expert staff members nominated by the chief executives.

10 To see how citizen-orientated departments can utilise Web-technologies we looked at the Department of Social Security (DSS) and its four agencies, each of which currently maintains its own distinct Web site (Part 2). To examine how business-facing central government agencies are responding, we looked also at the Department of Trade and Industry (DTI) group of agencies, including its headquarters, Companies House, the Patent Office and five of the research councils (Part 3).

11 We also looked at the central co-ordination, control and guidance of government Web sites by some Cabinet Office units and other agencies, who brief central ministers, overview changes, develop central initiatives (such as the Government Secure Intranet) and have a very small development budget to foster central co-ordination (Part 4). The main trend has been for departments and agencies to develop their Web-based technologies autonomously, with only minimal general assistance and central direction to departments on the transition to electronic government. In the period 1995-6 Britain was ahead of other European governments and much of private business in the UK in developing a central public access Web site (called **open.gov.uk**) and in creating a basic Web presence for a large number of agencies. But that central impetus has now flagged and British government Web sites currently looked disconnected and relatively hard to navigate. Government departments began using e-mail extensively only in 1998, several years behind private business and the universities.

12 Finally to assess UK progress against overseas governments, we looked at Web developments in three comparable countries (see Comparator B on page 68). Australia has both a more coherent overall public Web sites framework and ambitious plans to develop electronic transactions - for instance, 75 per cent of tax forms are already filed electronically. The Australian Job Search site gives citizens full access and search capability to a database of jobs all over Australia. Intranets are also used pervasively throughout Australian administration. The United States' federal government has a very large number of sites, some of which (notably the Internal Revenue Service, the Social Security Administration and the Environmental Protection Agency) are far ahead of British counterparts in their levels of use and facilities provided. But US sites are not linked by any strong central site for federal government as a whole, and the multiplicity of sites within many federal departments has in some respects increased citizens' problems in understanding a tangled pattern of government responsibilities. Germany has generally been slower to develop government on the Web than Britain, but does have some useful federal government sites despite strong separation of departmental responsibilities.

What progress has been made in British government so far?

13 The Government has recognised the importance of actively promoting public agencies' presence on the Internet and the Web. In Autumn 1997 the Prime Minister pledged that by 2002 a quarter of transactions between citizens and government should be capable of being conducted 'electronically'. This 25 per cent target has been construed broadly to include systematic phone transactions as well as computerised payments and Web-based interactions. The March 1999 White Paper on *Modernising Government* specified

more ambitious targets for later dates in 2005 and 2008. It makes clear that the transition to more joined-up patterns of 'information age government' will require a fundamental transformation of many central departments' and agencies' business processes.

14 Existing responses by departments and agencies in Britain to the development of the Internet and the Web have been patchy and relatively slow. A majority of central government agencies have now established external Web sites, but the provision of site facilities is still in its infancy. Many sites are not yet regularly kept under review and updated in line with a coherent development strategy. Most British government sites currently provide extensive information in an 'electronic brochure' mode, but have few more advanced features or interactive capabilities. Relatively few, mainly business-facing agencies have so far developed simple Web-based transactions - such as facilities to download electronic forms, interrogate agency databases, or accomplish dealings electronically. Agencies' chief executives and departments' permanent secretaries recognise that Web-based and e-mail transactions will become increasingly important to their modes of interacting with businesses and with other government agencies over the next five years. But they still feel that unequal access by citizens to personal computers and to the Internet will be an important factor restricting the development of Web and e-mail interactions with the public at large.

15 The DSS Web sites are well used, mainly by non-business users. But they lack any coherent overall plan and are run on very low budgets with infrequent redesigns and without many facilities. There is as yet no capability for citizens to conduct transactions on the Web or use e-mail. The departmental group as a whole has yet to acquire much detailed information about which kinds of transactions citizens will want to undertake via the Web. The Web site of the largest DSS agency, the Benefits Agency, has been effectively invisible to all its staff until very recently. The agency's planned pilot intranet could play a key role in helping to shift benefits administration into phone-based formats, but its development relies on major IT investments which stretch into 2001. On current projections the DSS group as a whole will meet the 25 per cent electronic transactions target by 2002 so long as payments are included, but not if they were to be excluded. However, longer-term planning in the DSS and its agencies has recently begun to change to take more account of Web developments. Some pilot projects on ways of providing more accessible electronic benefits information have been initiated, and the department has ambitious plans for introducing new gateway processes by 2005.

16 The Web sites in the DTI departmental group have somewhat smaller, but still appreciable, numbers of users, mainly in workplaces. These sites have been building up their facilities actively over time. They are well-run, account for much larger (but still objectively small) shares of agencies' running costs, and have become progressively more central to many agencies' mode of operating. The two trading agencies are using their Web sites as fundamental parts of their business operations, and the research councils are developing on-line grants application processes and anticipate moving to fully 'digital environments' for holding and providing information. Some DTI agencies have strategies for evolving towards 'zero-touch' technologies in disseminating information, and the group as a whole will easily meet the 25 per cent 'electronic' transactions target by 2002 (whether payments are included or excluded).

17 With respect to internal communications, progress with intranets across the UK government has been limited. Many agencies now have pilot intranets or partial intranets, but full intranets are still quite rare. Over the next two years new systems will begin to come into play in our case study departments which should introduce major changes, improving the accessibility of information to staff and cutting internal communication costs. However, making intranets central to the life of organisations requires considerable commitment by top management, significant investment on a larger scale than for external Web sites, and firm but creative management of the information and facilities made available.

18 Central agencies have played a restricted role as yet in monitoring or energetically promoting the adoption of Web technologies in government, despite the possibility of achieving important cost savings. For instance, the DSS handles around 160 million phone calls a year already (with mostly paper-based administrative systems), at an approximate minimum cost of around £2.40 per call (based on one of its most efficient call centres). If only two per cent of phone calls (one in fifty) could be shifted to people looking up material on DSS Web sites then a theoretical saving of £7.7 million might be achievable. Similarly a rough estimate of the costs of handling phone calls within the DTI is around £2.60 per call. Thus the scope for similar savings across government is considerable indeed. There is a need for the Cabinet Office and the Treasury to find new ways of adding impetus to the timely adoption of new Web and Internet technologies by departments and agencies.

19 Central agencies and sections within the Cabinet Office have launched an important initiative, the Government Secure Intranet (GSI), which has been successful in stimulating Whitehall departments and some agencies to using e-mail more extensively for their external communications since 1998. However, this development represents a very late adoption of e-mail by government departments, and the GSI has attracted criticism for delays in developing directory services and more extended facilities. Whether GSI will settle down to become just a high level e-mail network with enhanced security features, or will instead develop into a genuine pan-government intranet (or possibly a 'government portal'), is not yet clear.

Why has progress not been faster?

20 Firms which innovate effectively can capture a bigger percentage of market share, cut their costs faster and are able to increase their profits or improve their market position ahead of competitors (see Comparator A). But in much of the public sector there are no equivalent 'market' pressures for departments and agencies to respond effectively and quickly. Instead there are some strong organisational learning barriers to the prompt and committed adoption of the new technologies, and a general tendency for the 'risk-averse' responses to be seen as only belatedly to implement changes.

21 Some business-facing agencies are beginning to spend significant sums on external Web sites. But in many large departments and agencies the level of spending on the Web site forms as yet only a tiny fraction of one per cent of their budget for running costs. Because Web-based spending has been seen as 'below the radar' in budgetary terms, budget lines and management responsibilities for developing a Web presence have tended to be fragmented. Staff with 'new-media' expertise (that is, in communicating via the Web) are relatively rare in central government; many sites are out-sourced in restrictive ways; and sites have tended to be only infrequently reviewed. Agencies seem to pay little attention yet to monitoring or systematically growing the usage of their sites. Techniques for measuring the costs and benefits of government Web sites are still rudimentary.

22 Because intranets are more expensive and are often linked to major IT procurement issues, they have generally been submitted to more formal investment appraisal than external Web sites. But in comparison with private sector companies or overseas government agencies, UK departments remain very cautious in making the investment necessary to build cost-effective and well-used intranets.

What more could be done? Recommendations

23 The major sections of the report (Parts 2, 3 and 4) include many more detailed findings, but there are three main groups of general recommendations:

A On the construction and monitoring of government Web sites

A1 Central government agencies with executive functions (that is, Whitehall departments, Next Steps agencies and non-departmental bodies with executive roles) should maintain an *active* Web site. (See page 7 which sets out what is entailed.) All government bodies (including advisory or other non-executive bodies) which are conducting a public consultation should maintain an active Web site at a minimum for the duration of the consultation period through to publication of any report or recommendations.

A2 Departments which supervise other agencies (such as health boards, health trusts or local authorities) should review any central policies or advice which they issue on Web provision to consider bringing them into line with the recommendations in A1.

A3 All agencies with a Web site should collect and publish in their Annual Reports meaningful usage information (including the number of user sessions) on their site over the last year. They should also provide 'bare bones' cost estimates for their Web site on an annual basis, and make an estimate of the additional costs of publishing content or providing facilities for transactions on the Web.

A4 Agencies should prepare and keep under review a new media strategy (distinct from their main IT strategies) covering:

- developments to their Web site(s); and
- developments to their intranet, where appropriate.

At senior management or board level, agencies should regularly compare rates of return in the form of cost savings or quality of service improvements to be gained from Web-based improvements alongside alternative investments.

B On the management of external Web sites and intranets

B1 Within overall government policies for combating social exclusion and maintaining a consistent quality of service to all citizens and enterprises, agencies should encourage citizens and enterprises seeking general information to access agency Web-sites wherever possible - rather than such enquiries coming via visits, letters, or phone calls.

B2 Departments and agencies should manage their Web sites to ensure that:

- the site does not grow beyond a feasibly managed size;
- the whole site is well-used, without dormant sections (left unrevised for long periods) or desert sections (not visited by any significant number of site users);
- information on the site is prioritised to fit with users' needs and current government policies, especially the home page and the subsequent two to three layers of pages;
- the site functions as a central point of reference for citizens, enterprises and partner organisations inside and outside government in their dealings with the agency;
- policy documents, regulations, and other information are made available in accessible electronic formats on the site; and
- forms for citizens or enterprises to submit can be downloaded from the site and increasingly also submitted electronically.

B3 Departments and agencies need to recognise that effective Web development strategies will increase the use of e-mail for communications from and to citizens and firms. They should review their internal performance targets (which already apply to handling postal, phone and fax contacts from citizens and enterprises) and consider how they may appropriately be extended to cover e-mail contacts also. Systems for receiving, distributing and responding cost-effectively to external e-mail contacts should be devised and put in place where they do not yet exist. Agencies may need to consider the introduction of partly automated systems for handling the most frequent and most straightforward forms of e-mail contact. A well-designed Web site should answer people's questions first time in an accessible way, without creating a need for further communication.

B4 Where departments and agencies develop intranets, they should carefully manage them to ensure that:

- the intranet becomes a central point of reference for all the agency's staff in their daily work;
- all the information provided is reliable and kept up to date by content providers;
- the whole intranet site is well used, without dormant or desert sections;
- the intranet does not grow beyond a feasibly managed size;
- the intranet mirrors the agency's Web site to those staff who do not have external internet access; and
- key agency policy documents and information are stored and made available in electronic formats on the intranet.

Agencies should consider the benefits of allowing partner organisations inside and outside government to gain access to designated sections of their intranet.

C On the central management of change to put government on the Web

C1 The Cabinet Office should collate data on overall use of Web access across government, and should publish an annual survey of Web use and the costs of Web provision across central government. It should assist departments and agencies to develop standard and meaningful ways of measuring Web use, costing Web provision and assessing the benefits of Web accesses. Future monitoring of the achievement of the 25 per cent 'electronic' transactions target by 2002 (and of subsequent targets in the *Modernising Government* White Paper) should distinguish between systematic phone transactions, computerised payment systems, and the more normal sense of 'electronic' transactions (that is, using Web sites, e-mail and e-commerce).

C2 Within overall government policies for combating social exclusion and maintaining a consistent quality of service to all citizens and enterprises, the Cabinet Office and Treasury should seek to encourage the displacement of general information-seeking into accesses to departmental or agency Web-sites wherever possible - rather than producing visits, letters or phone calls. Within the policy goals for achieving the progressive 'electronic' delivery of public services set out in the *Modernising Government* White Paper, the Cabinet Office and Treasury should set agencies and departments realistic but demanding targets for growing Web-based interactions and transactions. The central departments should consider what incentive regimes and monitoring processes can best encourage agencies to innovate here, for instance, incorporating reference to targets for displacing contacts onto their Web site into the 'public service agreements' negotiated between the Treasury and departments.

C3 The Cabinet Office should consider whether cross-government standards should be set in place providing minimum benchmarks for how agencies and departments must handle e-mail enquiries.

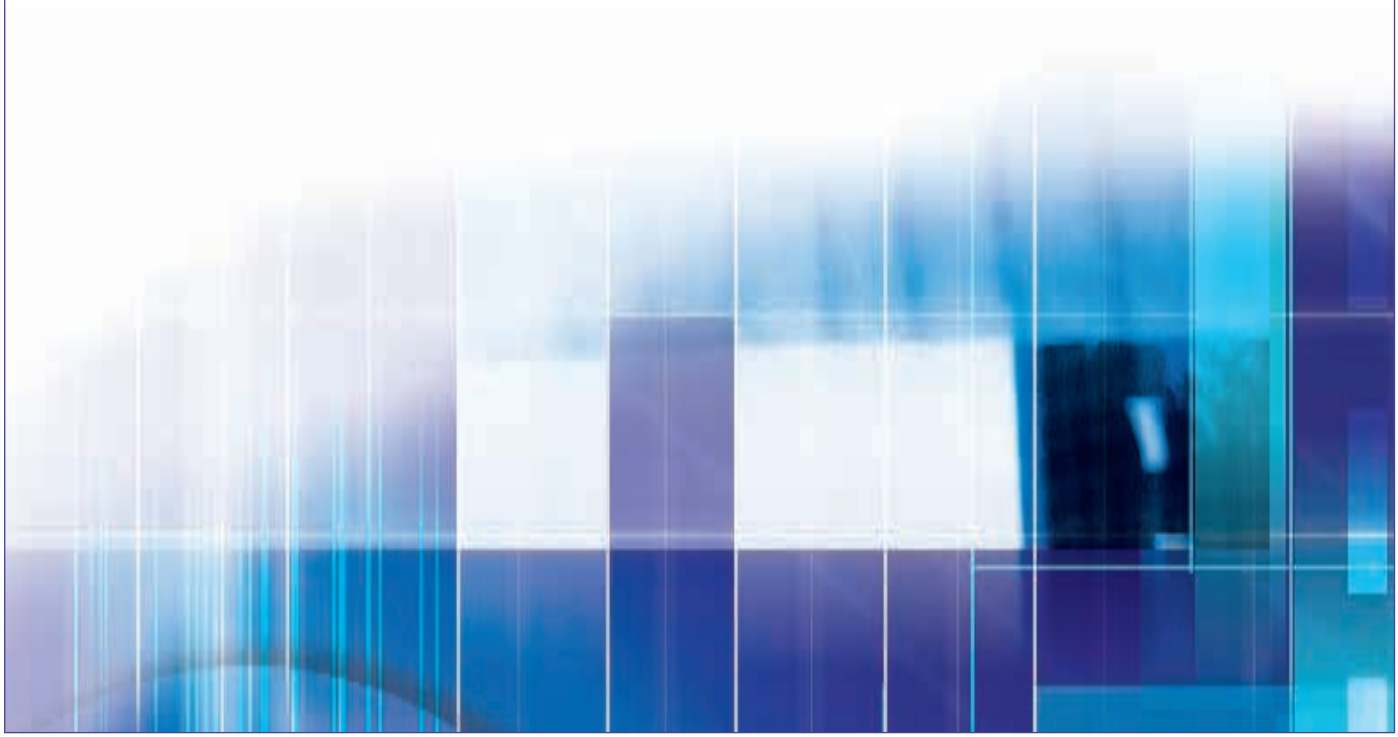
C4 The Cabinet Office should review arrangements for providing a government-wide central point of Web access for citizens and enterprises, with a view to strengthening their administrative and budgetary capabilities in this area. It should consider how the relaunch of the **open.gov.uk** site under a more intuitively accessible name and with a different brand identity might best foster the government's policy goals of increasing electronic transactions. The Cabinet Office should also review procedures for allocating site names (called URLs and domain names) to departments and agencies, with a view to developing consistent naming conventions for government sites that will enhance their accessibility.

C5 Web provision for central government as a whole should be actively managed to develop continuously increasing usage, the promotion of cost-effective public administration and management, and the enhancement of joined-up government. Central management of the change process needs to span across from information and communication technology issues, to promoting efficiency and better quality public services. The Cabinet Office should review and strengthen the current rather fragmented means by which a 'corporate' stance for central government as a whole emerges in a rapidly developing ICT environment. For instance, it may need to look again at the allocation of responsibilities between sections within the Cabinet Office, the role of 'information age' champions in departments, and the working committees and networks which currently facilitate joint learning about government on the Web.

C6 The Cabinet Office should review the management and funding of the Government Secure Intranet, to ensure that it fulfils its intended potential and secures wide acceptance as a preferred channel for handling interactions between citizens or enterprises and government agencies.

What counts as an active Web site?

- All information provided is up to date, authoritative, accurate and reliable. It may safely be used by citizens and enterprises in guiding their own decision-making.
- Static information, and the agency's home page, are regularly reviewed, revised and re-presented once every six months at least.
- The site gives a good basic picture of the agency's work and scope of responsibilities. It communicates current government objectives and strategies for the agency's policy area.
- The site provides a full central contact route for the agency (that is: phone, fax, e-mail and postal addresses). Behind the contact route there is an established procedure for logging, distributing and responding to each contact.
- The site includes enhanced directory services in some form, to enable citizens or enterprises to find an appropriate phone, fax, and e-mail contacts for specific inquiries.
- The site provides an immediate e-mail route to the Webmaster for comments about the site itself. These comments or complaints are responded to on a daily or two-daily basis. Complaints about site features not working are tested on external access machines in a variety of configurations, and not just on internal systems.
- The site implements 'joined-up government' policies by providing links to related government agencies. The following links are always provided in full:
  - Who we are accountable to: the 'parent' department or agency;
  - Agencies we supervise: any 'children' agencies;
  - Our main partner agencies: other government agencies with which close working relations exist.
- The site has reverse links on all the government sites which it itself links to.
- The site provides a links page to selected recognised non-governmental organisations or company partners with which the agency works closely, in accordance with a centrally-set government policy on external links.
- The site address (its Universal Resource Locator or URL) is included in all letters, correspondence, leaflets and publications of the agency. Agency staff know the site address and can give it accurately and reliably in response to telephone enquiries. Those dealing with enquiries are familiar with the site's layout and can answer questions by phone about the information provided on it. The site address is designed to be memorable or findable by someone who knows the agency's name. The agency takes all appropriate steps to broadcast and develop knowledge of its site address.



part one

web-based systems in Government

1.1 The growth of the Internet is one of the defining characteristics of the modern period, and it has some important implications for central government's information and communication technologies and for how public sector agencies in general are organised. In this Part we briefly introduce the Internet and Web; set out what this study seeks to do and the methods used; and then examine some general patterns and trends in British government on the Web using two main survey sources. The first is an 'unobtrusive measures' census of all central government Web sites carried out in December 1998. The second is a questionnaire survey sent to all permanent secretaries of departments and agency chief executives in May 1999, followed up a few weeks later by an e-mail survey of information technology managers and other officials in the same organisations (with respondents nominated by the top officials).

Introduction: Why the Web raises new administrative issues

1.2 The main function of the **Internet** (or more simply **the Net**) is to allow easy communication between computers. [The terms in **bold** text here are all defined precisely in the Glossary, located on page 89 at the end of the report.] The Net uses a common formatting **protocol** called **TCP/IP**, whose standards allow packages of information to be sent easily between different organisations and locations, irrespective of the proprietary kinds of computers and software in use at each end of the communication link. This feature has made the Internet a key element in modern **information and communication technologies (ICTs**). For a long time the major Internet application was e-mail (electronic mail), which developed quickly in universities and some private companies. However, in the last three years the **World Wide Web** or Web has taken off as the principal basis of communication on the Net. The Web consists of thousands of **sites** created by companies, individuals or other organisations on specialised computers called **servers** which can hold large amounts of information in the form of text, pictures, data, slides, or audio material. All these files are stored in formats that are readable by other computers over phone lines. Each site has a unique computerised address, its 'universal resource locator' or URL which allows it to be found and its materials read or downloaded. The Web is accessed via **browser** software which allows rapid searching of thousands of sites for information, and which also includes facilities for e-mail and transferring all kinds of files. Browsers are intuitive to use and require no great computer expertise or complex commands. They have a **graphical user interface (GUI)** where users point at objects or links that they are interested in and click, and the browser then accesses the item indicated. These popular features means that the Web has grown globally into a major medium of communication between businesses, other organisations and the public at large, with approximately 150 million regular users worldwide, accessing the Web either via workplace or home-based personal computers (PCs). Web-standards have now been extensively adopted also for communications inside companies, and increasingly are changing the ways in which the main PC operating systems work as well. At the moment (late 1999) the Web is widely seen as in transition from being an unrivalled worldwide information system to additionally becoming a major channel for **electronic transactions**, such as **e-commerce.**

1.3 How citizens and firms **interact** with government is very likely to change as a result of increased Internet access. People with home-based PCs and modems, or with access to PCs connected to the Web via workplace networks, are likely to become more and more accustomed to dealing with companies using the Web. In late 1998 at least eight million people in the UK (around 15 per cent) had Internet access at home, at work or via a university, with the estimate rising at a rate of least a million new connections per year. By mid-1999 estimates put the proportion of households with Internet access at one in five. How much demand then materialises for government also to be accessible via the Internet depends on the advantages of communicating or transacting over the Web in general compared with other modes.

In this Part:

Introduction: Why the Web raises new administrative issues

The scope and methods of this study

The characteristics of government Web sites

Senior officials' views of government on the Web

The current conventional wisdom in business argues that people using the Web will experience improved quality of service in a number of ways. They will gain information faster and more conveniently, and have more ability to target their information-seeking to their specific needs. And as e-commerce develops they will increasingly be able to speedily accomplish complete transactions (such as ordering and paying for products) from their home or desktop.

1.4 There is a long history of the private sector developing improved **point of service standards** which were then demanded by the public in their dealings with government agencies. As consumers experience quality of service changes in the private sector made feasible by the Web they will again expect to have access to similar facilities as citizens. If government agencies' Web provision lags conspicuously behind that of private sector counterparts then some of the most active and critical sections of public opinion will see these lags as signs of inferior levels of efficiency or modern organisation within the public sector. And as major corporations, medium-sized enterprises, small firms and self-employed people all adapt in turn to using Web-based ICTs, then business expectations about government are also likely to change. Companies will generally wish to adopt the lowest-cost modes of interacting with government - for instance, meeting their regulatory obligations, securing licenses or permits, submitting statistics, accessing government information, paying taxes, and so on.

1.5 Most departments and major agencies have already established an **external Web site** on the lines pioneered by major businesses. At present these sites provide a limited range of information, mainly of a kind that would otherwise be included in departments' information leaflets or publicity materials - so-called '**brochureware**'. However, government Web sites are evolving rapidly in response to the development of good practice elsewhere in business and other organisations. They could increasingly make available more extensive documentation, press releases and news updates, internal contacts information, downloadable forms and other materials. Examples of all these uses are already in place. Relatively few government agencies are yet adapted to systematically processing e-mail letters, electronic forms or simple electronic transactions, but these developments are not far off. In 1997 the Prime Minister Tony Blair pledged that by autumn 2002 one quarter of all citizens' transactions with central government would be capable of being accomplished electronically, either over the phone or fax, using computerised payments, or via the Internet with people using PCs (or public access kiosks). The development of Web communications between citizens and government departments could play a major role in fulfilling this promise.

1.6 Inside departments and agencies the advent of Web standards also opens up important opportunities for inter-connecting the many public sector computer systems which have hitherto been quite separate and distinct, even inside the same department. In private sector companies high security private networks used for internal communications and transactions are termed **intranets**. As business systems become more and more orientated to using Web-based technologies it will be hard for government ICTs to take a different course without becoming increasingly dated. Central departments in Britain have a variety of internal communication systems which are at or moving towards intranet standards. And across central departments and major agencies a common facility has been established which allows e-mail and limited file transfers to selected personnel, called the **Government Secure Intranet (GSI)**. Government use of external e-mail has radically increased since 1998.

1.7 The level of use for all government intranets (both single-agency and joined-up systems) will depend upon the extent to which long-established department or agency computerised data-bases (known as **legacy systems**) can be adapted to allow communication using Web standards. This process is called **Web-enabling** computer systems and its development has key implications for the extent to which public sector administration can adopt many other innovations pioneered in the business sector, especially **call-centre** technology. In principle, Web-enabled systems could mean that much the same information provided via the intranet to call-centre staffs handling phone enquiries could also be made available directly to citizens or firms accessing the agency's external Web site over the Internet. A key goal here is to allow citizens or firms to electronically accomplish **transactions** or **dealings** with agencies (for instance, to obtain information, submit forms, check out the status of an application, obtain a license, make or receive payments, and so on). If large numbers of citizens were to move towards Web-based communications and transactions with government, instead of sending letters, ringing up or visiting departments' front offices, then opportunities could arise for substantially reducing administrative costs further. An idea adopted by some major corporations is to achieve **zero-touch** transactions, where, for instance goods are ordered, paid for and dispatched using electronic systems only, without human intervention by members of staff being necessary. In time many government transactions could be accomplished in a zero-touch way, especially once a legal framework is in place for accepting and verifying electronic signatures.

1.8 Central government departments may also follow the practices of major private companies by developing **extranets** which allow their suppliers or partner organisations elsewhere in the public sector (such as local authorities or quangos) to gain access to their intranet, or part of their intranet. Hence partners or contractors could link-in their IT systems with those of government agencies, again using Web standards for

intercommunication. Extranets might be developed piecemeal by departments, or the Government Secure Intranet might develop into a general government **portal**, which could facilitate a cross-government extranet.

The scope and methods of this study

1.9 We define 'government on the Web' quite narrowly to cover:

- central departments' and agencies' use of external Web sites to communicate and transact with citizens and firms; and
- the development of intranets (and to some extent Web-enabled systems more generally) inside departments and agencies.

The growth of Web sites and intranets are closely interlinked and they inevitably have to be considered together. A common view in the ICT industry is that external Web sites and intranets are currently 'converging', that is blurring together. For example, intranets are often used to make available a **mirror** of an agency's or department's Web site to those staff who do not themselves have workplace Internet access.

1.10 Rapid and pervasive changes such as the Internet revolution pose a challenge for agencies across the public sector. Although control of Web sites and intranets rests essentially with business units in departments and agencies, changes of this extent and rapidity raise issues which require (and have already elicited) a degree of centrally co-ordinated response. So this study does not focus narrowly on a single department. Instead we set out to give a good general picture of government on the Web, and to back that up with in-depth case studies of key departmental groups, and of the central agencies co-ordinating the government response.

1.11 The development of government on the Web presents in some respects a very rapidly moving picture - especially in terms of changing technological tools and capabilities, and of course in the growing numbers of people, firms and organisations using the Internet and e-mail. Web sites can be relatively easily and cheaply renewed and rearranged, and intranets similarly can evolve substantially in the course of a year. Hence we have tried hard to avoid simply focusing retrospectively on government agencies' past performance. Instead we have sought to assess current and prospective developments, and to create a benchmark which will allow the National Audit Office to revisit government on the Web issues periodically over the next decade, and to assess public sector agencies' performance at later stages. Despite the often bewildering speed and variety of technological changes, it is important to remember that organisations' capacity to respond to the development of the Internet and the Web shifts much more slowly. How departments and agencies respond is shaped by fundamental influences such as their institutional structures, organisational cultures, staff orientations, past ICT investments, and so on. A fully Web-enabled or information-age agency cannot be built overnight. In particular, effective Web-based operations normally require fundamental changes in agencies' business processes. They also reflect the cumulative development of a culture of focusing very hard and attentively on citizens' and firms' needs and behaviours, which is often rather foreign to government agencies' ways of doing business and interacting with their clients and customers.

1.12 The methodology used in the study is described in detail in Appendix 1, but the main components were:

- A **non-reactive** census of all central government Web sites, carried out in November/December 1998, which coded objective features of the sites (see paragraph 1.13).
- A survey sent to all department permanent secretaries and to the chief executives of Next Steps agencies and other executive non-departmental public bodies which asked about Web sites, intranets and trends in ICTs (see the last section of this Part).
- Follow-up e-mail surveys of agency staff nominated by each organisation's chief executive or permanent secretary. Questionnaires were sent to IT managers and to major **content-providers** or **new media** staff (see the last section of this Part).
- In-depth case studies of a citizen-orientated departmental group, the Department of Social Security and its agencies (see Part 2); and of a business-orientated departmental group, the Department of Trade and Industry and seven of its agencies (see Part 3). In both cases we conducted interviews, made site visits, analysed documentation and departmental statistics, and sat in on some meetings.
- Interviews with central agencies, especially in the Cabinet Office, but also across a range of agencies in Whitehall (see Part 4).
- A programme of interviews and visits to major comparator organisations, including eight major private sector corporations in the UK (covered in Comparator A on page 60); and to government agencies in the United States, Australia and Germany (covered in Comparator B on page 68).

Figure 1

Figure 2

Figure 3

Figure 4

The characteristics of government web sites

1.13 To determine how extensively external Web sites were already being used by UK central government, and what features or facilities were included in Web sites, we conducted a census of departments' and agencies' Web sites in November/December 1998 (described in more detail in Appendix 1, which also explains how interested readers can obtain copies of the full questionnaire and results for all codings). Essentially we generated a list of all departments and executive agencies covering either the UK or England, devised a coding sheet focusing so far as possible on objective indicators and then organised a team of graduate researchers to try and find Web sites for all these agencies and to categorise their features. (Scottish, Welsh and Northern Ireland agencies outside Whitehall were excluded because of devolution, as were advisory bodies without executive functions). The final census covered 315 organisations, shown in Figure 1.

Government organisations' presence on the Web

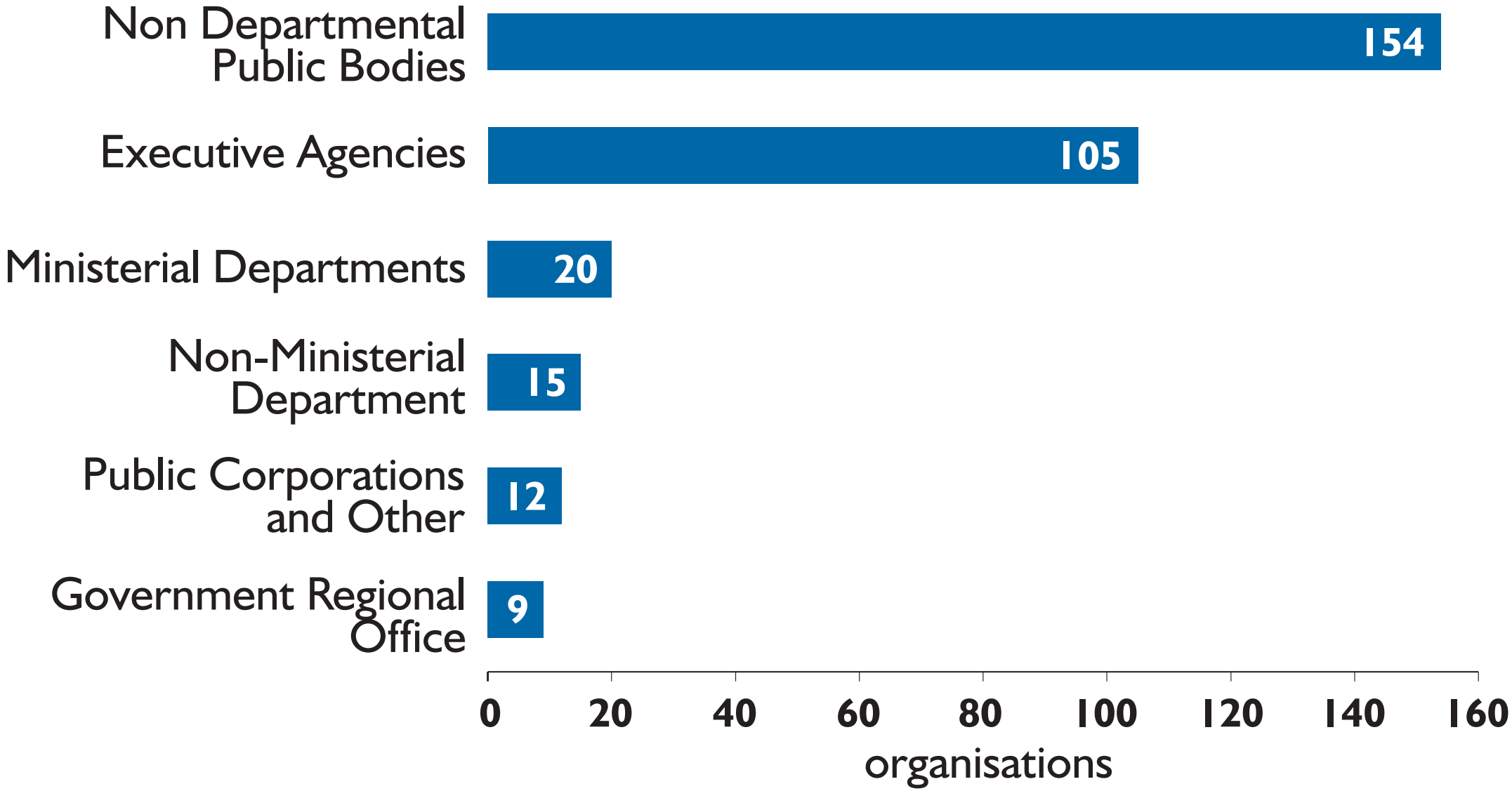
1.14 An organisation was classed as having a Web site if it was listed on the organisational index page of the **open.gov.uk** site (a central guide to British public sector sites, hosted by a Cabinet Office agency, CCTA); if its site was found on any of the three UK arms of major Web search engines, Yahoo, Infoseek or Lycos; or if its site was found by a Metasearch using the multi-engine Dogpile.com. In November/December 1998 only 130 agencies (41 per cent) were listed on **open.gov.uk** site and varying lower levels between (108 and 122) on the three major search engines. A total of 190 agencies (60 per cent of the total) had a Web site that could be found in one way or another, while 125 agencies had no findable site. Figure 2 shows that almost all ministerial and non-ministerial departments had a Web site. But less than two-thirds of executive non-departmental public bodies had sites as did only half the executive agencies.

1.15 We looked to see if agency Web sites provided basic contact information for citizens. Over 80 per cent of organisations (158) with Web sites provided a postal address or a telephone number on their site, while one-fifth missed off this information in each case. Only three-fifths of sites (116 organisations) provided a fax number. Figure 3 shows an overall picture of the Web contactability of central agencies as a whole.

116 To make sense of an agency's Web site users often need to find out something about their internal organisation. A fifth of agencies (47) provided an organisation chart on their site, while Figure 4 shows that nearly half gave significant details of their organisation by listing five or more sub-elements. Over a third of agencies (37%) listed no internal elements. Where

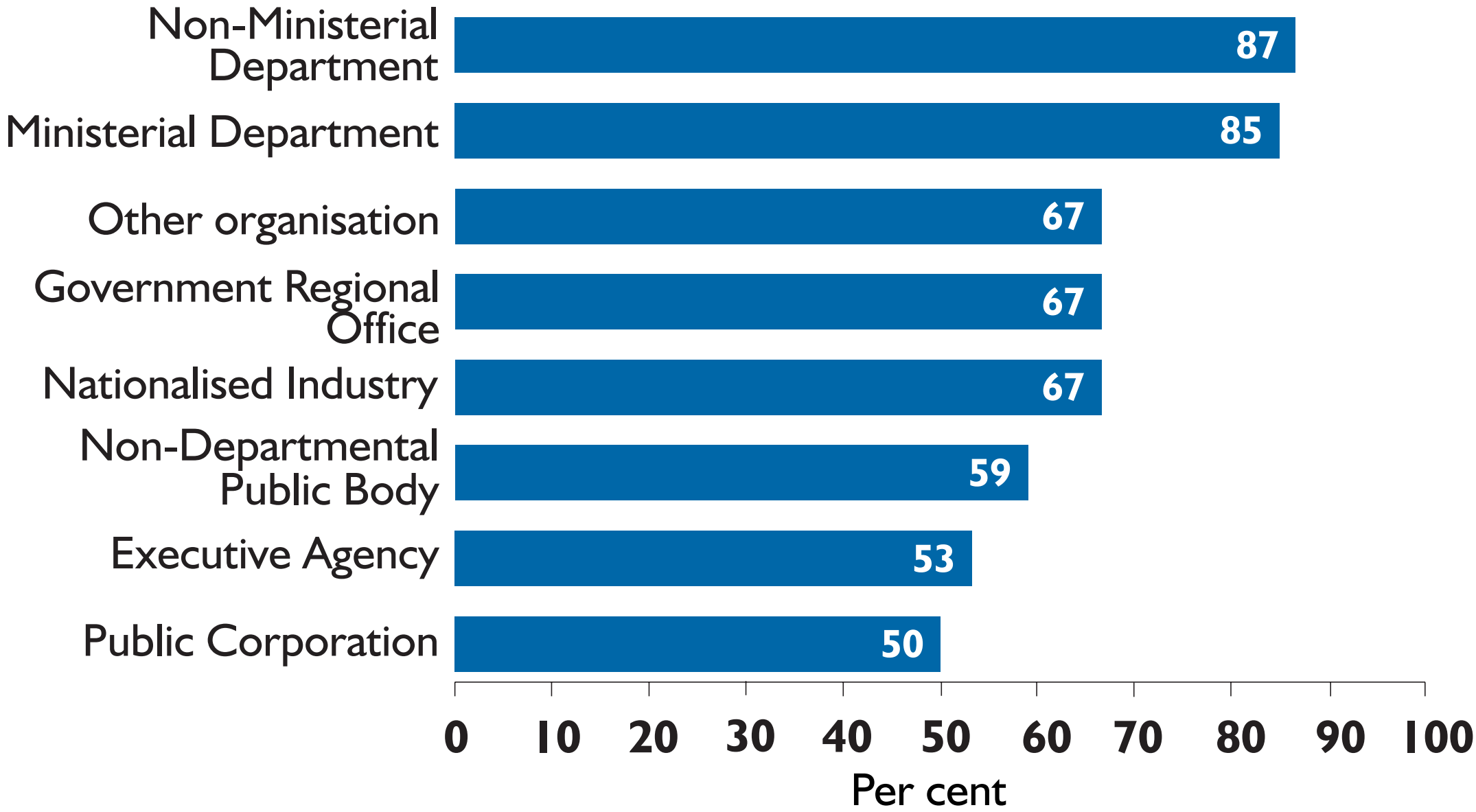
1

THE NUMBERS OF DIFFERENT TYPES OF GOVERNMENT ORGANISATION COVERED IN THE CENSUS OF WEB SITES



SOURCE: LSE CENSUS OF WEB SITES

2 THE PROPORTION (PER CENT) OF EACH TYPE OF GOVERNMENT ORGANISATION WITH A WEB SITE



SOURCE: LSE CENSUS OF WEB SITES

3 EASE OF CONTACTING CENTRAL GOVERNMENT AGENCIES VIA THE WEB

	Number of agencies	Per cent of all agencies with Web sites	Per cent of all agencies in census
Five means of contact[1]	70	37	22
Four means of contact	62	33	20
Three means of contact	20	11	6
Two means of contact	24	13	8
On Web only	14	7	4
Not on Web	125	NA	40
Total	**315**	**100**	**100**

1. On open.gov.uk, and post, phone, fax details and e-mail address on the Web

SOURCE: LSE CENSUS OF WEB SITES

4 HOW AGENCIES LISTED SUB-ELEMENTS IN THEIR ORGANISATION

	Number of agencies		
	Listing	Including clickable links	Per cent of listed bodies that are clickable
10 or more sub-elements	46	21	46
5-9 sub-elements	40	27	68
1-4 sub-elements	33	21	64
No sub-elements listed	71	-	
Total	190		

SOURCE: LSE CENSUS OF WEB SITES

short lists of organisations were given around two-thirds were clickable links, the most useful for Web users. But under half of bodies included in long lists of sub-elements were clickable links. Most agencies included no postal address or phone number for any sub-component of their organisation. Just over 20 agencies provided five or more mailing addresses or phone numbers for elements inside their organisation on their Web sites.

1.17 Organisations which are well adapted to using the Web and the Internet (such as UK universities) will normally keep in a computerised form, and make available on their Web sites, either a complete list of e-mail and telephone addresses for all their employees, or a search facility which will seek any name users inquire about. British government agencies have historically kept their phone directories confidential, although the *Civil Service Yearbook* includes some disaggregated information on whom to contact. Around one in ten sites (23) provided a full, phone or e-mail listing of their staff, but somewhat more sites gave descriptions of what staff did. A modest 27 agencies (14 per cent) provided e-mail addresses for senior officials that were set apart, most of which were clickable links. Phone numbers for senior officials were listed by 23 sites, and specific mailing addresses by 15 sites. Only three sites provided an e-mail link to ministers.

1.18 The extent of joined up government on the Web can be gauged by how much agencies listed and provided clickable links to other bodies. Just over half (88) listed and gave links to either 'parent' bodies to whom they reported (for example, an agency listing its ministry) or to 'children' bodies which they supervised (for instance, a department listing its public bodies). A small minority included more than one upward or downward link. Very few agencies (three per cent) included postal addresses or phone numbers for their parent or subsidiary bodies. Just over a quarter of agencies (50) provided a link back to the **open.gov.uk** site. Over half the organisations with Web sites (105) listed no other government agencies in their policy area (see Appendix 1 for how policy areas were defined). But over a quarter (52) had from one to four agencies listed and over one in six listed five or more agencies, and virtually all elements in the lists were clickable links. Two-thirds of agencies (126) listed no bodies nor provided any links to bodies outside their policy area. However, again a minority (over a fifth) of organisations' sites provided links to between one and four other agencies outside their area, and one in eight sites provided links to five or more other agencies.

1.19 Agencies policies on linking to non-government organisations in their policy area varied widely, with around a half (89) having no such links. But over a third (65 agencies) listed five or more non-governmental bodies and a minority of 28 agencies (15 per cent) listed 25 or more non-governmental bodies, almost all clickable. Defence sites often gave links to NATO bodies and other European countries, but their lists were less clickable. Only a handful of government sites (14) provided postal addresses or telephone numbers for non-governmental organisations that they listed.

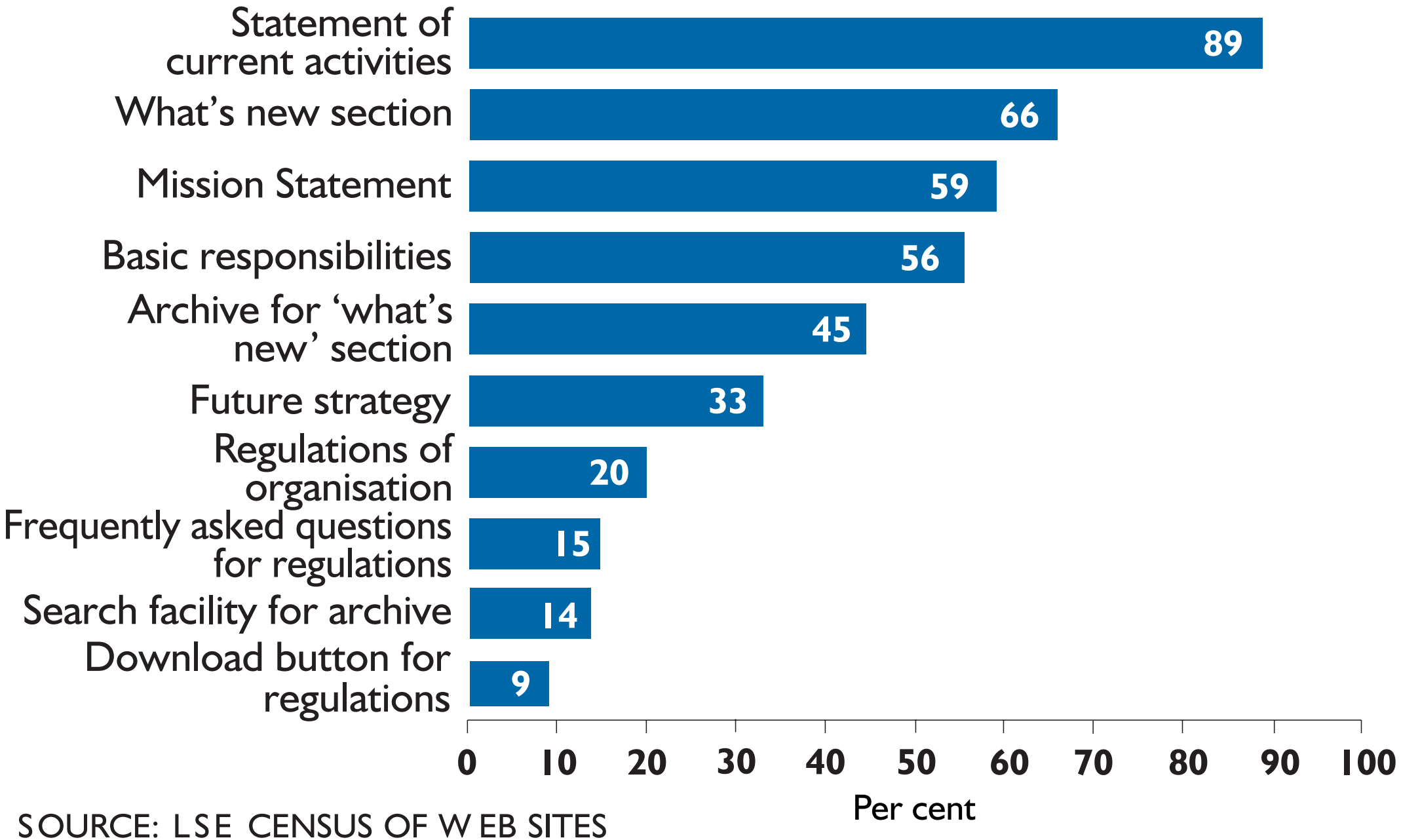
The facilities on government Web sites

1.20 Providing information in an open government manner is a key rationale for current Web sites. Nine out of ten agencies provided a general description of their activities, and three sites out of five gave a mission statement describing the general goals, values or performance targets for the agency (see Figure 5). Slightly over half the agencies included a statement of their legal or statutory responsibilities, and a third set out their future plans, strategies or forward goals. One in five agencies included information on their regulations, and one in seven had a section of frequently asked questions (FAQs) about regulations. Only one agency in ten had a clickable link for regulations to be downloaded, however. Most sites had regularly updated files of recent press releases, while a 'What's new?' section or a newsletter was included by two-thirds of sites.

Figure 5

Well under half the sites had an archive feature to let users look at earlier versions of the update section, and one site in seven had a search facility for archives. Search engines were generally very literal-minded and tagged only to actual words in the headings of press releases or documents - for instance, a search for 'universities' on the Department for Education and Employment site failed to find press releases on growing student numbers.

5 INFORMATION FACILITIES PROVIDED ON GOVERNMENT W EB SITES



SOURCE: LSE CENSUS OF W EB SITES

Figure 6

Figure 7

Figure 8

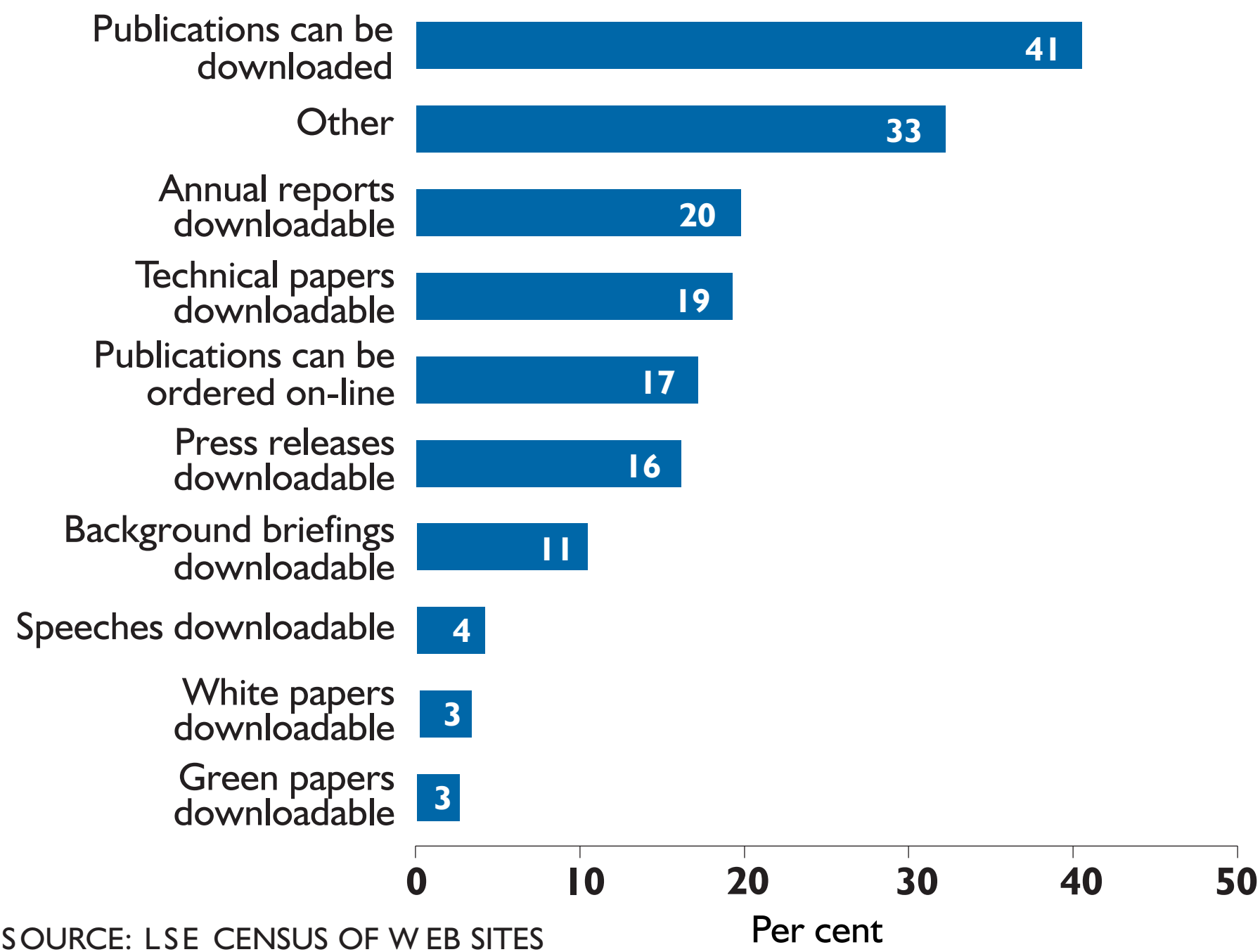
1.21 The Web's capabilities as an interactive medium can be exploited by allowing site users to download materials directly or obtain publications. Figure 6 shows that two-fifths of sites allowed users to download at least one form of publications as files, while a fifth of sites provided downloadable versions of annual reports and technical reports. One in six sites allowed press releases to be downloaded. Under one in five allowed publications to be ordered on-line.

1.22 Figure 7 shows the most explicitly interactive or response-orientated features of sites. Three-fifths of sites included a specific path for enquiries or feedback called a 'contact route'. (This is not the same as including a general agency address on the home page, which we charted earlier.) The most popular contact routes were dedicated phone or fax numbers, while somewhat over two fifths of sites had an e-mail address or a postal address as a contact route. Over a fifth of sites included details of how citizens could complain or appeal against decisions, but less than one in twenty allowed Web users to check on the progress of individual inquiries, appeals or cases or had a clickable link to an ombudsman or an appeals procedure. However, one in six of the sites provided users with access at some level to the agency's main databases, a relatively high proportion.

1.23 Figure 8 shows the 'ease of use' features of government Web sites. Nine out of ten sites were usable without a need to download plug-ins, and nearly four-fifths of sites were fully operational, with no 'under construction' signs encountered. However, only a third of government sites had a clickable link to the site Webmaster on the home page, making it very difficult for users to report defects or malfunctions in the remaining two-thirds of sites. Users will generally click off a malfunctioning site very quickly where a Webmaster address is not included. Only one site in six included the standard, frequently asked questions (FAQs) section for users wanting to understand how the site works. However, two-fifths of sites either provided a clickable link to a general search engine (48 sites) or included a search engine for the site on the home page (21 sites). Features that allow more extended interactive communication of information with citizens are still weakly developed in public agency sites. Only one in six sites allowed any forms to be downloaded by users, and only one in eight allowed users to submit forms to the agency on-line. Chat rooms or forums for outsiders to discuss issues were provided by less than a tenth of sites.

1.24 Our coders accessed sites using the Netscape 3 Communicator software and had instructions to click 'No' to the command 'Autoload images' at the start of their visit, in order to check if the homepage was fully usable without graphics. Over three-quarters of sites met this criterion, and a few of the rest included a 'text only' version of the site. Thus four out of five sites were usable by disabled blind or partially sighted people, who will typically access employing equipment that translates text into voice reproduction. Nonetheless a fifth

6 FACILITIES TO ACCESS PUBLICATIONS PROVIDED ON GOVERNMENT W EB SITES



SOURCE: LSE CENSUS OF W EB SITES

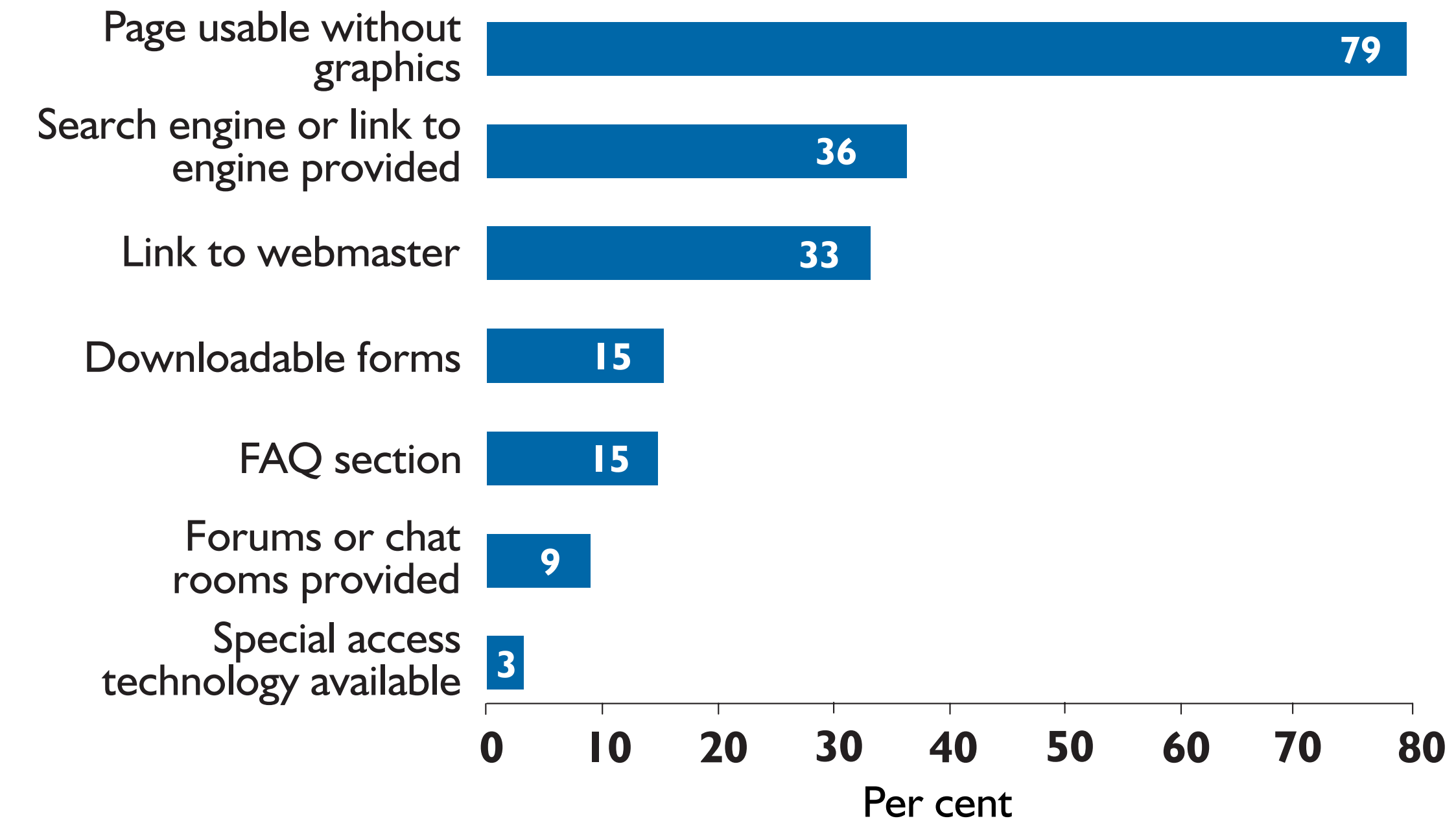
7

FACILITIES WHICH PERMIT INTERACTION ON GOVERNMENT WEB SITES

SOURCE: LSE CENSUS OF WEB SITES

8

FACILITIES WHICH ENHANCE 'EASE OF USE' ON GOVERNMENT W EB SITES



SOURCE: LSE CENSUS OF W EB SITES

of sites did not meet this important criterion, despite the stress placed upon doing so by the design guidance provided to government agencies by CCTA and other central sources.

The best and worst features of government sites

1.25 Determining what counts as a good or bad Web site is notoriously difficult, and we did not attempt this task. But we asked our coders in scanning the sites to look out for examples of noticeably good or noticeably bad practice. Nominations under either heading were then rechecked by the research team, and a selection made. **Good practice** examples were numerous, but tended to be just a single feature of any one site:

- A few sites used *more than one language* where they were targeted partly on overseas users.
- *Frequent updating* is attractive for users. Some Web sites produced by trading agencies or public corporations update masses of data on a daily basis.
- *Access to agency databases* is an attractive feature for users, for example giving details of contracts, or approved products, or people banned from being company directors.
- *Extensive clickable links to non-governmental organisations are helpful.*
- *Comprehensive clickable links* to lower tier agencies are provided by some ministerial departments.
- *Site maps or a site explorer* are useful aids, especially when accessible from anywhere inside the site.
- *Interactivity and the provision of useful working bits* were useful features - such as workbooks or calculators to let people select products, or address finders driven by people entering their postcodes.

The best-rated government Web sites were often run by bodies operating in a commercial trading environment, like the BBC's feature-packed offering.

1.26 **Bad practice** examples were also numerous and most sites had one or more of these features:

- *Lack of updating* quickly detracts from the value of a site for users - for instance, our coders found one job vacancy still listed 18 months after its closing date.
- *Fragmented web pages* make it very hard for users to know what is happening. Some agencies had two sites, one of their own and one on **open.gov.uk** without links between them.
- *Poorly structured sites* were fairly common, like sites where everything is included in the 'What's New' page, or long lists of publications and forms are given without any structure, or are listed in a sequence given by an index number, which only agency staff would understand.
- *Lack of any depth to information* is off-putting. Some sites are just a couple of pages, others are only press releases. A few sites require users to register, which research suggests half of all Web users will never do.
- *Poor layout and graphics were prevalent*. The most common defect is pages (often whole sites) which were not fully viewable on a 15 inch monitor screen, and where there is no advice on the viewable part of the homepage for making them viewable. Agency staffs often explained to us in interviews that these problems arose only from users 'not having their screens set up right' - assuming that users should tailor their set-up to this particular site, but without providing advice on how this could be done anyway. Many sites simply seem to have been designed by outside agencies or internal staffs using larger screen monitors who either forgot that not everyone is similarly equipped, or were unwilling to vary their design ideas in response.
- *Presenting and describing information in ways that are meaningful only to government insiders* is perhaps the most fundamental problem. Most sites use masses of terminology, acronyms, labels and abstruse technical concepts which may make perfect sense to the officials who put up the pages, but which are effectively Greek to ordinary, well-informed and literate citizens. For instance, the user-friendly graphics version of the Inland Revenue's guide for self-assessment at the time included an option called only by the mysterious initials 'EVR' - which stands for 'Electronic Version of the Return'.

Figure 9

Figure 10

Figure 11

Senior officials' views of government on the Web

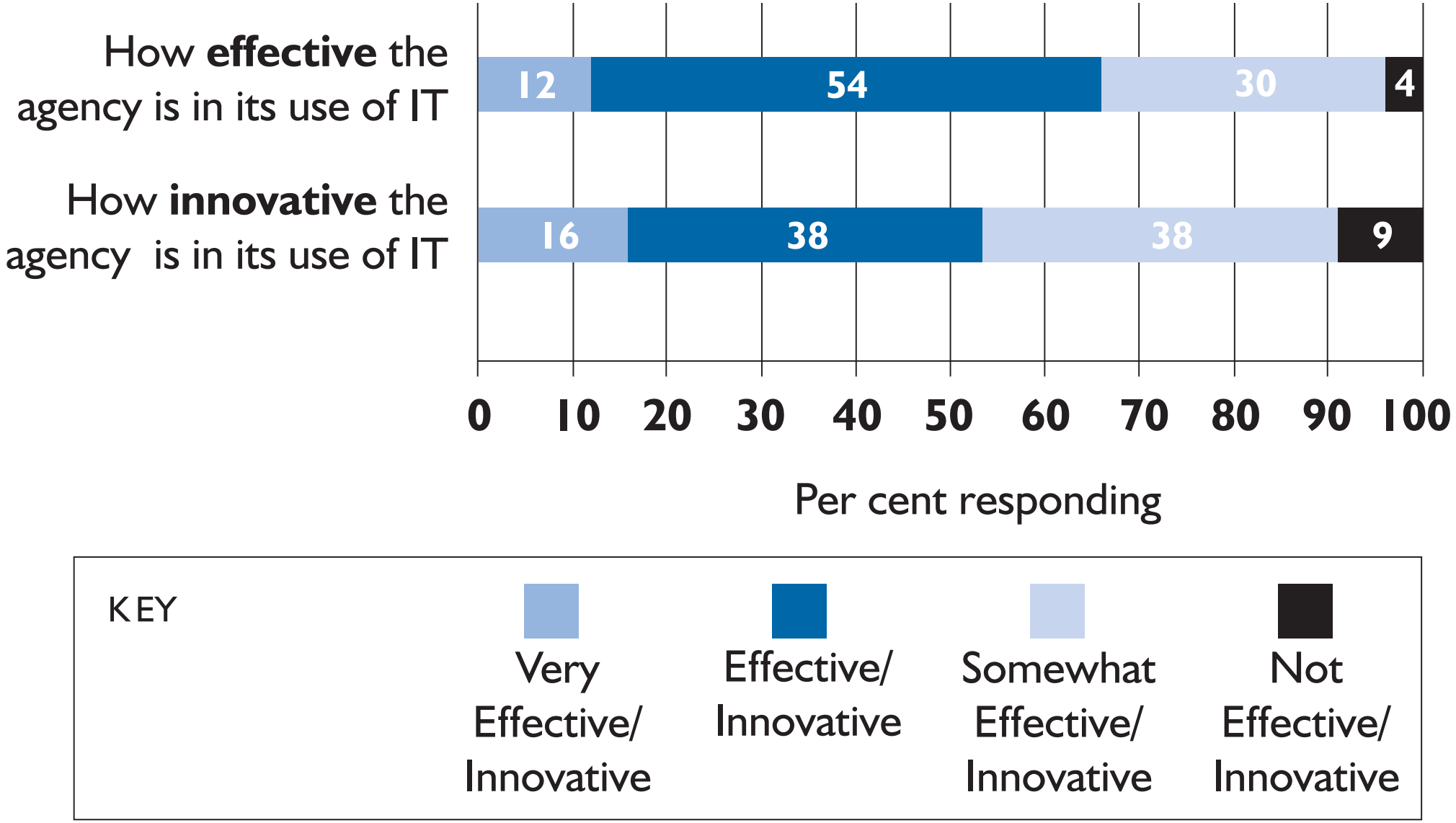
1.27 Towards the end of the period of the study we sought a different view of the development of government Web sites and intranets, by sending a short mail questionnaire to the heads of all the agencies and departments covered in the Web site survey, and a more technical follow-up survey by e-mail to staff whom they nominated in their IT divisions (or a 'new media' section where it exists or a business unit providing content for the Web site). The survey of top officials achieved a 71 per cent response rate (226 replies), and within this sub-group we gained responses from 60 per cent of agencies via the follow-on e-mail surveys of IT/IS managers and other key officials. We are very grateful to all those who responded. Appendix 1 explains how interested readers can obtain the full questionnaires and response patterns.

The effectiveness of Web sites and intranets

1.28 Most chief executives of agencies and permanent secretaries of government departments took a sober view of their organisation's general use of information technology. Half of them responded that their agency was only 'somewhat innovative' or worse, while only one in six rated their agency as 'very innovative' in its use of IT (see Figure 9). Nonetheless two-thirds of chief executives rated their agency as 'effective' or better in its use of IT, while a third made a more qualified response. Four-fifths of responses were from agencies with Web sites. These chief executives also took a realistic view of the effectiveness of their Web site, with only one in five rating their site as very useful, and nearly two-fifths giving a rating of only 'somewhat useful' or below (see Figure 10). Just over one in eight thought that the design and appearance of their Web site was 'very good', while over a third gave a neutral rating or worse to their site.

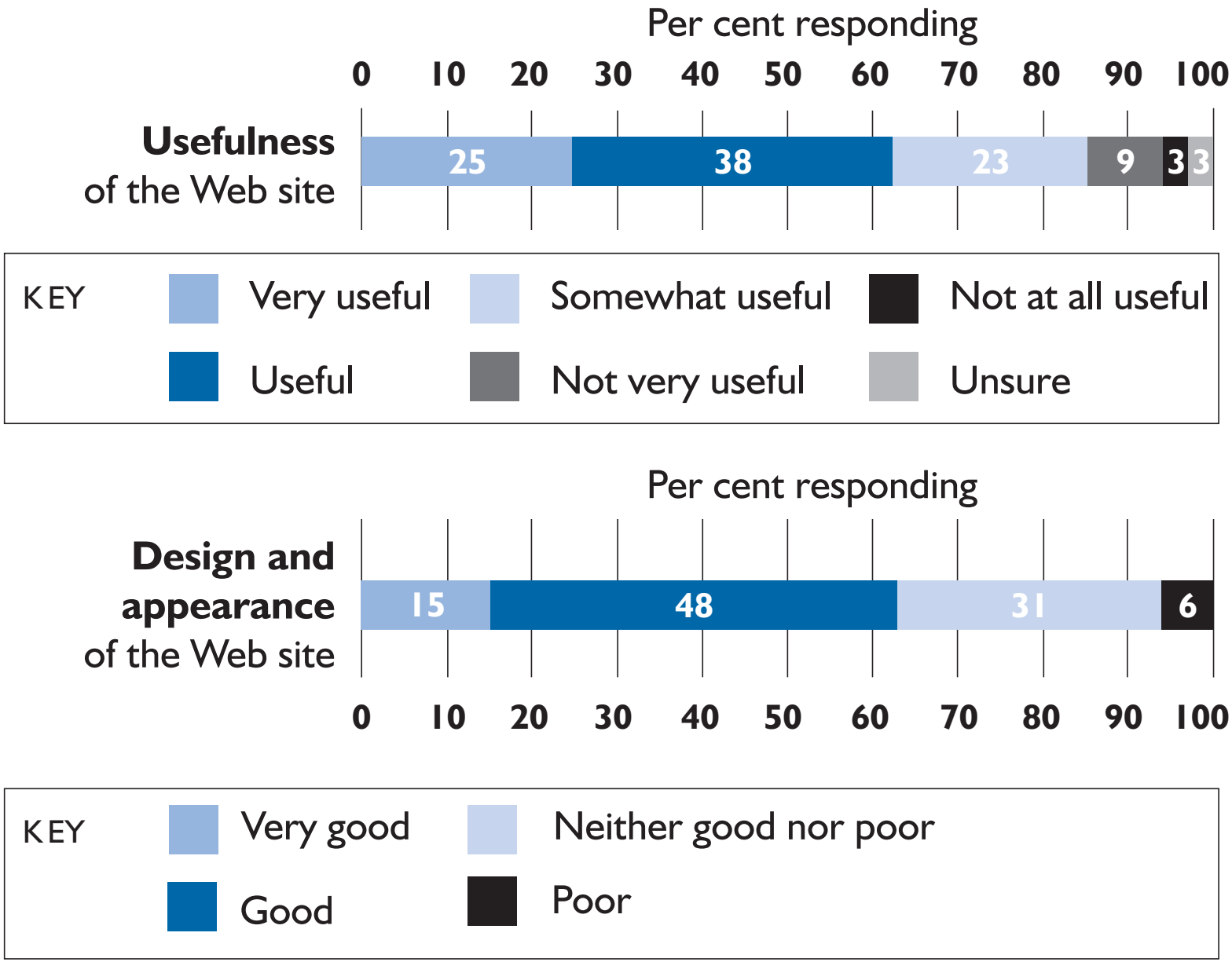
1.29 Over two-thirds of respondents with sites said that they provided news about the agency, an e-mail contact route, Web versions of information brochures and recent press releases (see Figure 11). The next group of features were much less common. Slightly more than a third of top officials said that their sites provided a directory of agency staff or downloadable forms, and just over a fifth said that forms could be submitted on-line or Web access obtained to the agency's databases. Some questions caused more 'Don't know' responses. Chief executives were most unsure whether forms could be submitted on-line, whether there were Web versions of information brochures and whether site users could e-mail the Webmaster.

9 ALL CHIEF EXECUTIVES' ASSESSMENT OF THE EFFECTIVENESS OF THEIR AGENCIES' USE OF IT



SOURCE: LSE SURVEY OF PERMANENT SECRETARIES AND CHIEF EXECUTIVES

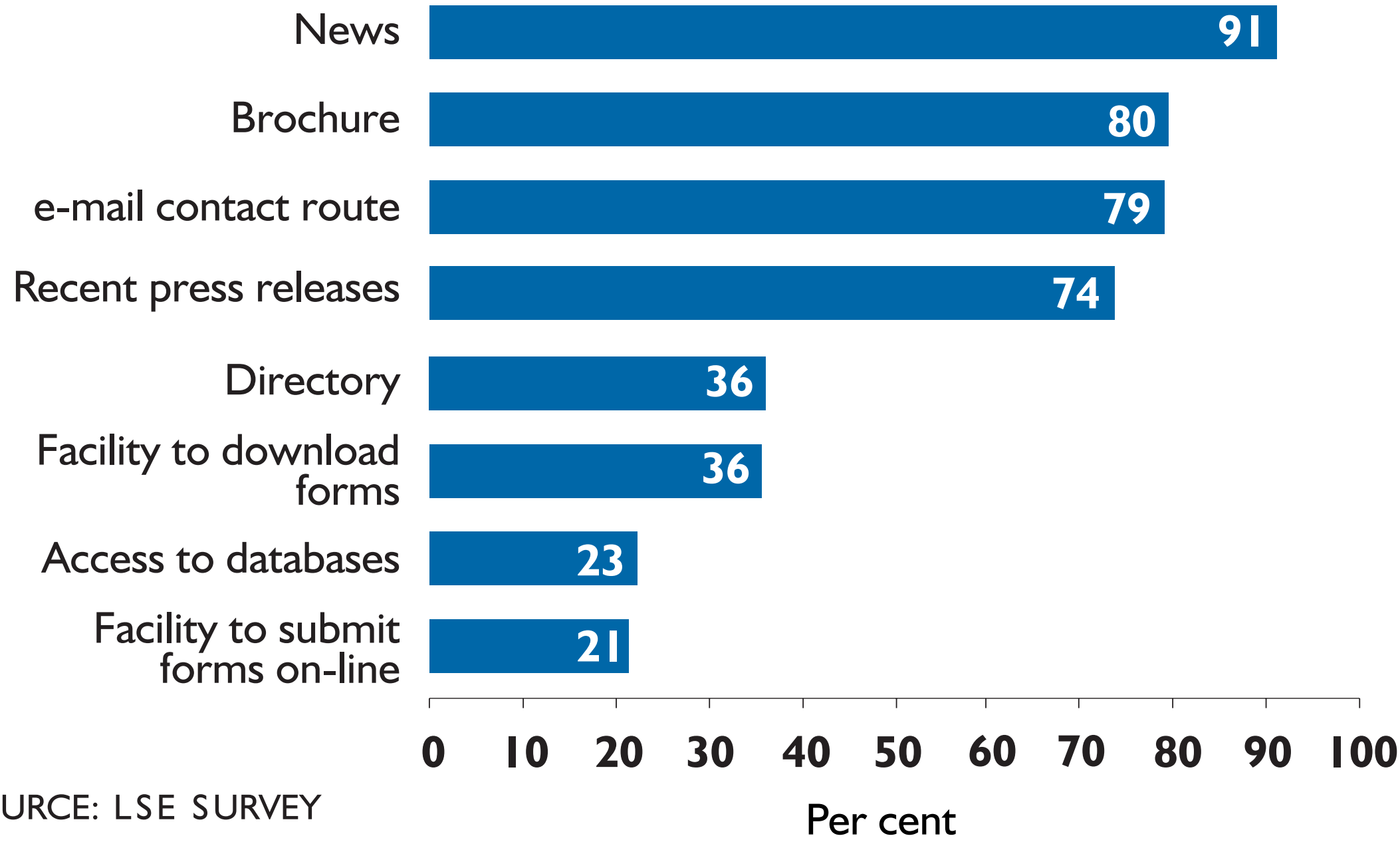
10 HOW CHIEF EXECUTIVES WITH AN AGENCY WEB SITE RATED ITS CURRENT USEFULNESS AND THE DESIGN



SOURCE: LSE SURVEY OF PERMANENT SECRETARIES AND CHIEF EXECUTIVES

11

PROPORTIONS OF CHIEF EXECUTIVES WITH AGENCY WEB SITES REPORTING DIFFERENT FEATURES



SOURCE: LSE SURVEY

1.30 On intranets only three out of ten chief executives responding said that their agency had a full intranet operating, while a further two-fifths said that they had a partial intranet or some networked facilities. Three out of ten agencies do not have an intranet. Three-quarters of chief executives with intranets said that they knew 'a great deal' or 'quite a lot' about what was on them, while a quarter said that they knew 'a little' or less. Among the 145 agencies with some kind of intranet just under half assessed it as 'effective' or 'very effective', while the remainder mainly gave a qualified 'somewhat effective' response (see Figure 12). Just under a third of chief executives either said that their intranet is used by most staff only once a month or less, or said that they were unsure how it was used. Only a third said that their intranet is used daily by staff. The remaining responses fell between these two poles.

Figure 12

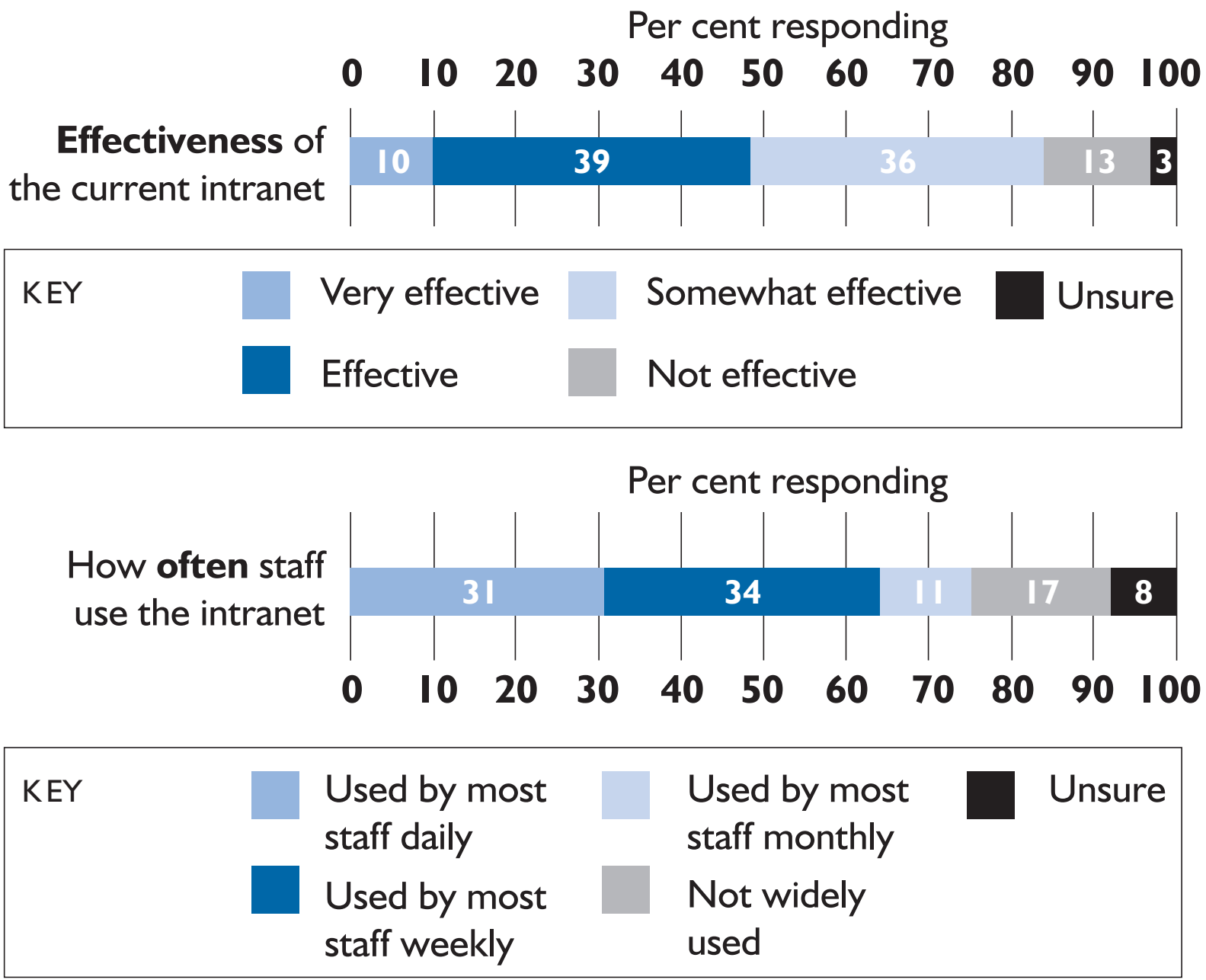
Future trends relevant to government on the Web

1.31 We asked chief executives to rate the current and future importance of having a good Web site for their agency (see Figure 13). Nearly half of respondents felt that it was 'very important' already, and a further two in five rated a Web site as 'fairly important'. Just under one in six top officials felt that it was 'not very important' or less. For the future seven-tenths rated a good Web site as 'very important', and the proportion seeing it as 'not very important' or less fell to one in twenty five (see Figure 14). We also included in the survey two comparison questions drawn from a recent Institute of Directors (IOD) study about whether the Internet could help agencies reduce costs and reach new customers. While only two per cent of company directors in the IOD study felt that the Internet could help cut costs, three out of ten agency chief executives felt that it would be 'important' or 'very important' in doing so. However, a minority of one third of chief executives felt that the Internet was 'of little importance' or less. In the IOD study only four per cent of company directors felt that the Internet would let their company reach more customers, whereas nearly, two-thirds of, agency chief executives rated it as 'very important' or 'important' in this respect. Around a quarter of agency chief executives saw it as 'of little importance'. On intranets half of respondents felt that it was 'very important' for their agency to develop an intranet already, and three in ten felt it was 'fairly important'. Only one in five felt that it was 'not very important' or less (see Figure 14). For the future the proportion rating an intranet for their agency as 'very important' rose to over two-thirds, while those rating it as 'not very important' or 'unimportant' fell to one in ten.

Figure 13

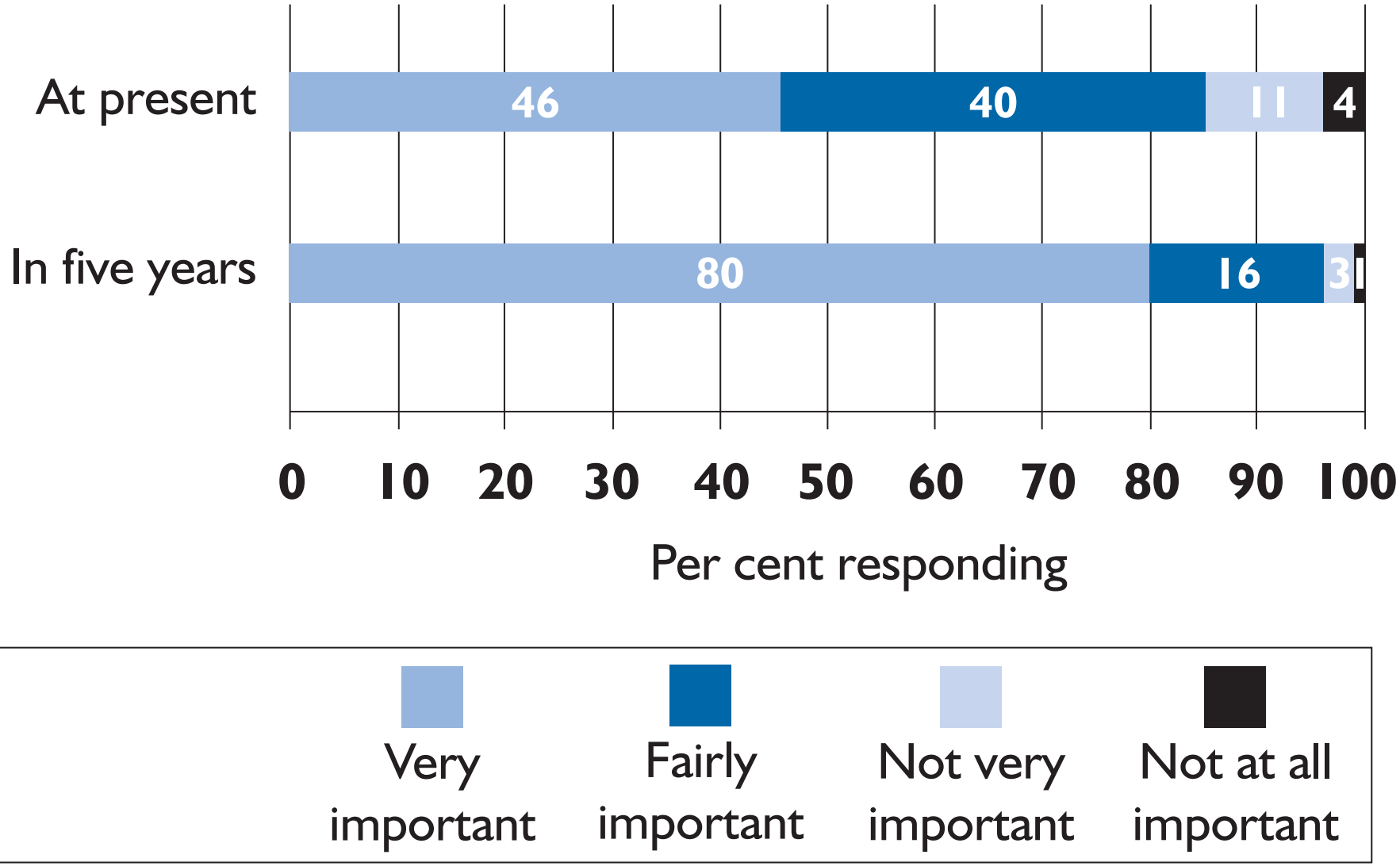
Figure 14

12 HOW CHIEF EXECUTIVES WITH AN INTRANET RATED ITS CURRENT EFFECTIVENESS AND LEVEL OF USE



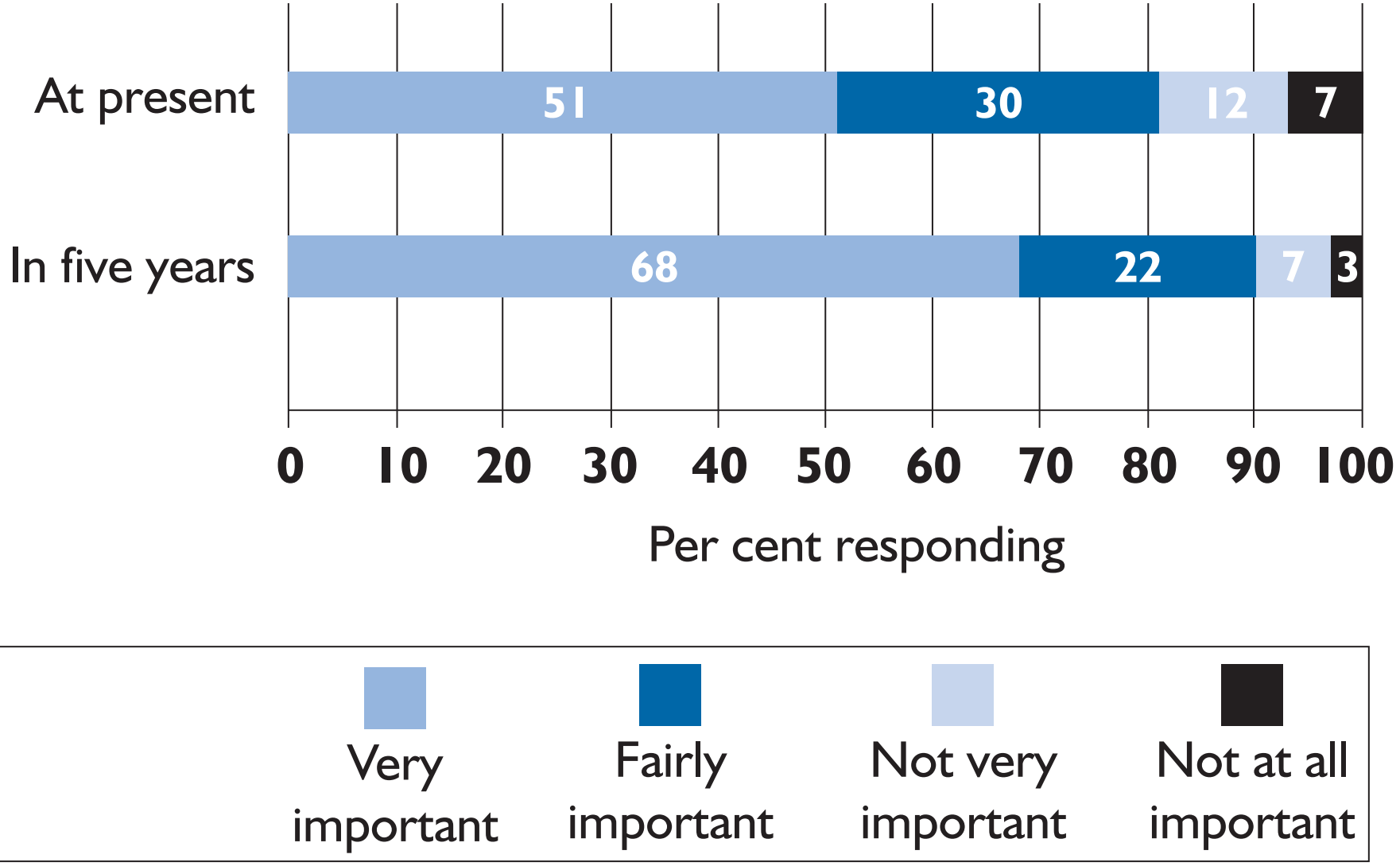
SOURCE: LSE SURVEY OF PERMANENT SECRETARIES AND CHIEF EXECUTIVES

13 HOW CHIEF EXECUTIVES VIEW THE IMPORTANCE OF AN AGENCY WEB SITE NOW, AND IN FIVE YEARS



SOURCE: LSE SURVEY OF PERMANENT SECRETARIES AND CHIEF EXECUTIVES

14 HOW CHIEF EXECUTIVES VIEW THE IMPORTANCE OF AN AGENCY INTRANET NOW, AND IN FIVE YEARS



SOURCE: LSE SURVEY OF PERMANENT SECRETARIES AND CHIEF EXECUTIVES

1.32 We asked permanent secretaries and agency heads to rank the means currently used by citizens to contact their agency, and how they would do so in the future, using a ranking system (see Figure 15). At present the most frequent means was phone contacts which the majority of respondents placed as either first or second in order of importance. Writing a letter was a close runner-up. A long way behind these came meetings with citizens in person, either via visits to front offices or personal appointments. E-mail and accesses to the agencies' Web sites were placed in the top two ranks by almost no respondents, but they did begin to show up more from the third rank downwards. Surprisingly, on a points basis derived from this ranking e-mail would already rate as a more important means of communication than visits to front offices by citizens. We also asked respondents to make the same ranking for five years ahead. The proportion of respondents putting written letters first or second drops dramatically by almost half, while phone contacts are also expected to fall (see Figure 15). Five years on agency heads foresee e-mail being almost as important as written letters on a points-score basis, with accesses to agencies' Web sites not far behind. Personal visits by citizens to offices are expected to decline dramatically in importance also.

Figure 15

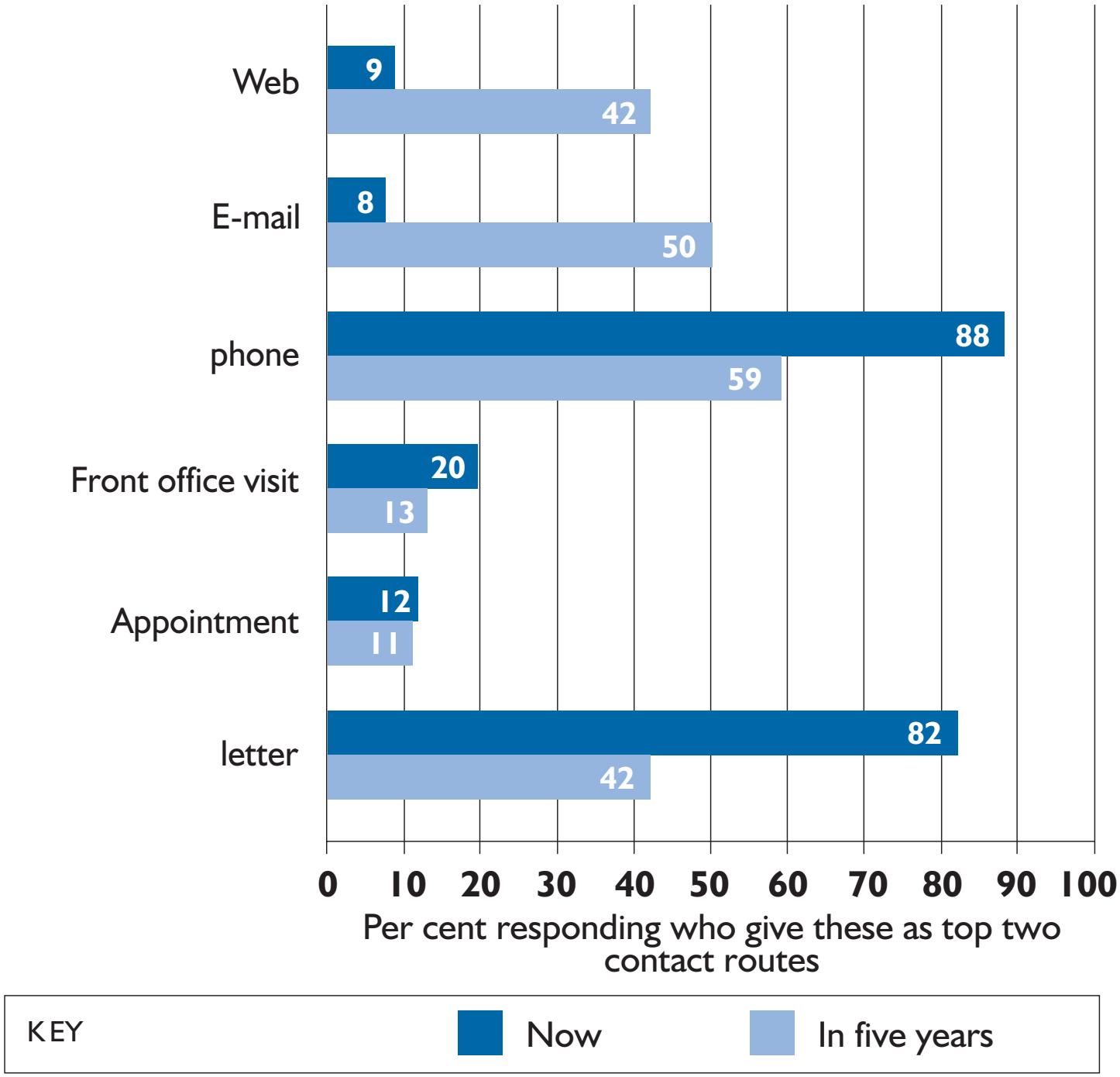
Figure 16

1.33 When we asked agency heads about present and future contacts with companies or firms, the switch-around in expectations is even greater (see Figure 16). At present written letters are clearly dominant in the way that firms contact agencies along with phone calls, while personal appointments are also significant. E-mail begins to show up as important in the second rank already and is the fourth most used contact method overall. Five years from now, in 2004, agency chief executives and permanent secretaries clearly place e-mail as the most important means of communication with firms, surpassing both written letters and telephone. Visiting the agency's Web site comes in fourth position well ahead of personal appointments.

1.34 We also asked agency heads to rank the means used for contacts with other agencies. Their responses about the present situation showed telephone contacts tying in first place followed by written letters, and both are clearly dominant contact modes (see Figure 17). But e-mail is as important as personal appointments in inter-agency contacts already. Agency accesses to Web sites are clearly not seen as important. By 2004 agency heads expect e-mail to have edged ahead of phones as the leading mode of inter-agency contact, and expect written letters to have sharply decreased in importance. Accesses to agency Web sites are expected to increase and become the fourth most important means of communication, easing past personal appointments.

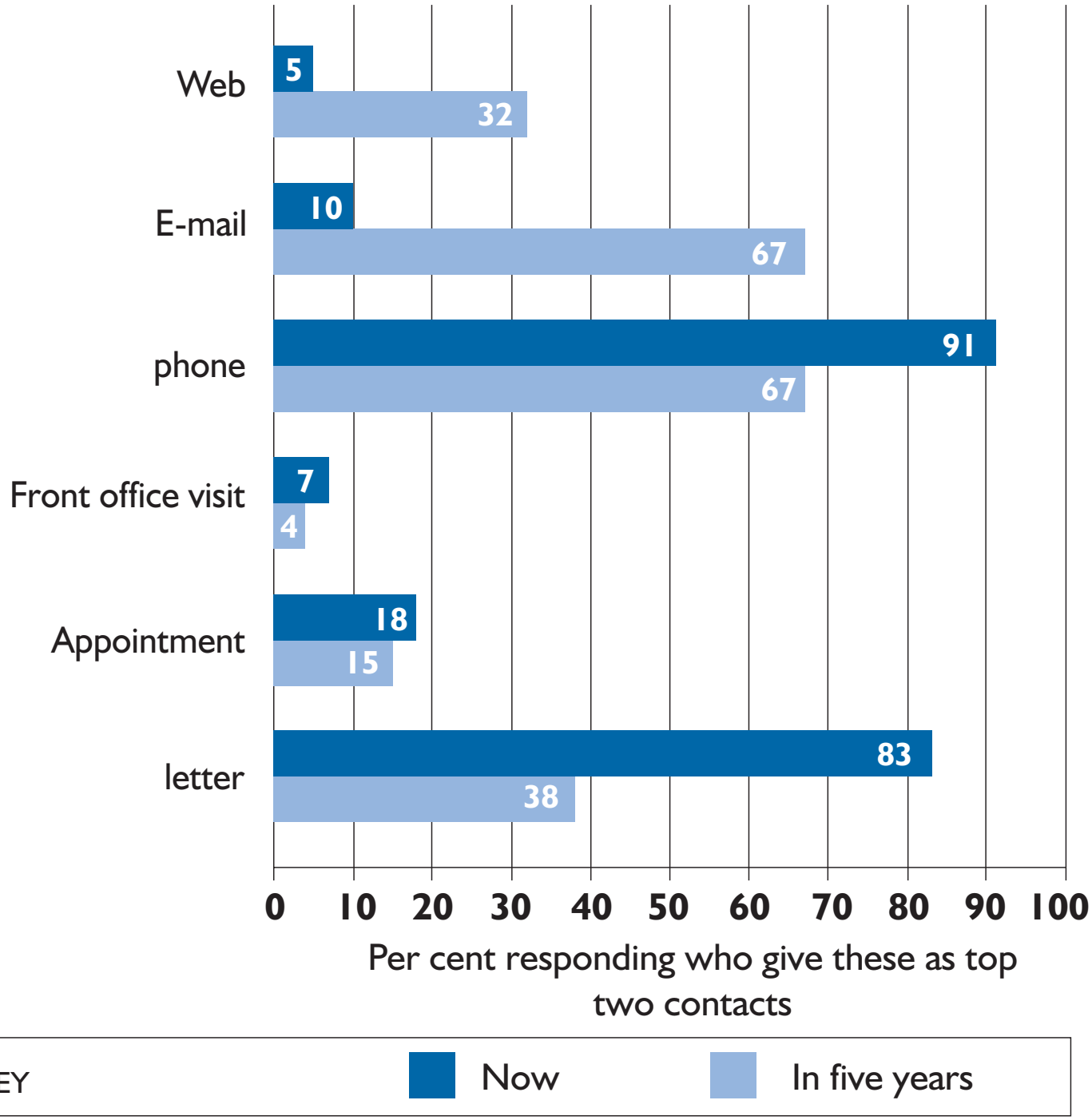
Figure 17

15 HOW CHIEF EXECUTIVES RATE THE IMPORTANCE OF CONTACT ROUTES USED TO CONTACT THE AGENCY BY CITIZENS



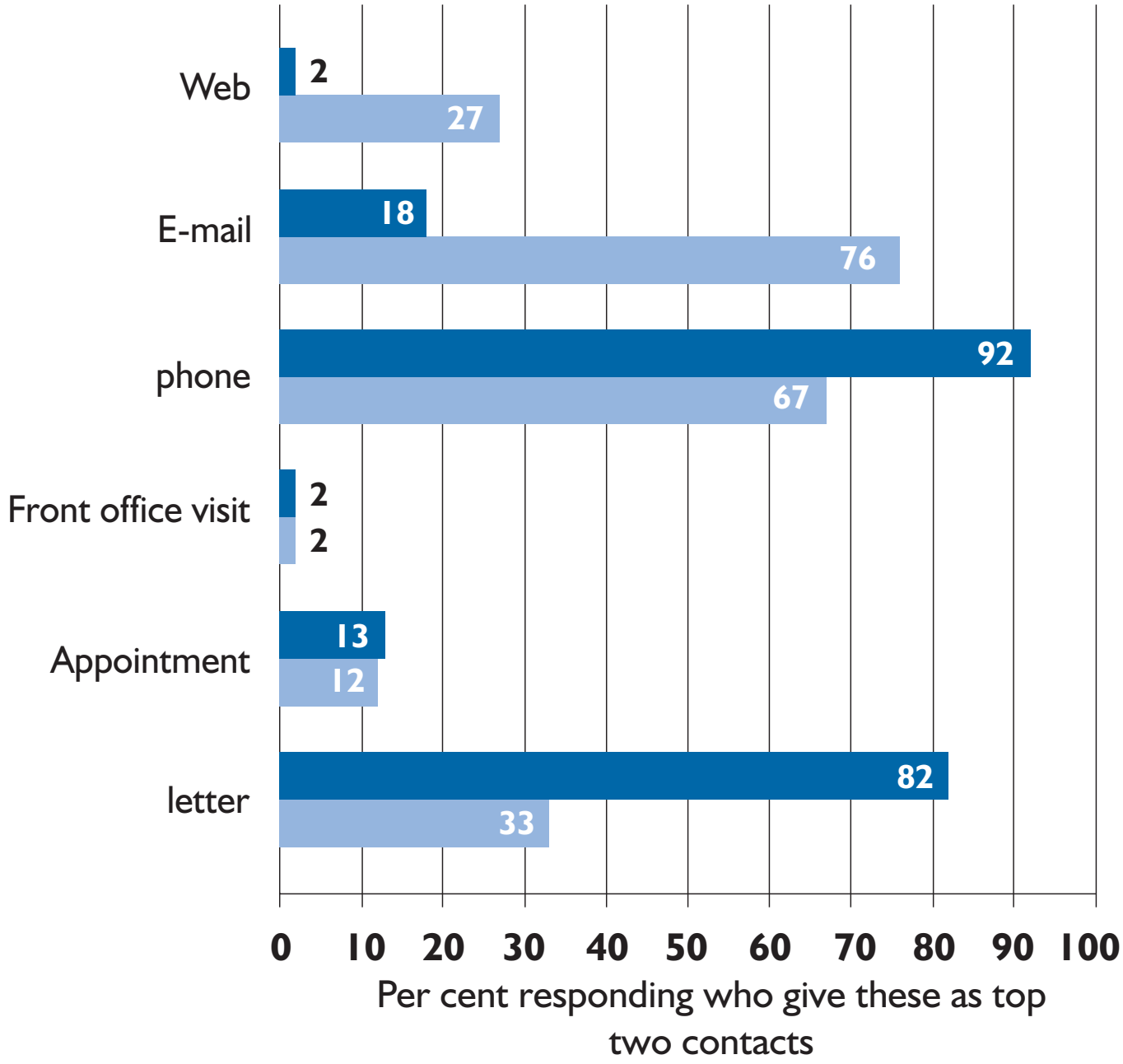
SOURCE: LSE SURVEY

16 HOW CHIEF EXECUTIVES RATE THE IMPORTANCE OF CONTACT ROUTES USED TO CONTACT THE AGENCY BY COMPANIES AND FIRMS



SOURCE: LSE SURVEY

17 HOW CHIEF EXECUTIVES RATE THE IMPORTANCE OF CONTACT ROUTES USED TO CONTACT THE AGENCY BY OTHER GOVERNMENT AGENCIES



SOURCE: LSE SURVEY

Figure 18

Decision-making on Web and intranet development

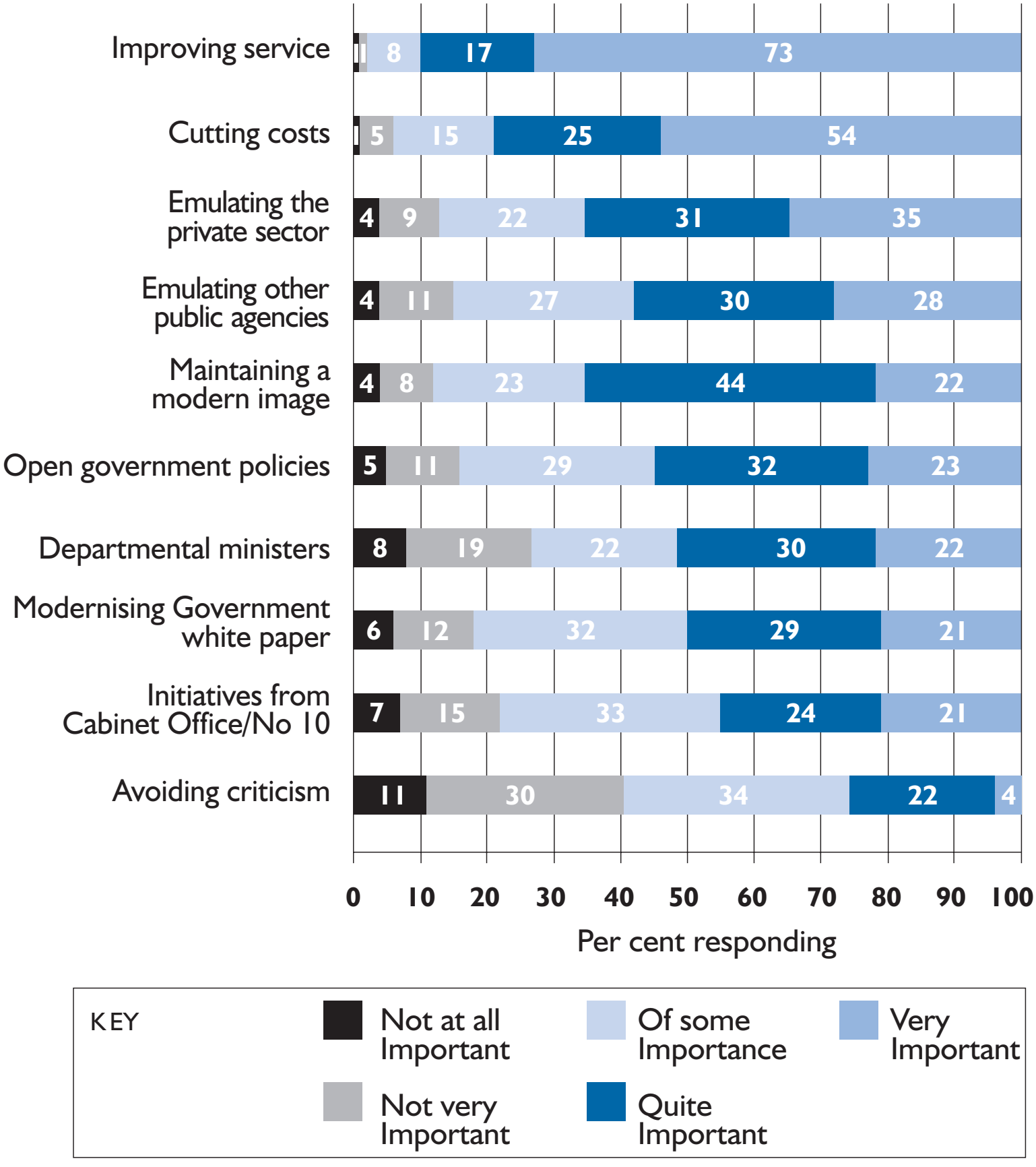
1.35 We asked agency and department heads to assess the importance of various possible drivers for the development of government on the Web. From a list of ten possible factors pushing forward change respondents clearly selected the prospects of improving the quality of their agency's services as the most important influence, followed at some distance by the prospects for saving money or improving efficiency (see Figure 18). In third place, a long way behind, was a concern to match point-of-service improvements in the private sector and then improvements elsewhere in the public sector. Five less important influences more or less tie in fifth place - an anxiety to maintain a modern image for their agency via the Web, policies to encourage open government, the agenda set out in the **Modernising Government** white paper, pressure for change from departmental ministers, and initiatives from the Cabinet Office or Number 10 Downing Street. Only one possible factor, avoiding criticism from journalists or interest groups, is clearly rejected as 'not important' by more respondents than saw it as important.

1.36 Turning to the barriers for the development of electronic communication with citizens, we again offered respondents ten possible factors. On most of these issues chief executives were quite sanguine that problems could be overcome (see Figure 19). The one issue seen as a significant or major problem by three out of five respondents was that many citizens do not have access to a PC or the Internet.

Figure 19

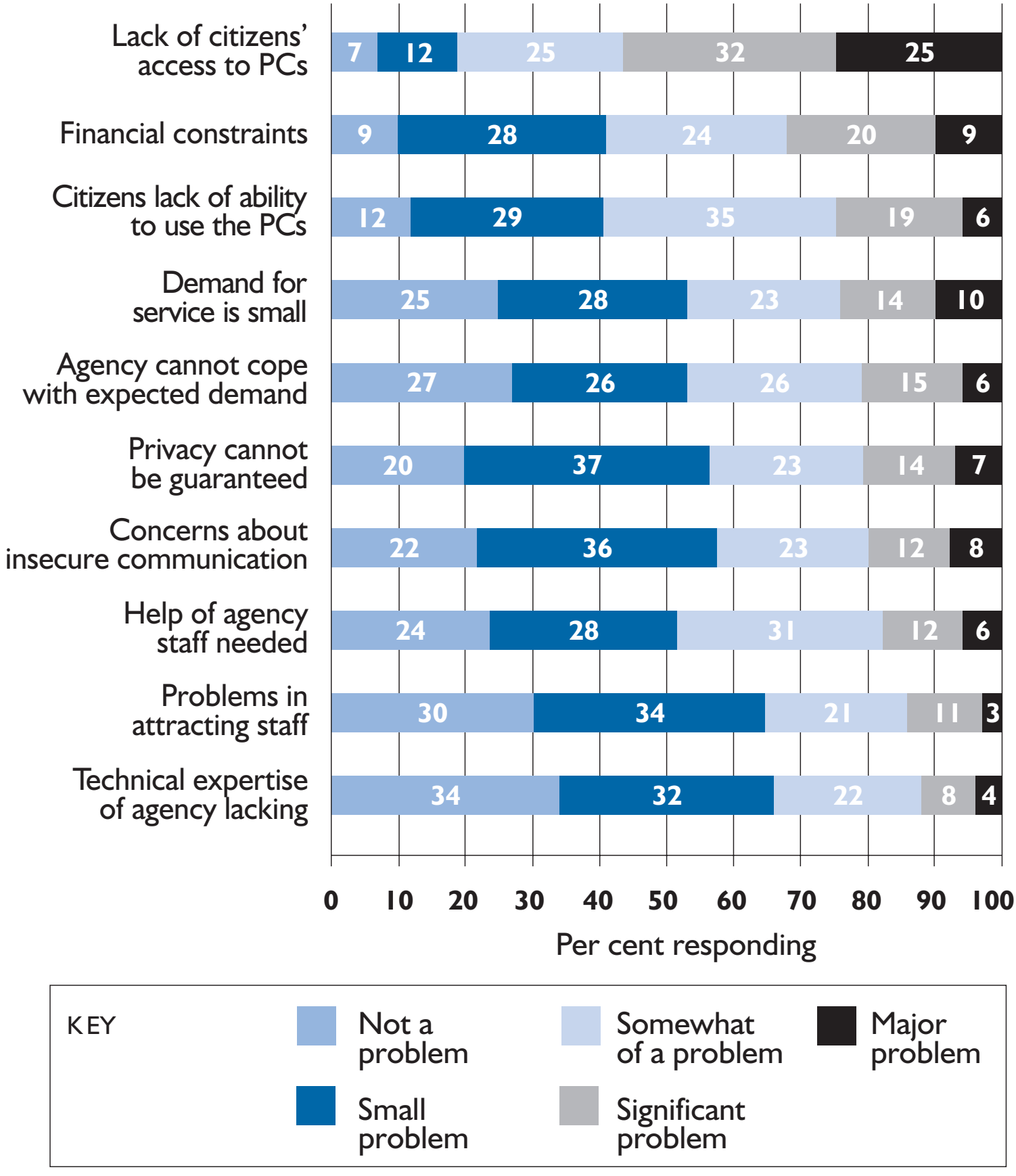
Figure 20

18 HOW CHIEF EXECUTIVES SEE THE MAIN DRIVERS FOR THE DEVELOPMENT OF GOVERNMENT ON THE WEB



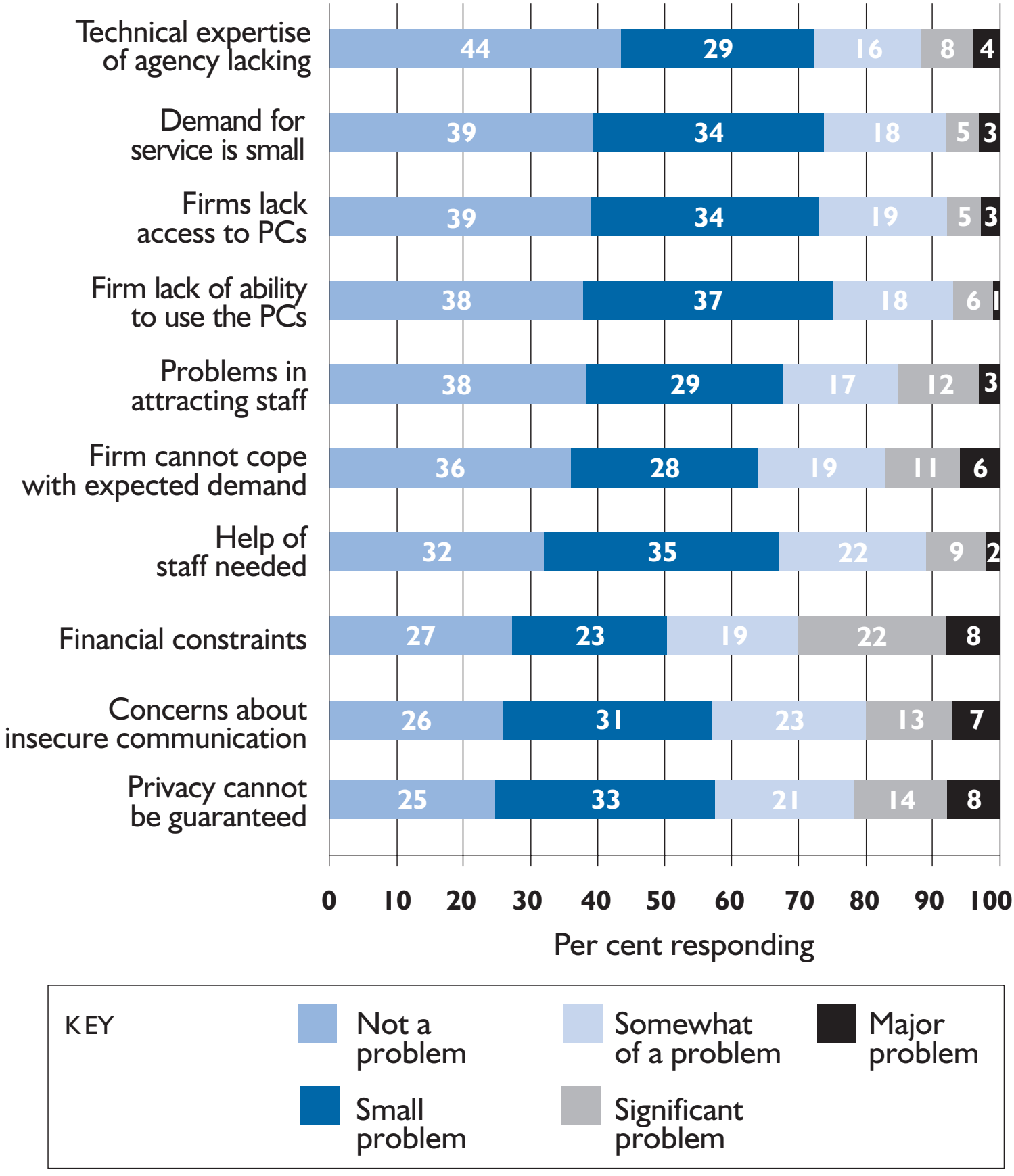
SOURCE: LSE SURVEY

19 WHAT CHIEF EXECUTIVES SEE AS THE MAIN BARRIERS TO THE DEVELOPMENT OF WEB-BASED COMMUNICATIONS BETWEEN GOVERNMENT AND CITIZENS



SOURCE: LSE SURVEY

20 W HAT CHIEF EXECUTIVES SEE AS THE MAIN BARRIERS TO THE DEVELOPMENT OF W EB-BASED COMMUNICATIONS BETWEEN GOVERNMENT AND BUSINESS



SOURCE: LSE SURVEY

Three out of ten respondents see the financial costs of developing Web sites or e-mail facilities as a barrier (but nearly half see only a small problem or less here). Just over a quarter of agency heads said that there was no public demand for electronic communication with their agency. For the remaining possible factors limiting electronic dialogue with citizens the bulk of responses indicated that they are either 'a small problem' or only 'somewhat of a problem'. Turning to the possible barriers to electronic communications with firms the picture was quite different (see Figure 20). Only one in sixteen agency heads saw a 'significant problem' with firms not having access to a PC or the Internet, and indeed relatively few problems were detected across any of the ten possible factors we offered. One in three agency chief executives felt that the financial costs of developing Web and e-mail facilities would be a 'significant problem' (but almost half did not). Around one in five agency heads identified possible significant problems also with communications with companies being too insecure, not being able to guarantee the privacy or confidentiality of information provided via e-mail or the Web, and not having the capacity to cope with the likely scale of demand for e-mail or Web communication from firms. But in each of these cases more than half of the respondents rated the factor only 'a small problem' or 'not a problem at all'.

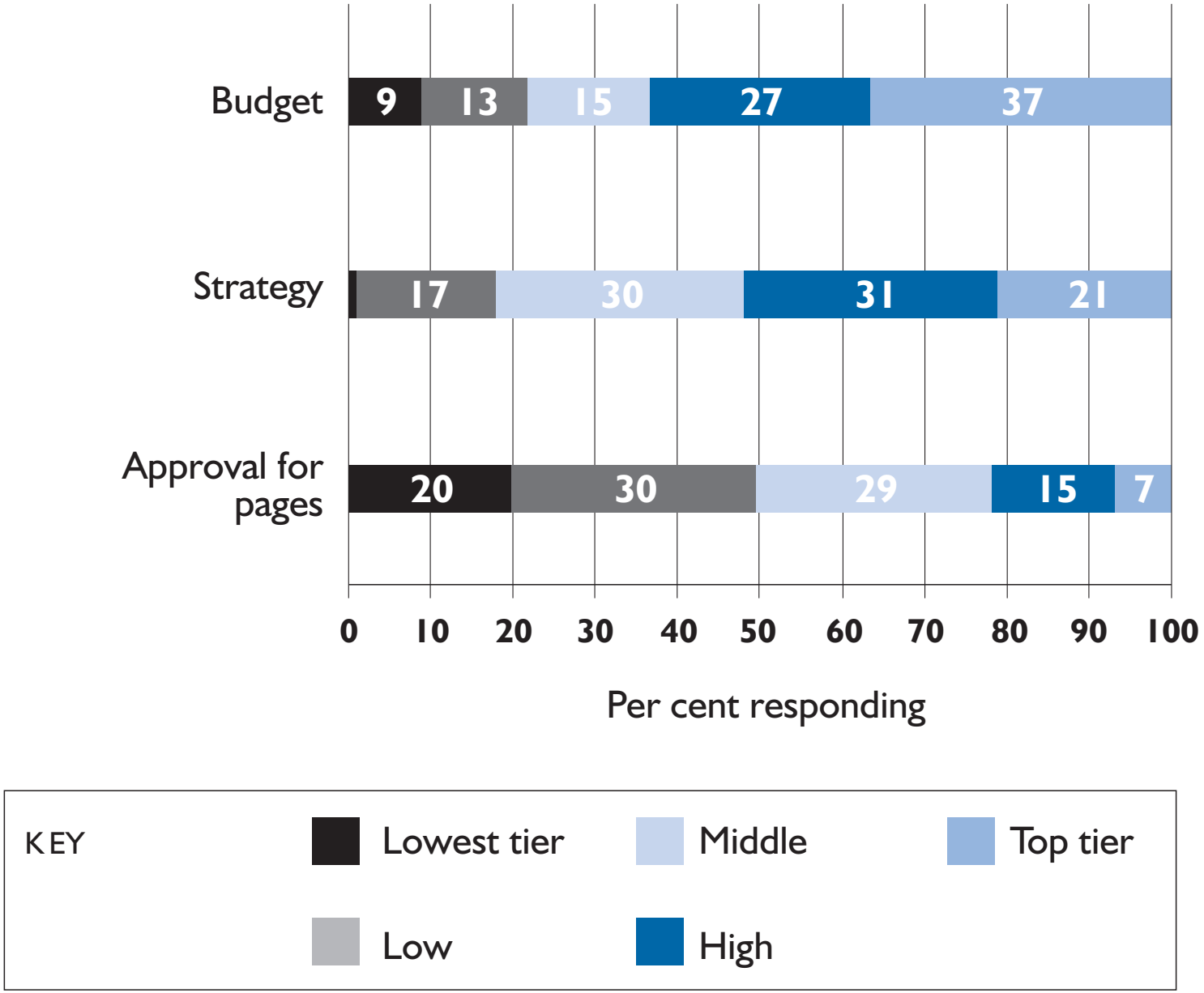
1.37 In our interviews and case studies we gained the impression that the management control of Web site costs and strategies was rather fragmented in some agencies, while control over intranet investment was generally somewhat more centralised. We asked agency heads to place their organisation on scales indicating how centralised or decentralised they saw the decision making on different aspects of Internet and intranet developments taking place in their agencies (see Figure 21). The aspect of Web developments which emerged as most centralised was the setting of budgets, with over-third of respondents giving the most centralist response here. Nearly two-thirds of chief executives ticked this centralist option and its near neighbour for budget-setting. By contrast fewer than one in ten chief executives said that their 'budget for Web and intranet development falls wholly within the business units' budgets'. Responses on budgets were clearly polarised here between a majority grouping giving the two most centralised responses, and a fifth of responses endorsing the two most decentralised options. On strategy for the Internet and intranets only a fifth of chief executives gave the most centralist response, that 'all strategy is set at board or top level', but nearly a third gave the next most centralist option. Virtually no chief executive gave the most decentralist option on strategy, but one in six responses gave the second most decentralised option here. On the authorisation of Web pages one in twelve agency heads said that 'Web pages must be approved at ministerial or top management level', but twice as many said that 'authority for Web pages is completely decentralised to business units'. The weight of responses here was firmly on the neutral to decentralised part of the scale.

1.38 Asked to assess separately the importance of various actors in setting Web and intranet strategies, nearly three out of five agency chief executives rating their top level board or management as 'very important', and less than one in ten ranked them as 'not very important' or lower (see Figure 22). The IT or IS division came second in importance, closely followed by the marketing or publicity section. Major business units came a good deal lower in the first two ranks taken together, with library or information/research divisions running fourth. Around two-fifths of agencies placed a new media unit or new media staff as important influences on Web and intranet strategy, but in just as many agencies there were no such units or staff.

Figure 21

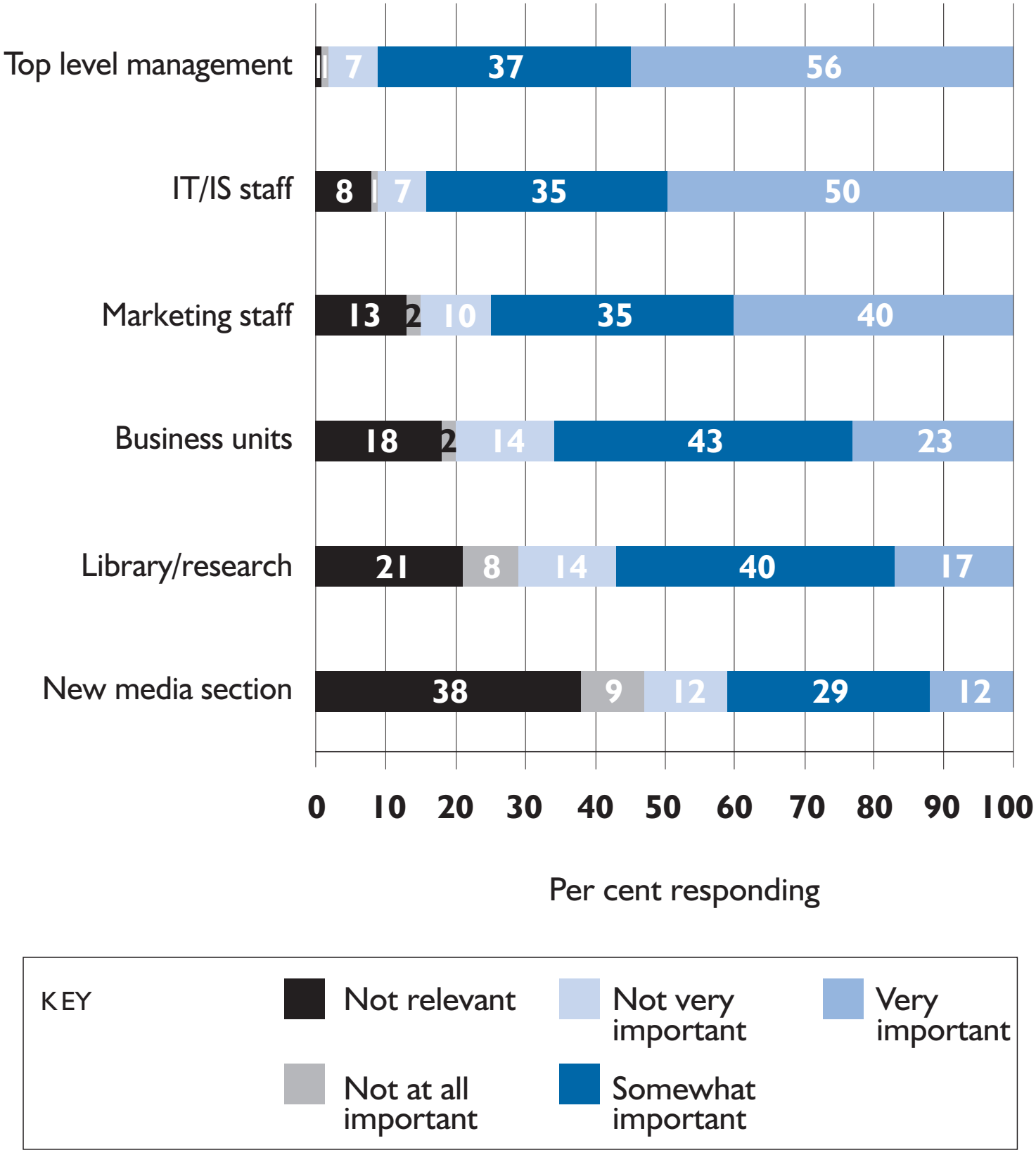
Figure 22

21 WHERE CHIEF EXECUTIVES SEE DECISION-MAKING ON DIFFERENT ASPECTS OF INTERNET AND INTRANET DEVELOPMENTS TAKING PLACE IN THEIR AGENCIES



SOURCE: LSE SURVEY

22 HOW CHIEF EXECUTIVES ASSESS THE IMPORTANCE OF DIFFERENT DIVISIONS WITHIN AGENCIES IN SETTING POLICY ON WEB ISSUES



SOURCE: LSE SURVEY

Figure 23

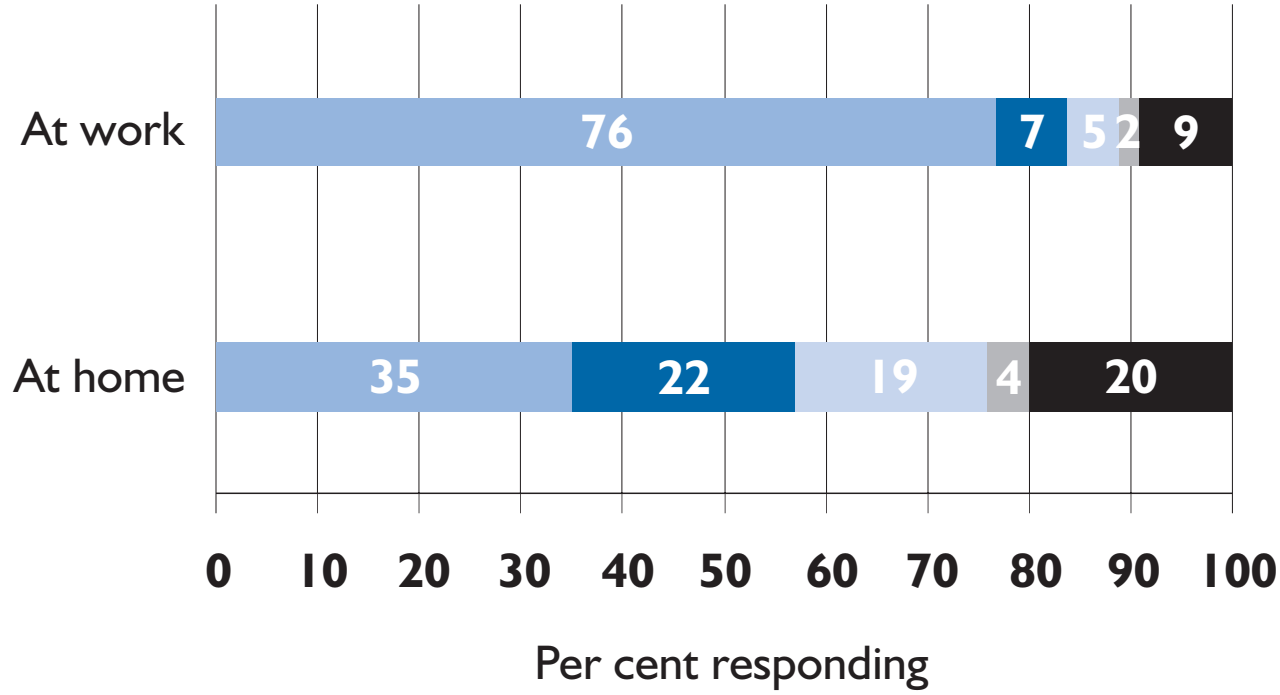
Figure 24

Figure 25

1.39 Departments' and agencies' decisions about Web and intranet developments will often be significantly influenced by the view of information and communication technologies taken by permanent secretaries or chief executives, which in turn will partly reflect their personal experiences with ICTs. We also asked our senior respondents to say how much they personally used a PC or the Internet at home and work, and compared their responses with those of company directors in the Institute of Directors 1999 survey, with whom they seemed very comparable. Figure 23 shows that four-fifths of agency heads use a PC four or more times a week at work - chiefly for reading or sending e-mails, followed a long way behind by working on documents. At home department and agency heads also frequently use PCs, mostly for working on documents. Relatively few (one in sixteen) used a PC at home for playing games or helping their children with homework, both activities which are more Internet-related. When we asked respondents to assess their level of expertise in using PCs (see Figure 24) two-thirds saw themselves as 'very' or 'fairly proficient', and one-third as 'not very proficient'. But only two in five agency heads saw themselves as 'very' or 'fairly proficient' about the Internet, while a similar number rated themselves as 'not very proficient'. One in six have had no experience of the Internet.

1.40 We asked chief executives whose agency or department has a Web site how often they had time to visit or view it. One in five respondents look at it only either 'every six months or so' or 'once a year or less'. But a quarter of agency heads looked at their sites once a week, and just half looked at them once a month (see Figure 25). One in three respondents felt they know 'a great deal' about what was on their agency's Web site, and half felt that they know 'quite a lot', leaving a fifth who know only 'a little' or less. Figure 26 shows that there is a strong association between the frequency with which chief executives looked at their Web site and how much they felt that they knew about it. Those who looked at their site once a week were 20 times more likely to say that they knew 'a great deal' about the site compared with chief executives who did so only every six months or less. We asked the smaller group of respondents whose agency has an intranet how often they have time to access it. Over half of agency heads accessed their intranet once a week, and a further quarter once a month. But over one in six agency heads only accessed their intranet less frequently than every three months. Three-quarters of agency heads feel that they know 'a great deal' or 'quite a lot' about what is on their intranets, but a quarter say they only knew 'a little' or less.

23 HOW OFTEN CHIEF EXECUTIVES USE A PC AT WORK AND AT HOME

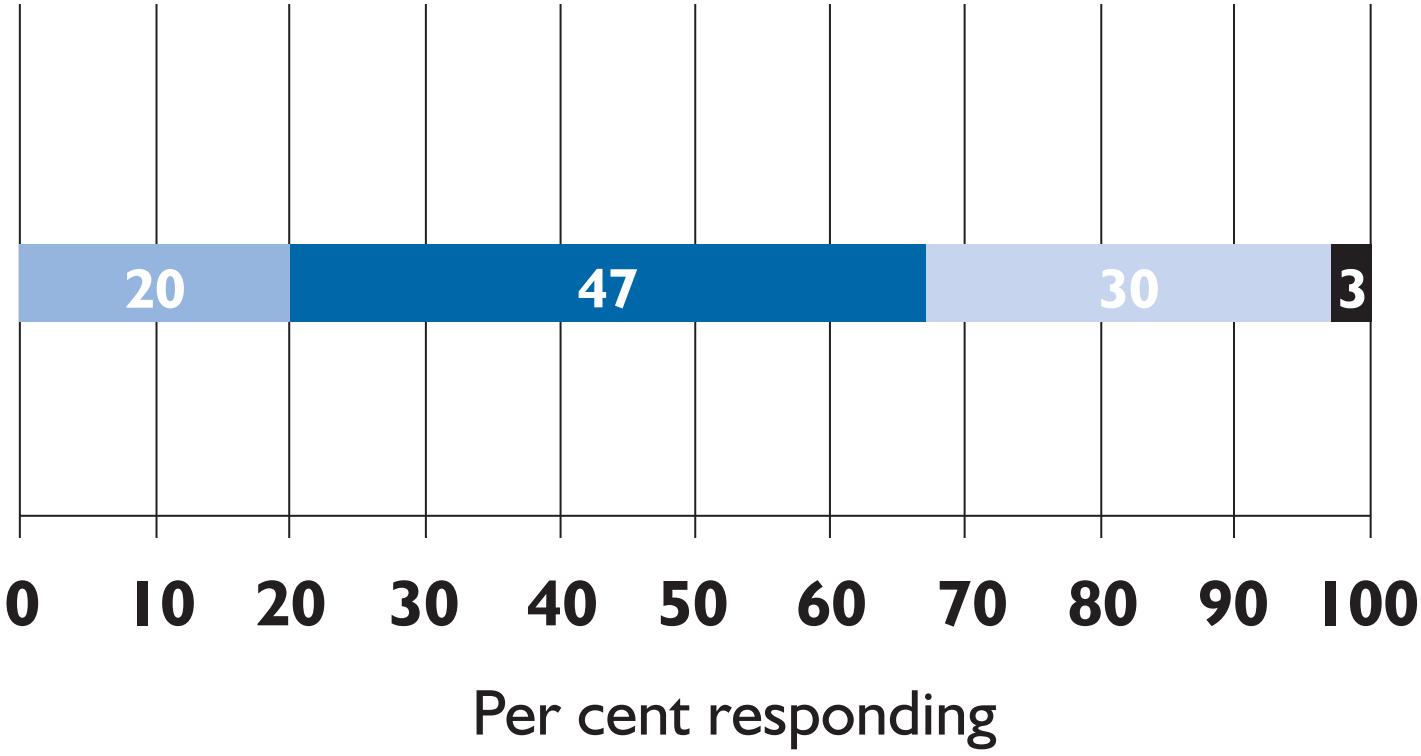


KEY

- Four times a week or more
- Two or three times a week
- Once a week to once a month
- Less than once a month
- Don't use

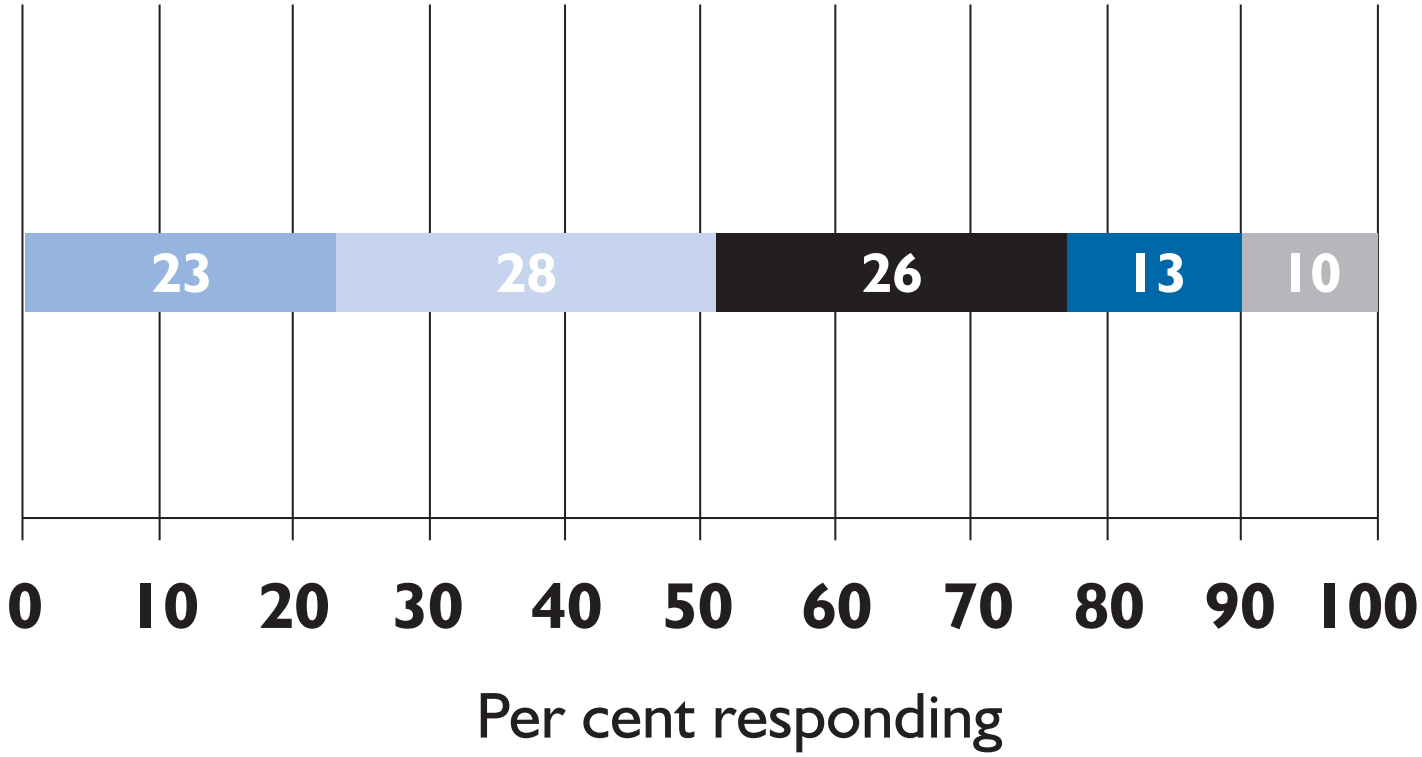
SOURCE: LSE SURVEY

24 CHIEF EXECUTIVES' ASSESSMENT OF THEIR PROFICIENCY IN USING A PC AND THE INTERNET



SOURCE: LSE SURVEY

25 HOW OFTEN CHIEF EXECUTIVES IN AGENCIES WITH WEB SITES VIEW THEIR SITE



KEY

- Every week
- Every month or more
- Every 3 months or so
- Every 6 months or so
- Once a year or less

SOURCE: LSE SURVEY

Figure 26

Conclusions

1.41 The development of British government on the Web has made a significant start. In December 1998 our coders found a pretty mixed picture, with only half of central government departments and agencies present on the Web, with fairly basic Web sites for the most part, with relatively poor contact routes signalled for citizens, rather weak overview, and features generally limited to relatively basic information-giving. But during the first six months of 1999 the number of government Web sites grew, and a significant proportion of existing sites were relaunched, improved or expanded with new features. All the existing government Web sites offer users some important benefits, including (for instance):

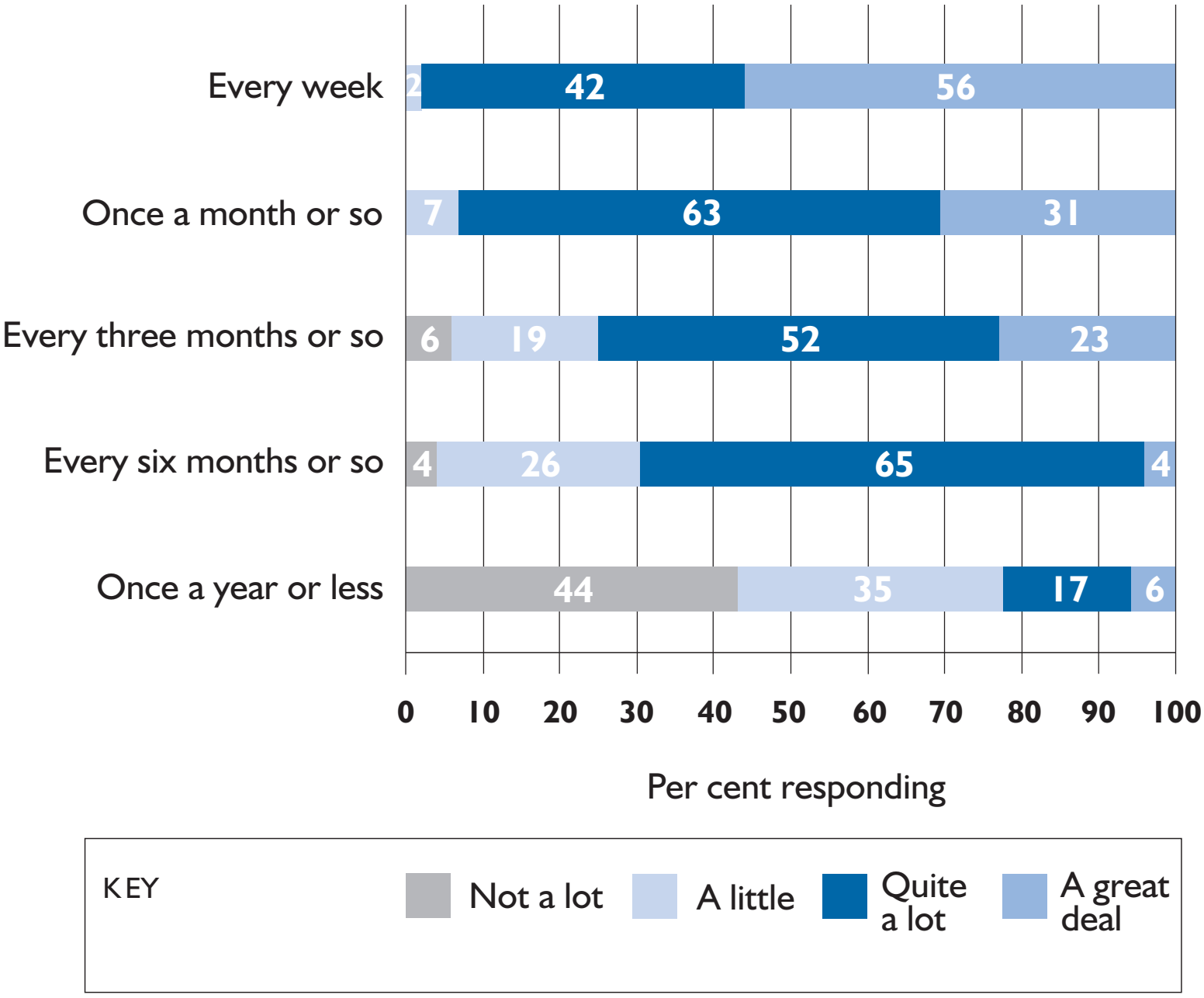
- 24 hour access to government information (although a few database accesses shut down overnight because of batch processing operations);
- immediate responses to information, plus the ability to search for individually tailored information; and
- fast updating of information, with press releases and new policy documents immediately available.

1.42 There are also encouraging signs of future trends already apparent in some government sites. The Department of Environment, Transport and the Regions has a well-designed home page, and also provides detailed guidance for citizens and external contacts in firms and local authorities on exactly whom to e-mail or phone within the Department across numerous different issues. The Inland Revenue offers users an electronic version of its simplest tax return form: the form can be downloaded over the Internet or supplied on diskette, and helps users to fill in details in constructive ways - but it must still be submitted on paper, not electronically. The Revenue's Web site also allows users to download and print off the full forms in a simpler write-in format, together with numerous information booklets. The revenue is introducing an Internet filing service enabling electronic submission from April 2000. The diskette will be replaced by a CD-ROM which will also allow electronic submission, and the Revenue is working with software developers so that commercial versions will be available. The Revenue plan to introduce a similar service for PAYE returns and forms later in 2001/2002. A number of agencies already provide free access to their databases allowing citizens or firms to make sophisticated enquiries and have them answered in a 'zero touch' way, notably Companies House and the Patent Office on business-related issues (see Part 3 below) and the Highways Agency, which provides valuable advice on the incidence of traffic jams.

1.43 Top civil servants mostly recognise that the advent of e-mail and the Internet implies very rapid changes over the next five years in how their agencies interact with citizens, firms and other public sector agencies. They understand also that their own agencies are mostly just beginning a transition to 'information age' government. Top managers in the civil service are certainly as PC-literate as their private sector counterparts, and their evaluations of the impact of the Internet on their agencies seem much more forward looking and realistic about the prospects for cost containment and reaching new clients or customers which it opens up. Their current emphasis is more on e-mail than the Web, but we shall see below (in Part 4) that they are also confident of being able to grow the proportion of electronic transactions which they undertake. On intranets top officials also recognise considerable potential, but do not yet seem to make extensive use of intranets themselves.

1.44 Comparing British departments and agencies with their overseas counterparts in Germany, Australia and the USA suggests that UK government is neither a prominent pioneer of government on the Web, nor yet a laggard (see Comparator B). Some overseas agencies are undoubtedly well ahead of their British counterparts. In the United States (where Internet access is much greater) some 70 million taxpayers submitted electronic returns in 1998-99 to the Internal Revenue Service, whose Web site offers a much more sophisticated service than does the Inland Revenue. The US Environmental Protection Agency provides individually specific and instant information on local environmental hazards to users who type in their postcode. And the US Social Security Online site is far ahead of its British counterpart. Similarly in Australia (also with much higher PC and Internet access) the social security and tax systems are much further advanced towards electronic access than in Britain. However, British departmental and agency sites are generally somewhat further advanced than their German counterparts (where Internet access levels have historically been less).

26 THE ASSOCIATION BETWEEN HOW FREQUENTLY CHIEF EXECUTIVES VIEW THEIR AGENCY'S SITE AND THE AMOUNT OF KNOWLEDGE THEY HAVE ABOUT WHAT'S ON THE SITE



SOURCE: LSE SURVEY

part two

dealing with citizens: the DSS

2.1 The Department of Social Security (DSS) and its component business units administer the payment of nearly £100 billion of welfare benefits annually and are among the most important points of contact between citizens and central government throughout Great Britain. The Department estimate that around 70 per cent of the population are in contact with them at any given time.

DSS organisation and ICT strategies

2.2 The department is organised into five main business units whose main functions and organisational characteristics are shown in Figure 27. The Benefits Agency runs a large headquarters in Leeds. The vast bulk of running costs and employees are concentrated in the Benefits Agency which administers benefits including income support and incapacity benefit through a comprehensive array of over 400 local offices across Britain, managed from 109 district offices and 13 area directorates. Other benefits including retirement pension, child benefit and disability living allowance are administered through national benefit processing centres in Newcastle, Blackpool and Washington. The Child Support Agency collects child support payments from non-resident parents, employing a substantial staff in six regional offices which undertake all the main processing of claims. The War Pensions Agency (WPA) is a more discrete body based in Norcross, but with local welfare offices also, which administers and pays war disablement pensions and war widows pensions. Finally ITSA (the Information Technology Services Agency) provides or manages a range of IS/IT services (including contract management and advice) for DSS and its agencies from its main operating centres in Blackpool, Lytham St Anne's, Newcastle and Washington. During the early 1990s the agencies operated relatively independently on 'Next Steps' lines, but only ITSA has a service agreement with DSS headquarters. There has been more 'corporate' emphasis in policy making since 1997 and closer relations with the Department for Education and Employment (DfEE). In April 1999 the Contributions Agency (which collects National Insurance contributions from employees) was transferred from DSS to the Inland Revenue.

2.3 Historically the DSS's approach to ICT issues has been dominated by the demands of running large, complex and long-lived 'legacy systems' for recording people's details, assessing their eligibility for benefits and making payments, which contain millions of lines of code. The legacy systems are updated in response to legislative changes and the evolution of business processes, but for other improvements DSS has always focused on infrequent major renewal projects, involving large investments phased over long periods. The most recent was the 'Operational Strategy' to transform DSS (especially BA) work practices over 15 years, launched in the early 1980s. The programme automated many of BA's administrative operations and brought on-line computing into DSS operations for the first time. But it did not achieve planned staff reductions or service quality improvements and was never fully completed. In the 1990s the management of most main DSS systems was progressively transferred from direct operation by ITSA to private-sector contractors, notably EDS, under large-scale, long-term contracts. In 1993 the Child Support Agency was set up as a new agency with computer systems of limited functionality - for instance, using dumb terminals instead of networked PCs. Throughout the period, DSS also developed many local IT applications and undertook smaller initiatives to improve interactions between existing systems. All the locations from which access to DSS systems are required are supported by IT network and desktop services provided through ITSA by appropriate suppliers. The capacity of such existing arrangements, particularly in individual field offices, will prevent full deployment of Web-based facilities unless significant further investment can be justified. Central office locations are less of a problem but further investment (for example, for GSI connection) is still required.

In this Part:

The organisation of DSS and its ICT strategies

Levels of Web access amongst DSS customers

How Web sites developed within DSS

Strategies for Intranets in DSS

Future prospects

27 THE STRUCTURE OF THE DEPARTMENT OF SOCIAL SECURITY IN 1998-99

Business unit	Main functions (agency type)	Total Programme spend £m	Running costs £m	Running costs as per cent of spending programme	Staff numbers in FTEs	Running costs per staff FTE in £
DSS Headquarters	Policy-making, research, management: (control agency)	234	234	100	1,700	£137,650
Benefits Agency	Paying benefits: (transfer agency)	79,258	2,464	3	67,000	£36,780
Child Support Agency	Collecting child support payments: (taxing agency)	231	231	100	7,500	£30,800
War Pensions Agency	Paying War-related benefits: (transfer agency)	1,268	37	3	900	£41,000
ITSA	Organising IT projects: (servicing agency)	318	318	100	2,000	£159,000

Note: The number shown for ITSA's total spend is its total turnover, which is chiefly financed by the sale of services to DSS and other government agencies.

SOURCE: DSS

2.4 The current ICT strategy aims to integrate the department's assortment of nearly 200 mainframe computers, most of which deal only with particular benefits and have at best limited inter-connectivity with each other. This pattern of organising and storing information greatly limits the department's ability to develop 'active modern services', to which it is now committed as a programme ideal. At present citizens have to be asked for their personal details many times, many local office processes are still paper-based, officials cannot easily read across from entitlements on one benefit to claimants' position on other benefits, and there is a considerable scope for fraud in some areas. The planned solution is the ACCORD project which may entail spending up to £3,500 million over ten years to modernise and connect up the department's main computer systems, and radically improve back-office business processes. (Some computer press estimates of the total value of ACCORD work have been much higher, at £7 billion. But the total budget for ITSA, which manages DSS's main outsourced contracts and undertakes internal development work, is only £318 million annually - so such estimates would imply almost a doubling of current levels of IT spend). Under ACCORD the department has committed to framework deals for a series of private finance initiative (PFI) contracts for modernising its systems with three consortia - Affinity, Arcway and 1Accord - with the leading IT companies EDS (Electronic Data Services), British Telecommunications (BT) and ICL Limited as prime contractors. Affinity have been selected as 'preferred service provider'.

2.5 These ICT plans play a central role in a wider DSS strategy to 2005 for dealing with four main customer groups - people of working age, families with children, disabled people and pensioners. Working age people will have an interview with a 'start-up advisor' who takes their details, seeks to place them with job opportunities, or registers their claim for processing, if customers have sought work but been unsuccessful. These customers would then meet within 48 hours with a 'personal advisor' to find the best approach to getting them back into employment, while a back office 'benefits specialist' simultaneously processes any difficult or more specialised claims for benefit. Front-line advisors will also register claims from ill or incapacitated people of working age, and set dates when their cases should be reviewed by a personal advisor. A computerised case management system will link front-line advisors, personal advisors and benefits specialists and allow information on each case to be presented in a holistic way and updated on subsequent occasions of contact with DSS. The department's services would be provided in 'gateway office' locations in an integrated way with the Employment Service and also with relevant local authority services (such as local education departments). Pilot projects on these lines have been pioneered within the Single Work-Focused Gateway programme, now known as ONE, which brings together staff and services from DSS and the Department for Education and Employment (DfEE). In the DSS strategy pensioners will be encouraged to contact DSS primarily using large telephone call centres, whose staffs will have Web-enabled access to customers' details (on lines already trailed by the Pensions Direct pilot project), as well as links to local authority and NHS services. For all its customers the DSS approach would switch from reliance on routine front-office visits and paper-based claims towards 'active case management' using electronic forms filled in by staff, backed up by telephone contacts to take claims, maintain routine contacts and give advice and assistance.

28 THE SOCIAL MAKE-UP OF PEOPLE WITH INTERNET ACCESS, AS MEASURED BY BMRB IN SEPTEMBER 1998 AND 1999

Occupational grade	Per cent of society as a whole	Per cent of respondents with access		Projected number of adults with access (millions)		Growth in numbers (millions)
	May 1999	1998	1999	1998	1999	1998-99
Managerial/professional (AB)	21	31	40	3.0	3.9	0.9
Lower non-manual (C1)	28	21	30	2.7	3.9	1.2
Skilled manual (C2)	22	9	15	0.9	1.5	0.6
Unskilled manual (D)	18	5	9	0.4	0.7	0.3
Unemployed/retired (E)	12	3	6	0.2	0.3	0.1

Note: The figures in column 1 are based on a population of 46 million adults in 1998. The figures in column 2 are the average monthly figures for July–September, 1998 and 1999, taken from BMRB International's Internet Monitor which tracks Internet penetration monthly with a 8,000 sample each month.

SOURCE: BMRB INTERNATIONAL

Levels of Web access amongst DSS customers

2.6 The implications of the DSS strategies for government on the Web depend partly on the level of Web and Internet access among the department's customers. The Benefits Agency's most intensive dealings involving personal interviews and more difficult casework occur on its 'key benefits' with people who are sick or disabled (2.85 million in August 1998), out of work in the short or long term (1.3 million), in working families but very low paid and eligible for income support (0.75 million), or are lone parents (0.94 million). Sickness, unemployment and low income disproportionately affect people in some occupational groups, and in geographical areas marked by high levels of social exclusion. BA has much more routinized and low-intensity dealings with some broader social groups, especially: families with children who receive child benefit at a standard rate for 16 to 18 year with an automatic cut-off time; and old age pensioners, whose payments are again mainly straightforward and long-term. Figure 2.2 shows that access to the Internet in the late 1990s was heavily structured by social class. By September 1999 people in non-manual occupations were over twice aslikely to have access via home PCs or at their workplace than skilled manual workers, nearly four times more likely than unskilled manual workers, and up to nine times more likely than the unemployed and pensioner group. This pattern undoubtedly reflected the expense of acquiring a PC, the charges made by ISPs (Internet service providers) at that time, and the cost of local phone charges to access the Internet.

2.7 Since late 1998 the reduction in PC prices and the launch of numerous free ISP services has cut costs and broadened access amongst all social groups, somewhat reducing the differentials between occupational classes, as Figure 28 shows. The proportion of respondents with access in the C2, D and E occupational grades increased strongly, and the number of people with access grew strongly from a low base. Of course, this is not to say that the strong positive association between income levels and Internet access has been fundamentally altered. In terms of people's attitudes towards electronic government, BMRB found that people on social security benefits were much less exposed than the population in general to different kinds of electronic consumer goods. But overall three-quarters or more of working age respondents drawing benefits thought it 'very likely' or 'quite likely' that they would use new methods (ranging from touch-tone phones, through digital TV to PC access or electronic kiosks) to contact agencies about the full range of benefits, a significant majority. However, only just over half of pensioners gave the same response, while nearly as many said that it was 'not very' or 'not at all' likely that they would use new methods to deal with government agencies.

2.8 At present then the greatest potential for the DSS to develop some widespread Web- or Internet-based interactions with citizens is in initiating those dealings most widely used across the population - such as Child Benefit, notifying the DSS about changes of addresses, or relatives letting DSS know about the death of elderly people. For the key benefits which generate intensive workloads for DSS only some fairly small groups have relatively high levels of Internet access. For instance, the Benefits Agency has extensive dealings with some students in further and higher education entitled to claim benefits, all of whom have Internet access at their college or university base (although not necessarily at home), as well as being in the age group with most immediate training in modern ICT systems. Similarly the Child Support Agency's work divides between a majority of cases where the resident parent is drawing social security benefits (65 per cent) and cases where the resident parent is not drawing benefits (35 per cent). This latter growing 'private sector' casework involves people with a social profile closer to the population as a whole, and hence with potentially higher levels of Internet access.

How Web sites developed within DSS

2.9 The five DSS business units operate separate Web sites, designed and maintained by different staffs, and financed from distinct budgets, usually run by the marketing and communications divisions (see Figure 29). Each of the sites has its own 'look and feel' and a distinctive way of organising the presentation of information. DSS headquarters provides a departmental home page with links to the four agencies' sites, as well as extensive direct pages of its own, and the agency sites include prominent link buttons back to the DSS home page. There is otherwise no common badging or branding of the sites.

The evolution of sites

2.10 DSS Web sites were mostly established around 1997. The **DSS headquarters Web site** was established by its library and information services division in May 1997 and had reached 3000 pages by May 1999. The **Benefits Agency's site** was launched in October 1997 and had accumulated 1,000 pages by May 1999. **The Child Support Agency's site** was established in 1995 as 'a couple of pages', enhanced in early 1997 and substantively relaunched in March 1999. It is run within the Communications section in Newcastle, in co-operation with IT services. The **War Pensions Agency's site**, also run by its Communications Group, was first set up on a minimal basis in 1997 and overhauled by in-house staff in mid-1998. **ITSA's site** is different, reflecting the agency's servicing role in informing and 'advertising' functions to IT and contracts staff inside DSS and its private sector partners or regulatees; keeping them in close touch with overall ICT strategies in the department and with the services and capabilities that ITSA has to offer. The site was first established in 1997 and has been fairly continuously developed and frequently updated ever since.

2.11 All DSS sites are conservatively designed and provide strictly limited functionality. At present it is not possible to download electronic copies of forms from any DSS site, nor to submit forms on-line. The DSS recognise that there is a range of transactions that could be Internet based. However, there are some significant constraints to automating such transactions, which include: accumulative legislative change, which leads to increasing complexity of business processes; rules concerning data sharing and privacy; and the need to authenticate all details concerning payments or changes to entitlements.

2.12 The DSS headquarters' homepage is designed in a markedly organisational way, with prominent buttons for each of the four agencies; it assumes that users understand DSS internal organisation. In the summer of 1999 the Web team looked at an alternative page design focusing on 'life events' - such as the birth of children, experiencing unemployment,

becoming retired or sickness - but changes have not yet been implemented. The Benefits Agency's site is designed around different categories of benefits. Older sections of the site assume that users are familiar with a lot of complex BA terminology, and the pages are set out in a conservative way, with small amounts of typescript interspersed with a great deal of white space. The site has very few interactive facilities. The principal one is that users can e-mail the Webmaster with comments or queries about the site itself - the Webmaster responded quickly by e-mail to a test comment we sent, and he normally replies straight away to the 200 messages a month received. More substantive queries sent by e-mail are passed on immediately via BA's network to the relevant sections for them to action further, but citizens cannot request advice or information on-line. Many areas of the site have been static for long periods. The War Pensions Agency's site provides information about specific benefits, details of how to contact the offices, and how to make a complaint. ITSA's site is more professionally laid out and designed, and has won a number of computer press awards for being a good public sector site.

2.13 All DSS sites are, in general, low cost operations in comparison to private sector companies or social security agencies overseas (see Comparators A and B); the resources devoted to each site are shown in Figure 29. The Benefits Agency's expenditure of £35,000 and 1.5 FTEs annually is especially low in relation to its massive size and budget. At the time of our visit there appeared to be no budget line for developing the site and a lack of managerial involvement. DSS headquarters, the Child Support Agency and the War Pensions Agency also spend a very low proportion of their budgets on their sites. ITSA is the exception. Its site is managed by a unit with 30 staff, although most of them are also working on other developments and Web-related projects. ITSA's Web expenditure forms a smaller component of its budget than for three other DSS business units.

29 STAFFING AND COSTS OF CURRENT WEB SITES RUN BY DSS BUSINESS UNITS (IN JUNE 1999)

Providing and maintaining Web sites currently accounts for tiny fractions of the staff and running costs of the five DSS business units

Agency	Division responsible for running and developing the Web site:	Staff directly running Web sites (FTEs)	Web staff per 1,000 total staff	Approximate annual direct Web costs in £	Web expenditure in £ per £ million running costs
DSS Headquarters	Library Services	1.5	0.9	55,000	235
Benefits Agency	Marketing and Communications	1.5	0.02	35,000	14
Child Support Agency	Marketing and Communications	1.5	0.2	30,000	130
War Pensions Agency	Communications and Public Relations	1.5	1.7	10,000	270
ITSA	IS/IT Strategy	1.0	0.5	25,000	79

SEE Glossary for details of 'bare bone' costs used here.

SOURCE: INTERVIEWS WITH DSS STAFF.

How much DSS sites are used

2.14 Despite the relative lack of investment in DSS Web sites (see paragraph 2.13) usage has grown quite rapidly. In January 1999 all the DSS sites taken together achieved 1.36 million hits, or 347,800 genuine user sessions - after deducting visits by Web 'spiders' or 'crawlers', which are automatic site checking programmes used by Web portals to index sites. By June 1999 these figures had reached 1.46 million hits, or 475,550 genuine user sessions, a growth of 20 per cent in usage. Analysis of the January 1999 data show that user sessions on average lasted a lengthy 35 minutes: so total contact time between Web users and the ensemble of DSS sites was 208,000 hours during the month. Daily user sessions amounted to 11,900 with a daily contact total of 6,900 hours. The average number of users on weekdays was 13,700, and on weekend days was 8,000. In all 78 per cent of accesses took place on weekdays and 22 per cent at weekends. Only 174,000 user sessions took place during working hours (47 per cent of total), compared with 194,000 user sessions (53 per cent of the total) which took place between 5pm and 8am. This pattern indicates strongly that most users of the DSS Web site access from home PCs, rather than from their workplaces. Nonetheless the most active time of the day for accessing the DSS ensemble of sites was mid-afternoon. Only 12 per cent of accesses were from Windows NT or other systems used almost exclusively by large workplace organisations, while half of all accesses were in Windows 95, used by home-based PCs as well as some workplaces.

2.15 These Internet usage figures do not appear to have been systematically researched or studied within any of the business units within DSS. Monthly 'Webtrends' data are supplied by ISP companies to the business units, but they are in variable formats and contain some misleading data. (For example, some 'Webtrends' programmes automatically represent all accesses deriving from ISP companies with an address in the '.com' domain as coming from the United States - even though '.com' addresses are now standard for most British ISP firms also) Staff seemed to focus primarily on the number of 'hits' that their site has received, a potentially very misleading statistic since (depending on how a page is designed) a single page impression may often trigger from one to seven hits. However, if these data are interpreted cautiously they can yield useful information about the levels of usage of different parts of the site, and about the characteristics of users.

2.16 The pattern of Web referrals showed little evidence of 'joined-up government', with only tiny numbers of referrals from other departments' Web sites to pages below the DSS home page, with DfEE contributing most links. Less than one per cent of user sessions involved a referral from the **open.gov.uk** site directly to one of the pages below the DSS home page. The majority of users entered via the DSS home page which attracted 289,000 user sessions, 78 per cent of the total. About one-sixth of user sessions started with people directly accessing a site page below the home page. Headquarters directories accounted for most user sessions inside the site, followed by the Benefits Agency directories, then the Contributions Agency (still at this time in DSS), and then for pensions information. Accesses to the Child Support Agency's directory were well down the list, and only a small fraction of user sessions went to the War Pensions Agency's directory.

2.17 All DSS agencies had further plans for web usage at the experimental or piloting stage. Departmental headquarters and BA have been involved in a number of pilot schemes testing out electronic kiosk technologies, consisting of a networked PC and monitor in a vandal-proof cabinet, operating via a touch screen and giving out basic information about social security. However, by summer 1999 DSS had no plans for developing kiosks further. The level of information providable in this way is extremely restricted and it might be doubted whether customers will be willing to spend much more time operating such machines in a public setting than the five or six touches that most people will input into a bank automatic teller machine. Customers cannot save the relevant information which they have found to disk, nor print it out. Experience at state and federal government levels in Australia suggests that users of kiosks prefer them to provide the same type of facilities as conventional PC access from home or workplace. A second potentially important alternative scheme is the Welfare Information Service (WIS), run by ITSA using the computer firm Sema as the main contractor. It is funded initially by DfEE (£80,000) and DSS headquarters (£30,000): there is no BA money involved. The plan is to create a client-orientated Web site presenting information about social security, education, childcare and other services in an accessible and multi-departmental way. The WIS project will also put information for the public up on the Web for DSS local offices that cannot do it themselves. The WIS approach centres on a 'life events' design, intended to help not habitual users of DSS or DfEE services (who are presumed to be familiar with the information they need and where to look for it) but instead people undergoing a new life experience - such as separation from marriage, sickness or injury at work, the onset of disability, retirement, or the death of a relative. If the WIS prototypes and pilots are judged successful the approach might be implemented nationwide at a total cost of the order of around £1.5 million. The Benefits Agency is running a pilot project in a small number of locations to place local office information on its Web site. This will include customer contact points, a list of benefits dealt with at particular sites, directions to the offices, outreach forums and locations and details of any customer service initiatives being run by the office which may be of interest to the public. These pages will also provide an e-mail address for each office, enabling the public to e-mail messages directly to that office.

2.18 Web site development in the DSS has been constrained by complex internal structures for the governance of the issue:

- It has not always been clear how responsibility for progressing change has been allocated between units at headquarters and within the Benefits Agency, nor within BA itself. As a result the BA Web site was for some time run on a 'care and maintenance' basis. There has been additional uncertainty about the impact of programmes such as ACCORD and a joint project between BA and Post Office Counters Ltd, the BA POCL project (in fact this latter scheme was cancelled in early June 1999 after running into major implementation difficulties).

- Significant development of the CSA site was effectively 'on-hold' when we visited, pending recently announced legislation plans which will introduce a radically simplified system for assessing contributions due from non-resident parents in the spring of 2001. The initial tranche of the ACCORD project will facilitate the legislative changes, replacing CSA's IT system and allowing a switch from CSA's obsolescent dumb-terminals to desktop PCs. ACCORD is crucial to a fundamental shift by CSA away from paper-based processes, and further development of the current Web site was seen by staff as dependent upon prior implementation of these larger changes.

Strategies for intranets in DSS

2.19 When we visited in 1999, all the DSS business units had well-developed plans to introduce their own intranets in the next two years. However, CSA was running a partial intranet pilot project accessible by around 100 staff in its Newcastle offices. Like the external Web sites each of the intranets will be designed and maintained by different staffs, and financed from distinct budgets, under 'business development' or 'marketing and communications' headings. Although each intranet will have its own 'look and feel' in presenting information, those agency staff already with access are able to reach both a DSS corporate intranet and through that the intranets and Web sites of any other agency in the DSS group. The corporate intranet launched in October 1999 brings together information relevant to the department as a whole. All the DSS intranets will be much more substantial operations than the current external Web sites.

2.20 The **DSS headquarters intranet** was the furthest advanced plan at the time of our visit in mid-1999, and is organised in tandem with the headquarters Web site, with a technical specification provided by ITSA. Around 1,700 headquarters office staff in London are already linked by a high capacity network used extensively for internal e-mail, file transfers and other facilities, and virtually all are now equipped with Windows-compatible PCs. A basic internal DSS headquarters intranet was rolled out to London staff from July 1999, designed to support headquarters' main role of undertaking policy research, developing the social security system and supporting ministerial initiatives. It provides staff with desktop access to the DSS Library's catalogue, allows book ordering, and gives a news-feed and Hansard. It will also hold human relations and personnel materials, including the staff 'Conditions of Service', and around 30 on-line forms (such as expenses claims, payment authorisations etc), most of which can be completed on-line. London staff will be connected to the Government Secure Intranet by December 1999.

2.21 The **Benefits Agency intranet** is being designed by a project team drawn from the Operations Support Directorate and is run separately from the agency's Web site. The intranet will take several years to implement; the constraint is that BA currently has very little modern IT equipment capable of running Web browsers. Full roll-out of appropriate PCs and network capability to all staff for the intranet will take a number of years and will depend on progress of the ACCORD programme

2.22 The **Child Support Agency's intranet** was running in pilot form over internal networks for around 100 (mostly IT) staff at its Newcastle headquarters when we visited in mid-1999. A fairly simple facility, its most popular feature is an electronic edition of the staff magazine CSA Weekly, which includes brief updates on DSS and CSA affairs plus pages of job vacancies in CSA and other agencies. By November 1999 some 3,000 staff had access to the agency's intranet; full roll-out to all desks will occur by mid-2001. The CSA intranet will also provide dial-up facilities for around 600 staff to use mobile technology when visiting BA offices, MPs' surgeries and individual customers' houses. Phase II of the intranet is still to be determined but is expected to provide personnel forms, news and updating, the staff magazine, an electronic version of CSA's induction pack for new employees, and a range of 'human interest' or useful facilities (such as train times). But 'top of users' demands' is an electronic version of the agency's codes, manuals and guides - currently running to nine volumes (over 4000 pages) of detailed guidance for staff, stored in a print version, and with new amendments issued every two weeks. Normally there is one copy of the Manual per office (around 400 in all) with a clerk delegated to updating it for around two hours per fortnight. Many CSA staff work part-time or on temporary contracts and there is a 27 per cent turnover of staff every year, so people may not have much expertise in using the current, complex, paper-based rules. Although the manuals will initially be put up as they stand, CSA is keen for the intranet version not just to be 'paper on screen', but to have strong search and access facilities and ultimately to develop 'case-based reasoning' systems which would make guides and manuals redundant. CSA will be the first area of DSS to benefit from the ACCORD programme, and to move onto a new Web-enabled departmental standard desktop so

'active modern service' ideas will be implemented earlier here than elsewhere.

2.23 **The War Pensions Agency's intranet** was being developed in pilot form for 140 out of 650 staff at its main centre in mid-1999, at a cost of just under £200,000 over two years, including some new PCs. Like the other intranets it will provide users with operational guides (for instance, on appeals), forms, draft letters, directory services, human relations information, news from WPA and DSS, a staff bulletin board and notice board, plus a mirror of the WPA Web site. Launch of the intranet is made easier because WPA is implementing a major upgrade in its IT systems, moving away from dumb terminals to easy browser-based access to information from the mainframe computer (previously accessed via 15 separate enquiry screens). The agency is also upgrading its network. When the pilot is evaluated by early 2000 a decision will then follow on whether to extend the intranet to all staff at Norcross and the agency's local welfare offices.

2.24 **ITSA's intranet** is a pilot run for 700 PCs mainly at the agency's Peel Park centre during 1998, and evaluated in the autumn using usage statistics, feedback and an intranet questionnaire. It has now been extended, first to cover all the agency's Blackpool staff, and in 1999 all ITSA locations.

The costs and benefits of DSS intranets

2.25 Intranets offer the potential for big savings in DSS activities and all DSS business units have made business cases for their intranets or pilot intranets. The business case for the intranet at DSS headquarters estimated that it will cost £1 million spread over five years from 1999 to 2004 in terms of hardware, software and staff time, around £200,000 per year. The business case concentrated on the quality of service improvements facilitated by the intranet, and did not identify specific savings. However, department staff anticipate reductions in internal printing, publication and storage costs; savings in staff time from no longer having to update loose-leaf manuals (since a single, up-to-date version will be constantly available on the intranet); and a slimming down of courier services as file transfers via e-mail become easier. BA has a business case for the pilot intranet but as yet no business case for a full intranet. The pilot business case included the normal objectives of improving internal communications across this huge agency, providing a news feed and a staff magazine, advertising jobs and making available personnel, expenses and other regularly used forms, as well as many functions set out above for the headquarters intranet.

2.26 For the Benefits Agency, the application that is seen as critical to justifying the full intranet's development costs is to hold on-line a single, up-to-date and authoritative copy of the agency's voluminous rules and regulations for determining benefits eligibility. At present, for instance, BA operates a set of rules for income support running to eleven A4 volumes comprising around 300 pages each. These rules are amended, updated and maintained at the Leeds headquarters and currently have to be circulated in paper form to the over 400 local offices, in each of which a member of staff has to keep the rule book folders up to date, removing outdated pages and inserting new materials. This background task can often slip when offices get under pressure, with a risk that local versions will go out of date. In theory local office staff dealing with unfamiliar areas of the rules are supposed to consult the tomes of regulations, but BA managers recognise that they may not do so, because of the extreme difficulty in finding the information required. Putting the income support rules on the intranet should provide much easier access - for instance, allowing computerised word search - as well as guaranteeing that the version consulted will be authoritative and up to date. Managers recognise, however, that there may still be resistance to undertaking searches and a tendency to use shortcuts; to encourage front-line staff to actually use the full capabilities of the intranet, managers will have to make the intranet an attractive and central focus of working life within BA.

2.27 The main basis for WPA's intranet lies with its business benefits, but costs savings of £45,000 a year are projected for the pilot version, mainly through reduced manpower on updating guides and lower distribution costs. ITSA's pilot intranet cost £62,000, and interactive features were limited to the staff directory, discussion groups, feedback and questionnaires. The pilot intranet is mainly used for electronic publishing, giving ITSA reference guides, weekly news, job information, and circulars. The key benefits recorded were much more consistent information, eliminating lead times for publications and distribution, reduced storage needs, and better staff morale. In surveys nearly three-quarters of staff preferred the electronic phone directory, and said that they were better informed. ITSA sees cost savings of 2 million sheets of paper per year, plus £100,000 annually on the staff costs of maintaining large guides. A full intranet covering 1,800 desktops is now planned, with capital costs of £136,000 but small running costs (just over £7,000 per year).

2.28 DSS is still developing policy on how tightly intranets will be controlled with regard to content but all agencies will in time use GSI to safeguard security. At DSS headquarters, the GSI will facilitate the development of some restricted access areas on the intranet, and there will be secure discussion groups and bulletin boards, where policy-relevant knowledge can be shared between officials. Divisions initiating pages on the intranet will be asked to ensure that information is correct, timely, relevant and up to date. Since its key role is information provision, the intranet is expected to add pages fast, and there are no plans for an ideal size constraint. As BA's networking and desktop capabilities are modernised then the agency will also seek to meet the security and certification procedures to connect staff to the Government Secure Intranet. The primary basis for this expectation is that all of BA's work involves

dealing with customer details which are acutely sensitive and where the strictest privacy and security controls must operate. GSI's standards and procedures are seen as guaranteeing confidentiality and therefore inescapable within BA's mission. However, the DSS view is that because departmental staff are widely dispersed across many locations (each of which would have to be separately accredited), universal DSS access to GSI could be disproportionately expensive. The benefits of full connection are also not yet clear. The vast majority of internal file transfers might be handled satisfactorily by current and future internal networks, and by the BA and DSS intranets, with only a small fraction of business needing to be routed over GSI. CSA plans to give its staff full GSI connections which will give live access to the CSA and DSS Web sites for half of desks by late 2000, with 100 per cent access by mid-2001. The need for confidentiality of data transmission was cited by CSA managers as a key rationale for connecting the agency to GSI, despite its poor directory services. There was still uncertainty about what sort of things CSA staff would look at on GSI, since they are currently constrained in their ability to secure information from other government departments. For instance, legislation currently prevents CSA asking Inland Revenue officials for details of non-resident parents' incomes, so staff must instead require non-resident parents to provide wage or salary slips. In contrast, WPA are keen to gain GSI access, because they liaise frequently with the Ministry of Defence and the Lord Chancellor's Department, mainly on confidential customer issues, including the transfer of supporting evidence and documentation for claims. WPA has accreditation for e-mail communication. When the Lord Chancellor's Department gets e-mail accreditation, WPA will be able to e-mail them, but would also like to develop ways of sharing access to customer data, managing case work across both departments and transferring appeals statements of cases electronically.

2.29 Up to the time of our visits (and until DSS intranets are implemented), astonishingly few staff of DSS headquarters or the agencies have been able to see any of the DSS's own Web sites. However, the DSS corporate intranet now mirrors all five Web sites in the departmental group to those staff who have access to their business unit's intranet. By December 1999, some 8,000 DSS staff will have the ability to look at the department's Web sites while at work - 2,200 in ITSA, 2,000 in DSS headquarters, 3,200 in the Child Support Agency and 300 in the Benefits Agency. In BA at the time of our visits in Spring 1999 staff estimated that only around a dozen of the agency's 75,680 staff (16,340 part-time) were using PCs with a full Internet-access capability. So the agency's Web site is effectively invisible to 99 per cent of employees while they are at work. To see the BA Web site virtually all staff must either use home-based PCs, or visit one 'kiosk' style PC provided in the BA catering area at Quarry Hill, where the Web team maintain a 'mirror' copy of the Web site. At the time of our visit there were 'about six' stand alone Web-enabled PCs operating in CSA, so that as with BA the agency's Web site was at that time effectively invisible to staff. However, the agency now has around half of its desks providing access to its intranet which holds a copy of the Web site. At the WPA until the intranet is rolled out only a few staff have external Internet access. To make the site visible to staff a touch screen kiosk running a copy of the site has been located in the main entrance foyer where two-thirds of the Agency's staff can have access.

2.30 Taking into account all Web-related work, including Web administration (listed in Figure 29), Web improvement work now ongoing, provision of technical products and services, intranet piloting and development work on the corporate intranet, the DSS will have invested around £2 million in 1999-2000. IT running costs and direct staff costs for the next year for the corporate intranet alone will be £1.2 million. It is likely that investment in Web solutions will increase over the next few years. Comparisons with similar departments overseas show clearly that DSS and UK departments are investing significantly less in Web-based technologies. Some of the data presented in Appendix 2 suggests that across the UK government as a whole it is harder for departments and agencies to justify investment in Web-enabling the delivery of services and transfer payments than it is to introduce new technology in areas like regulatory policies with user charges or collecting tax payments.

Conclusions: DSS on the Web

2.31 The development of both Web sites and intranet technologies within DSS has been quite slow. DSS Web sites have been relatively static and underdeveloped, cautiously funded and under-resourced, providing information within conservative and unimaginative designs which are rarely refreshed or overhauled, and designed from the organisation's viewpoint rather than starting with users' needs. The Welfare Information Service (WIS) could mark a major departure in this respect, but development is at an experimental stage and the concept not fully accepted throughout the departmental group. Until 1999 the lack of any appropriate ICT infrastructures within any of the business units clearly prevented setting up intranets. For DSS headquarters and the CSA at least the next two years should see a major transformation. The development of the BA intranet will lag considerably behind.

2.32 DSS accepts that until mid-1999 the department has been so preoccupied with defining its 'active modern service' vision and negotiating the ACCORD programme that it has 'taken its eye off the ball' of Web developments. The perceived need to concentrate senior management attention on major, long-term schemes for investing heavily in new ICT may mean that the department's business units miss some important current opportunities for learning incrementally about citizens' behaviour on the Web, and about what kind of facilities for electronic communication or transactions work well and which do not. Web technology is changing so rapidly and so unpredictably that organisations need strategies for

experimenting flexibly with techniques and changing them in response to customer behaviour. For the DSS, not to follow such a strategy is to run the risk of building in substantial obsolescent elements to the department's current large-scale capital investment in ICTs.

2.33 Relying on phone calls for transfer of information, and for some kinds of transactions (such as obtaining and submitting routine forms), may also be a great deal more expensive for the department and its agencies than if some of these simple transactions could take place over the Web. By 1999, even with predominantly paper-based systems, DSS estimated that its business units receive 130 million phone calls per year, which were for the most part expensively handled in local offices rather than in dedicated call centres. Around 124 million calls a year come into BA offices, an average 620,000 per working day. The CSA receive 6.4 million calls a year, around 32,000 per day. No data are currently available within the department as a whole on the average costs of handling each phone call, but the CSA's well-organised national helpline costs £2.40 per call - an estimate comparable to private sector companies, who quoted average costs to us of between £2 and £3 per call, up to around £1 per minute. If costs elsewhere are as good as CSA's call-centre (a conservative assumption), then handling phone calls already costs DSS around £312 million per year. For every one per cent of calls replaced by people accessing by one of the DSS web sites, the department could save over £3 million, more than enough to dwarf current spending on Web sites. If five per cent (one in twenty) of these calls could be coped with by people accessing the right Web pages at virtually zero marginal cost, then the department might save £15 million annually.

2.34 Other routine administrative burdens also offer prima facie scope for cost-savings via the Web. By Summer 1999 it was not possible to download electronic copies of forms from any DSS site, nor to submit forms on-line. The Benefits Agency handles thousands of different forms and pieces of stationery, each of which must be printed, distributed and stored. ITSA has run pilot schemes for storing forms on-line and printing them on demand in local offices over the BA's current (pre-intranet) network. But these initiatives ran into problems when local offices used to handling colour-coded or double-sided forms could not cope with the white, single-sided forms produced from electronic templates. If even this kind of change is not yet feasible, the prospect of submitting forms on-line to DSS remains quite distant. Yet overall DSS business units process 33 million notifications of people's changes of circumstances each year, for instance moving their address. Even if printing, storing, addressing and despatching each notification form costs no more than second-class postage (20p a time), the overall cost would be £6.5 million each year. Again displacing even a small fraction of requests for these forms onto low marginal cost Web downloads could save substantial costs overall - for instance a five per cent displacement could save £330,000. Obviously, some transactions are easier to carry out on the Web than others.

2.35 If more attention is to be given in future to developing services on the Web it will be important for top managers in the department and the agencies to understand why such limited progress has been made so far. The DSS view is that there is a technical hierarchy of difficulty running from provision of general information to citizens (the easiest set of tasks); through collecting reliable information from citizens (which is more difficult, due to fraud and authentication problems); through to allowing direct citizen access to host systems for the retrieval of personal information (the most difficult set of tasks). However, the nature of the organisational barriers to change is also important. Administrative arrangements and lines of responsibility within BA and DSS for running Web sites and intranets as they are now, and for developing new service ideas, are complex and fragmented, with additional divisions between the implementing business units, ITSA and the DSS headquarters. In government generally, there is no established or robust method for cost-justifying Web investments. Budget lines and responsibility for costing existing activities are multiple and not clearly understood. Little use is made of Web data available, and no business case for Web site development has made reference to the possibility of displacing costs. DSS Web sites have been invisible to virtually all staff until now, and so do not seem to figure as important elements in the administrative culture or to have engaged much senior management attention so far. Web-based technologies will require alternative ways of approaching issues to accustomed DSS strategies of making infrequent, high cost upgrades in its computer systems. Instead, all business units (including local offices) will need to learn actively and incrementally about what their customers will want and be able to do so on the Web.

2.36 DSS is concerned to manage its Web developments in an even-handed way that will not advantage Web users compared with non-users, and this issue will always need to be handled carefully. DSS customers are less likely to have Internet access than the population as a whole and the Benefits Agency feel that this inequality must be taken account of in the development of web-based services. But if cost savings can be made on routine information-seeking from those client groups that do have access, more funding may be available for services in areas of high social exclusion. And some developments in 1999 suggest broadening patterns of social access. Free Internet hook-ups are expanding fast, and digital TV beginning to make some impression. There are also growing expectations that local call charges to ISPs will soon become free or only nominally charged in off-peak periods - when more than half the accesses to DSS sites take place (see paragraph 2.14). On the technical side there has also been rapid progress in the availability of audio content on the Web (via developments like Internet radio), with potentially important consequences in dealing with visually impaired customers or those with lower levels of literacy.

2.37 There have been a number of recent developments in DSS's approach which reflect awareness of the dividends to be made from adopting new techniques. In late Summer 1999 the department established a senior Electronic Government Steering Committee including representatives from all the agencies to handle its response to the *Modernising Government* targets, which produced a revised electronic government strategy. The pilot intranet in the Child Support Agency is moving ahead with new equipment. The department's top management has also committed to a new internal communications strategy which will give a firmer and wider remit to its Communications Directorate, including shifting over to it responsibility for developing the HQ Web site, and adopting a more corporate view of 'new media' issues.

2.38 Throughout the 1990s DSS has been developing its capacity to deliver payments electronically to citizens' bank accounts, and to encourage citizens to make use of this facility. Its cumulative achievements here mean that the department as a whole will easily meet the Prime Minister's target for 25 per cent of its total dealings with citizens to be *capable* of being handled electronically by 2002. So long as payments are included and attention focuses on capability only, the DSS figure will be 51 per cent. However, looking at actual payments achieved instead would cut the DSS figure to 15 per cent of all dealings now, rising slightly to 18 per cent by 2002. The department intends to maximise the take-up of automatic credit transfers and these figures show that there is a very substantial cost saving to be realised here. But past growth rates have been slow. Looking at interactions with citizens *excluding* electronic payments (see the discussion in Part 4), DSS is one of four Whitehall departments that will not on current projections achieve 25 per cent electronic transactions by 2002. Currently four per cent of non-payments dealings will be capable of being conducted electronically, and only two per cent will actually be so conducted. Making a commitment now to incremental learning about Web capabilities will be important in changing this situation for later target dates in 2005 and 2008, set out in the *Modernising Government* white paper.

part three

dealing with business: the DTI group

3.1 Government on the Web will immensely affect British business so our second, in-depth study focuses on the Department of Trade and Industry (DTI), the lead ministry on trade and export promotion, regional and industrial development, energy issues, corporate governance and consumer affairs. Its executive agencies handle company registrations and patents, both covered in this study, plus some areas not covered (employment tribunals and industrial disputes, insolvencies, allocating radiocommunications licenses, and weights and measures issues). The Office of Science and Technology (OST) within DTI funds and supervises seven research councils, of which we also looked at five. Thus our analysis spans the main department and seven of its executive agencies or quasi-governmental bodies.

Organisations covered in the DTI group

3.2 The **DTI headquarters**, located in London, is a relatively small but strategically important Cabinet department which provides policy advice to ministers and implements decisions on the government's main business and trade development programmes and on business regulation. Headquarters is organised into seven distinctive 'groups' (formerly known as 'commands') which are DTI's main business units. But the department nonetheless forms a single integrated body, working closely under the direction of the same ministerial team and the permanent secretary, with strong internal cohesion, and within a common ICT environment. In budgetary terms Figure 30 overleaf shows that around seven per cent of the DTI's total budget is spent on the headquarters' running costs. DTI has both a regulatory agency role and a transfer agency role, passing on a substantial subsidy budget to the private sector for industrial development programmes. In the fiscal year 1999-2000 the total staff in the DTI group number 9,500, of whom 4,480 (47 per cent) are in headquarters itself, and the remainder in the agencies which it supervises. DTI's own ICT strategy has been modelled on private company lines since the early 1990s, when the department outsourced virtually all its computer operations, retaining only a small but senior, in-house staff to negotiate and monitor contracts with service providers. There is no ICT expert sitting on DTI's management board, but the board takes an annual interest in these issues and receives specific project updates more frequently. In May 1999 the Director General of the department's industry group was nominated as the DTI's 'Information Age' champion, as part of a government-wide scheme to promote a more corporate approach to ICTs.

3.3 **Companies House** is a leading business-facing agency, set up as a trading fund which must cover its running costs from its commercial fees and charges, as well as meeting targets set by the Secretary of State. (Hence Figure 30 shows a turnover figure for the trading agencies' total spend in place of a programme budget total.) Companies House's mission is to register the details of all companies within the UK and for a fee to provide information about firms (for instance, their registration details, directors, mortgages, and accounts). The agency's main offices are located in Cardiff, with a feeder office in central London. In 1999 the agency had 850 staff, mostly processing the mound of paper registration documents received from businesses. Around half of Companies House's business revenues come from supplying information to just 14 large customers, the main private sector companies providing business analysis services, who purchase data in bulk.

3.4 Set up originally in 1852, the **Patent Office** is also a business-facing trading agency. Its current mission is to promote inventions by British companies and individuals, to register commercial patents and trade marks, and to provide information for a fee on existing patents and trade marks. The agency sees its current aim as being to stimulate innovation and enhance the international competitiveness of British industry and commerce by offering their customers a national and international system for granting intellectual property rights. The agency is located in new office buildings in Newport, Gwent. Many of its 790 staff are highly qualified professionals assessing and vetting patent applications, and also searching the Office's information banks in response to detailed requests.

In this Part:

Organisations covered in the DTI group

How Web sites developed in DTI

How intranets are developing in the DTI group

Conclusions: DTI on the Web

30 THE STRUCTURE OF ORGANISATIONS IN THE DEPARTMENT OF TRADE AND INDUSTRY GROUP IN 1999-2000 (FOR THOSE ORGANISATIONS INCLUDED IN OUR STUDY)

Business unit	Main functions (agency type)	Total spend £m	Running costs £m (Expenditure for trading funds)	Running costs as per cent of total spend	Staff numbers in FTEs	Running costs per staff FTE in £
DTI Headquarters only	Policy making, research, management: (servicing, transfer and regulatory agency)	3,297	235	7	4,350	£54,000
Companies House	Registering companies and providing business information: (trading agency)	39	36	92	850	£42,400
Patent Office	Granting patents, registering trade marks and designs and providing related information services:(trading agency)	55	42	76	790	£52,300
Office of Science and Technology (OST)	Funding and sponsorship of the Research Councils: (control agency). And cross-government co-ordination of science policy: (servicing agency)	1,377	5	0.4	125	£40,000

SOURCE: DTI AND AGENCIES

3.5 Inside DTI the **Office of Science and Technology** has 125 staff and promotes scientific and technological research. The Science and Engineering Base Group within OST is a small policy and supervision unit (with 47 staff) which among other functions provides central supervision of the research councils, mainly concentrating on funding flows (totaling £1.3 billion a year): its head reports to the DTI Permanent Secretary. The OST's remaining staff handle 'trans-departmental' scientific issues under the government's Chief Scientific Advisor, who reports directly both to the Secretary of State and the Prime Minister and Cabinet - in order to maintain the departmental neutrality of his section. Thus OST's status is somewhat detached within the DTI group.

3.6 OST supervises seven main **Research Councils**, five based in Swindon which we have included here, plus the Medical Research Council (based in London) and the Central Laboratory of the Research Councils, neither of which are covered here. The research councils are non-departmental public bodies, with Royal Charters to guarantee their independence. They receive the vast bulk of their funds from government via OST, but are run day to day by boards including senior academics, some civil servants and industry personnel. Most decisions are taken by committees set up to control particular functions under the board, and all the committees also include academics and professional people informally representing the interests of different 'user groups'. Figure 31 shows the salient details of the Swindon councils. Between them they cover all the physical sciences except medicine, plus the Economic and Social Research Council (ESRC) which covers the social sciences. Two councils, ESRC and the Engineering and Physical Sciences Research Council (EPSRC) allocate funding primarily to universities applying for grants, with some funding allocated to programmes on specified topics of key interest. The other three councils (the Natural Environment Research Council, the Biotechnology and Biological Sciences Research Council, and the Particle Physics and Astronomy Research Council) also give out substantial grants, but much of their funding goes to maintain large permanent centres or laboratories. The five councils are modestly scaled administrative operations, with most of them processing between 2,000 and 500 grant applications each per year; the exception is EPSRC which handles some 5,000 applications. Each grant bid has to be individually refereed by

31 THE STRUCTURE OF FIVE RESEARCH COUNCILS IN 1999-2000 INCLUDED IN OUR STUDY

Business unit	Total spend £M	Running costs of central office £M	Running costs as per cent of total spend	Central office staff numbers in FTE	Running costs per staff FTE in £	Number of research grant applications per year
Engineering and Physical Sciences and Research Council (EPSRC)	396	15.8	4.0	294	51,400	6,000
Biotechnology and Biological Sciences Research Council (BBSRC)	202	7.1	3.5	144	49,300	1,800
Natural Environment Research Council (NERC)	220	7.9	3.6	161	49,100	1,200
Particle Physics and Astronomy Research Council (PPARC)	204	4.6	2.2	100	46,000	700
Economic and Social Research Council (ESRC)	69	3.5	5.0	95	36,800	1,600

Notes: Other agencies within the DTI group but not covered in this study are: the Insolvency Service; the Radiocommunications Agency; the National Weights and Measures Laboratory; the Employment Tribunals; ACAS (the Arbitration and Conciliation Advisory Service); and the Low Pay Commission.
All the research councils are control agencies, whose functions include giving research grants and developing thematic research programmes; funding studentships and fellowships. In addition, the BBSRC, NERC and PPARC all fund extensive, directly-run and permanent Institutes or laboratories which undertake scientific work. The Medical Research Council is not covered by this study.

SOURCE: RESEARCH COUNCILS

peer reviewers and assessed by committees before funding is awarded. At the end of the grant period funded researchers submit a final report of their findings, which is also reviewed and assessed. All five councils visited are collocated in the same office building in Swindon, which enhances co-operation such as joint programmes and services and standardisation of administrative practices.

How Web sites developed in the DTI

3.7 Internet usage among DTI customers is in general high, with the exception of small businesses. Large UK companies already have well-developed Web sites and intranets, most company PCs have **browsers**, and working methods have extensively adapted to the advent of the Internet (see Comparator B, page 68). British universities have fewer intranets, but well-developed campus networks giving PCs Internet access for all students and academic staff, and most other staff. Both large companies and universities became heavy e-mail users in the early 1990s. However, as late as 1998 a BMRB survey suggested that only 15 per cent of small businesses and own account workers in Britain used PCs with e-mail (about the same proportion then as households in general), while a further 28 per cent used PCs without e-mail. There is a regional pattern to the adoption of Web sites by small and medium-sized businesses, with firms in London and the southeast most likely to have developed sites, and firms in regions more distant from the metropolis lagging somewhat behind. The proportion of businesses (and of all employees) with Internet access has not shown the same growth in 1999 as the home market, since almost all large businesses already use charged-for ISPs and for reliability and access reasons would not consider using free ISPs. Two possible developments - the much-heralded take-off of e-commerce, and an expansion of consumer demand unlocked by abolishing or radically reducing per-minute phone charges to ISPs - could yet dramatically increase UK business's Internet usage. A spreading of infrastructures facilitating public Web access, encompassing PCs or kiosks in libraries and post offices as well as private sector internet cafes and kiosks, could also have smaller positive effects.

3.8 Business attitudes towards the development of the Web and the Internet are mixed. On the one hand the industrial and stock market enthusiasm for e-commerce has rapidly increased. On the other hand an Institute of Directors survey of major UK business leaders in spring 1999 found only four per cent of respondents rating the Internet as an important threat to their company, and only two per cent who thought that it would allow their company to cut costs. Small businesses are generally rather more conservative than larger corporations. A 1998 BMRB survey found that around half of small business respondents could envisage using electronic technology (touch-tone phones, the Internet, digital TV etc) to interact with government in the future. But only a third were positive about using e-mail or the Internet to contact public departments or agencies. Among small businesses already using e-mail four-fifths were interested in using new technology links to government.

3.9 DTI ministers have pledged to make Britain a leading nation in the development of ICTs and electronic commerce. DTI has sponsored legislation to enhance electronic signatures and security measures designed to speed up the growth of e-commerce, and triggered the pledge that 'by March 2001, 90 per cent by value of low value purchases by central government procurement should be carried out electronically'. It also funds a network of local centres which advise small businesses on getting onto the Web and other issues. The DTI white paper *Our Competitive Future: Building the Knowledge-Driven Economy* set a target of increasing the number of small businesses (with less than 250 employees) wired up to the digital marketplace from 350,000 in 1998 to 1 million by 2002. It is inherent in DTI's strategy that both headquarters and DTI agencies must set a good example of Internet awareness, promoting electronic interactions in all their dealings with business.

The evolution of sites

3.10 In general, Web sites across the DTI were developed in the mid-1990s, earlier than in DSS, and provide more complex functionality. The **DTI headquarters Web site** started originally in 1995 and has developed rapidly since 1997 to the current site, which houses around 3,000 pages of information. It is designed to provide up-to-date and business-relevant information about what the department is doing in an accessible way, and looks quite like a commercial site. Corporate Web development is managed by a new media unit in the publicity directorate, in collaboration with IT staff and the department's IT partners, Unitas. All the staff involved form part of the Resources and Management group. In early 1999 DTI appointed a full-time, new media officer to guide overall Web policy and manage liaison with the content providers in other groups. The **Foresight Web site** is another large DTI site designed to address the needs of a particular audience, and act as the centre of the 'Foresight' exercise, a large network of industry sector working groups, involving chiefly personnel from private firms, the professions, universities and government. Serviced by a small central staff, Foresight aims to develop an 'over-the-horizon' capability, allowing industries and enterprises to be better positioned to meet emerging social, market and technological trends. The programme produced a phase 1 Web site in 1996 of a rather conventional governmental design and a much more ambitious phase 2 Foresight Web site was launched in Spring 1999. It is designed to function both as an important public Web site for people interested in innovation issues, and to provide on its restricted pages an intranet for all the Foresight working groups. The site is well designed, provides a full help and assistance service to Foresight working group members, and also has its own search engine indexing many other relevant sites, called 'The Knowledge Pool'.

3.11 The two DTI trading agencies covered here have both started to develop innovative Web sites as an integral part of their business processes. The **Companies House web site** was set up in May 1997, before which the agency's business methods were almost entirely paper-based. Companies (of all types) submitted annual registration details and accounts on paper, which were then analysed manually by experienced staff (called 'examiners') for consistency and completeness and recorded on microfiche. Paying-customers requesting company details would receive them in fiche form by mail. These manual processes required a high staff load, including examiners (still 150 staff by 1999), people in the scanning division (60 staff in 1999) and a large post-room (75 staff in 1999). In autumn 1997 the agency developed a three-year development plan to 2002, with its ICT strategy at the heart, and the IT Director sits on the agency's main board and reports directly to the Chief Executive. The plan commits Companies House to make a major transition to 'an electronic environment for receipt, retention and dissemination of information'. A Web and faxback service called 'Companies House Direct' was set up as the primary service for paying customers. It offers immediate

downloads of record images and database information. The public Web site offers free access to a list updated daily of disqualified company directors, which provides an effective and accessible way for firms and individuals to check before entering dealings with people they do not know well. Anyone with Web access can type in any name and discover instantly from the Companies House databank if the person with that name is currently disqualified from being a company director. Another free service allows users to search for any company by name and pull up limited information on its name, address, filing number details, the date of the last filed accounts, date of last annual return and the status of the company. The development of Companies House Direct has allowed the agency to begin a phased rundown of its fiche services, with prices for Web-disseminated data coming down and prices for the declining fiche service rising to reflect the higher per item costs involved. The Companies House Web site is designed in-house by the agency's own IT staff, with the assistance of an IT contractor working on site.

3.12 **The Patent Office site** first went live in a basic form in early May 1997, set up by the Central Office of Information for around £30,000. Now run in-house the site grew by mid 1999 to over 1,200 pages. The site design aims for a 'deliberately staid and sober' government department appearance, reflecting the professional attitudes of patent examiners, but the home page is clear and brightly coloured. The Web site has been very successful, in part because virtually all the data stored on the Patent Office's legacy databases could be made readily available on the Internet. The Board of the Patent Office has been strongly supportive of innovation in providing new, free and paid for services over the Web. At Christmas 1998 the site was made 'Website of the Week' by Yahoo.uk, chiefly because of two exceptional features. First, the agency provides copies of virtually all its forms in PDF format so that site users can download them, view them and print them off from their own PC, without having to phone to request forms and wait for them to be posted out. Since users can actually view the 72 forms in detail - covering applications for different kinds of patents, for extending patents, for registering designs and trade marks, and for asserting design rights - they are also able to find exactly which form applies to them, and to inspect the scale of fees involved. Forms have to be mailed in rather than submitted electronically, but since supporting materials often have to be provided, as well as payment, submission is a more complex operation to carry out electronically. Second, the Office provides users with extensive, free, interactive access to its databases and those of the European Patent Office. The Patent Office's own databases can be searched by anyone who knows the registration number or application number of a patent, design or trade mark to check on the status of the registration - who made it, when it was granted, what it refers to. In addition users can look at images of registered designs and inspect the trade mark classification index. The access provided to the European Patent Office search mechanism is much more sophisticated and covers the last two years of applications for patents, allowing searches by registration numbers, date periods, the names of applicants or inventors, or by an ordinary language description of the item. Patents can be searched in the UK, other European countries and the European Patents files, worldwide patents, and Japanese patents. In the UK Patents section users can view a complete description of the product and an image of it. This is an outstandingly useful, free service which delivers a mine of information direct to the user's desktop, even operating at ordinary modem and phone-line speeds. These free databases clearly situate the Patent Office at the forefront of government services on the Web. In addition, the Office provides more extensive and sophisticated search facilities on a charged basis, involving their expert staff in searching and sifting for precise information on behalf of commercial or individual clients.

3.13 The **Office of Science and Technology web site** is less innovative, beginning life as a couple of pages on the Cabinet Office Web site in the mid-1990s, and shifting to the DTI site with little change in 1995. The first substantial site was launched in early 1998 using a private sector consultancy, and that design has endured largely unchanged since, partly because OST incurs extra expense whenever any changes need to be made. The site design is complex and the appearance rather off-putting. There are no interactive elements, although e-mails from users are occasionally received. The site has not been the subject of senior management attention, and has no overall budget. Responsibilities for maintaining or developing it are fragmented between the two parts of OST, and between various sections in each part. The five research councils in Swindon each maintains its own Web site, which are in general more impressive than that of their funding office. The biggest and most professionally run site is that of the **Engineering and Physical Science Research Council.** It is well managed by a high quality team combining scientific, new media and IT expertise, who aim to have a professional site designed at a 'commercial standard'. The site has around 2,000 pages and a high level of functionality, including facilities for grant applicants to find out what stage their bid has reached in the review process without calling in. And in some demonstration areas EPSRC provides links from its index pages of completed research grants to the Web sites of the funded teams, each of which have provided a description of their findings - in some (but not all) cases the whole scientific section of their Final Report. At the other end of the scale the **Economic and Social Research Council's site** has been limited to just 200 pages (a tenth of the EPSRC site's size) by putting materials up for short time periods. For instance, research programme details are posted for a restricted applications period and then speedily removed once the deadline for bids has passed, even if little programme information is then left on the site. The ESRC site was set up in 1996, designed in its current form in mid 1997 and has not been redesigned fundamentally since then. All the Swindon research councils provide downloadable grant forms in template files on their Web sites, which academics and researchers complete electronically on their own PC (with the format automatically adjusting to the volume of material entered). This provision substantially cuts costs, because forms and handbooks no longer need to be printed and distributed in bulk on the off chance that people will apply. Under the old system less than five per cent of ESRC forms came back so most five printing and distribution costs were 'wasted'.

32 STAFFING AND COSTS OF CURRENT WEB SITES RUN BY THE DTI AND SOME OF ITS AGENCIES (IN JUNE 1999)

Agency	Division responsible for running and developing the Web site:	Staff directly running Web sites (FTEs)	Web staff per 1,000 total staff	Approximate annual direct web costs in £	Web expenditure in £ per £ million running costs
DTI Headquarters only	Publicity and internal communications	2.5	0.6	55,000	124
Companies House	Marketing and communications	1.5	1.7	35,000	1,000
Patent Office	Marketing and communications	1.5	2.0	50,000	1,250

Notes: Providing and maintaining Web sites currently accounts for only small fractions of the staff and running costs of the DTI headquarters and its agencies.
For details of how "bare bones" costs were calculated for web sites see Glossary (page 89).

SOURCE: INTERVIEWS WITH DTI STAFF.

Costs

3.14 More resources have been devoted to the DTI Web sites than those in the DSS (covered in Part 2). Figure 33 shows that the level of spend on the Web site at DTI headquarters is higher than in any of the DSS business units, but that it is still a fairly low cost operation. However, the new phase 2 Foresight site is a far more costly project, with expenditure of £3 million planned over five years. As discussed (in paragraph 3.24), providing such an intranet service is much more expensive than running a conventional Web site. Early indications suggest that current costs per user session could be around £3, but the Foresight team anticipate that this cost will decline as projected use rises in line with the original proposal. The Foresight programme as a whole is scrutinised by DTI, and it is also periodically audited by a team from several relevant Whitehall departments. The Patent Office site shows what excellent value for money Web provision can facilitate, with direct costs of approximately £50,000 per year, amounting to just over one per cent of the agency's total costs in operating its services. Most expenditure goes on two full-time Web site editors, plus some managerial input and payments to the Office's ISP contractor. The OST site cost around £13,000 to establish and maintaining it accounts for fractions of time for several staff, in total less than one full time staff member, with annual costs perhaps £20,000. The Engineering and Physical Science Research Council's site, which is maintained by just under four staff (some of them fairly senior) costs £88,000 a year to maintain, including capital depreciation and re-equipping costs (see Figure 33).

How much DTI sites are used

3.15 Usage figures across DTI sites reflect the business activities of DTI customers. In July 1998 the DTI headquarters site received 83,000 user sessions per month (2,700 sessions per day), but by January 1999 this total reached 134,300 user sessions a month (around 4,300 per day). The average length of user sessions remained constant at just over ten minutes (compared with 35 minutes for DSS site sessions). The average number of users is much higher on weekdays, above 5,000 per day, and just over half this level for the weekend. Accesses to the site are also heavily concentrated in office working hours, between 10 am and 6 pm, with a lunchtime dip at 1 pm. Overall two-thirds of accesses to the site occurred in business hours, and just over a third out of hours. Only 35 per cent of sessions started on the home page, suggesting that many users

33 STAFFING AND COSTS OF CURRENT WEB SITES RUN BY THE SWINDON RESEARCH COUNCILS (IN JUNE 1999)

Providing and maintaining Web sites accounts for appreciably greater fractions of the staff and running costs of the five Swindon research councils than in other agencies, but the shares involved are still small.

Research council	Division responsible for running and developing the Web site:	Staff directly running Web sites (FTEs)	Web staff per 1000 total staff	Approximate annual direct web costs in £	Web expenditure in £ per £ million running costs
Engineering and Physical Sciences and Research Council (EPSRC)	Planning and communications	3.9	13.3	88,000	5,870
Biotechnology and Biological Sciences Research Council (BBSRC)	IS/IT Committee	0.6	4.2	37,000	5,210
Natural Environment Research Council (NERC)	Planning and communications	1.0	6.2	50,000	6,330
Particle Physics and Astronomy Research Council (PPARC)	Business Administrative Group	0.5	5.0	40,000	8,700
Economic and Social Research Council (ESRC)	1. External relations division 2. Computing and office services	0.5	3.6	12,000	3,480

Notes: The figures in column 4 are greater than those in column 3 because all the Research Councils have *much less* than 1000 staff.

SOURCE: RESEARCH COUNCILS

access particular pages they have bookmarked or where they know the address, a trait confirmed by a small DTI survey of users of the site. The same survey showed less than five per cent of respondents reaching the site via open.gov.uk, while one in eight people simply guessed the site's highly intuitive name dti.gov.uk. The key locales originating sessions seem to be in London and southern England. Thus the overall DTI site profile is of strong expansion and a set of respondents who are mainly from business and are actively looking for specific bits of information. In the DTI survey users were generally very positive about the site, but found the sheer range of information quite hard to grapple with and to navigate.

3.16 The Companies House site was visited by 52,200 users in March 1999, accessing on average just over five pages each, with sessions lasting for slightly less than ten minutes. Even more than the DTI site the vast bulk (95 per cent) of accesses took place on weekdays, with accesses concentrated in business hours from 9 am to 6 pm. However, this partly reflects the agency's practice of running overnight batch jobs for its largest paying customers requesting bulk data, so that some of the site's most popular facilities are not available overnight. The Patent Office site at first received around 1,000 hits per working day, equivalent to around 150 user sessions. Web use has subsequently grown more than twentyfold to 29,000 user sessions per month. By spring 1999 the Office was also processing electronically (but not via the Web site) over 135,000 patent renewal applications a year, three-fifths of the overall number of these transactions.

3.17 The OST front page is the fourth most visited home page within DTI, but this is only at the level of 2,900 users a month. In contrast, the EPSRC's site attracted 27,000 user sessions in June 1999, lasting for 13 minutes on average - up quite sharply from 19,000 user sessions two months earlier. **The Natural Environment Research Council (NERC)**, with a useful site intermediate between EPSRC and ESRC in cost terms, achieved a record 24,000 user sessions in June 1999, nearly 830 sessions per day. Average session lengths were quite short at six minutes each, however. The two other physical science research councils have substantial sites in terms of pages but do not collect accurate, Web trends data with user-sessions information, making it difficult to assess how far they are used. The **Biotechnology and Biological Sciences Research Council (BBSRC)** had data on daily hits but only up to May 1998, suggesting relatively few user sessions at that time, perhaps 2,000 a month. The **Particle Physics and Astronomy Research Council (PPARC)** has established that usage of its site grew from a low base of 1,600 user sessions a month in June 1998 to over 13,000 a month in June 1999, while session lengths increased from six to eight minutes.

3.18 All the research councils' sites show a bunching of user sessions (and hits) in normal business hours, suggesting that they are mainly used by university and other researchers using office machines. On the EPSRC site 71 per cent of user sessions were on weekdays, on the ESRC site above 80 per cent, and on the NERC site 93 per cent. For the ESRC site, in the first half of 1998 the average user-sessions per month was just under 10,000, falling a bit in the summer months, rising to 11,000 by the autumn. In the first half of 1999 the number of user sessions rose sharply to nearly 14,800 per month, reflecting the launch of some new programmes with downloadable forms. A prominent feature of the ESRC site is that average session lengths have been only seven minutes (nearly half the EPSRC's session length), suggesting either that users are highly expert in finding what they want, or alternatively that they found little content on the site.

The Future

3.19 Future plans offer further transformative potential for DTI agencies. If Companies House is to make the transition to being a fully digital agency, it will need to be able to receive data from companies in electronic formats from the outset. This step could dramatically cut the agency's costs (for instance, reducing its substantial post room staff and the numbers of examiners). And it offers major advantages in improving data quality - for instance allowing the use of automated checking systems of data consistency. The agency's development plan for 1999-2002 (completed in late 1998) looked forward to achieving 50 per cent electronic filing of company details by the end of the planning period, and the agency should easily meet the 25 per cent electronic transactions target for 2002. By then it intends that 40 per cent of 155,000 new company registrations annually will be filed electronically. It also predicts that 95 per cent of the 4.3 million Annual Returns and Other Returns which it expects from firms in that year will be capable of being submitted electronically, although its predicted take-up rate for electronic filing is only 22 per cent.

3.20 Web site developments will play an increasingly important role in the Patent Office's future strategy. By October 2002 the agency aims to undertake key transactions electronically using Internet technology, over the public Internet or equivalent private networks. In particular, by then it expects to be processing around 190,000 patent renewals electronically (70 per cent of the projected total), and nearly three times the current number. It will also process over 20,000 trade mark applications via the Web site (30 per cent of the projected total). For 2005 and 2008 the Patent Office is well on course to be able to process 100 per cent of its major transactions or dealings with customers electronically. Additional savings might result by displacing some enquiry services into electronic mode as general provision of information costs for the agency are presently around £500,000 a year: the agency's Web site is already one of the most frequently consulted Web sites in the engineering profession. Beyond such issues, the Office's main focus is on the development of fully-fledged e-commerce capabilities, especially being able to accept payments electronically.

3.21 The next stage for the Research Councils is to allow applicants for research grants to submit on-line. The ESRC already operates an electronic grant form for research grants, which can be downloaded from their Web site, filled in, validated off-line by the universities and then sent back electronically to ESRC. When the forms arrive at the Council the financial and management data they contain enters automatically into the key database systems, saving around two hours work per form in retyping data from paper forms. This system is already used by around half of applicants, around 20 to 30 applications a month. Paper applications are still being accepted, retyped into databases, and stored in filing cabinets, despite the extra costs and loss of computer-accessible data involved, because ESRC does not wish to discourage good applications. The current electronic scheme will be extended in late 1999 to cover research programme bids and then research fellowships, but paper forms will still be processed beyond 2000 in all schemes.

3.22 The four physical science councils have made a more radical joint innovation, introducing from autumn 1999 a common and fully electronic form called the 'Electronic Document System', developed by a consortium. Staff from the largest council the EPSRC have played a leading role, but there have been major contributions also from PPARC and NERC. The system is based on a hub-and-spokes model. Applicants for grants download and complete an electronic form-filler, and then pass this to a preregistered, authorised submitter (usually the research and contracts division of their university or institution). The submitter then sends the application electronically to the relevant research council, which in turn knows that the authenticity of grant applicants is guaranteed. Thereafter the financial and management information drops into the councils' management information systems automatically, and the scientific case is stored in PDF format. Electronic submission of the scientific councils' form is taken as binding on the university involved. The four science councils have made clear to universities that although paper forms will continue to be accepted for a period after the electronic forms are rolled out, at some point thereafter electronic submission will become mandatory. The EPSRC is especially committed to creating a 'fully electronic environment' for its management systems (which are already highly effective), and it is looking hard at ways of getting the refereeing/reviewing process also into electronic format. PPARC have made a similar commitment.

3.23 The ESRC and the Medical Research Council have decided not to join in with the physical science councils form. They argue that their information needs and constituencies are different and need 'tailor-made' forms - even though there is already scope for variation in the four different science councils' versions of the common form. It would clearly be much simpler and easier for universities if a common form was used by all six research councils, but OST take the view that it is a matter for the councils themselves to collaborate in this way.

Once electronic applications are under way, and paper applications have been reduced or eliminated, the five Swindon research councils should all be comfortably above the current target of 25 per cent capability for electronic transactions by 2002. But if they are to progress to the 2005 and 2008 targets with confidence the councils will have to move further - for instance, accepting electronic final reports on grants, which are exclusively paper-based at present. And if the target focus should shift from capabilities to actual take-up, then the later targets will become more onerous.

How intranets developed in the DTI

3.24 The **DTI headquarters intranet** is closely bound up with an overall renewal of all the information systems supporting its business processes, due to be implemented in autumn 1999. Its current, dated network called OSPREY has limited functionality, giving internal news, providing some on-line forms in a complex and 'clunky' way, and providing some bulletin boards and working group services. It will be replaced by an integrated **knowledge-management system** developed under a public/private partnership known as ELGAR (standing for Electronic Government through Administrative Re-engineering). The new system will be evolved from an existing intranet (called MANDRIN). It will be designed to put more of the DTI's existing information on the desktops of staff handling issues - making it more accessible, improving internal communications, strengthening the DTI's corporate purposes, improving internal decision-making, supporting a large and active Web site, providing an intranet and enhancing e-mail and Internet access capabilities. The system is a PFI project jointly developed by a consortium called Unitas (involving the computer firm ICL and the consultancy firm CMG with DTI in a collaborative agreement).

3.25 Knowledge-management systems seek to maximise expertise within organisations, putting different sections in more effective touch with each other, pooling information and experience and developing stronger corporate understanding. For example, if ministers or the DTI permanent secretary are to meet the chairman of company Z, a circular e-mail might go around from the permanent secretary's office asking people from the separate groups in the department about recent dealings with company Z or prospective issues. Such special trawls are costly to organise and rely on someone central putting the information together and even then the information can only be viewed centrally. Normally information-seeking across group boundaries involves an enquirer in section A finding and ringing the right person in section B, who understands that group's local file structure, thereby doubling the personnel involved in the search process. A staff of 40 people is shifting departmental information onto the new system.

3.26 DTI already has internal and external e-mail, and its usage has grown very fast since 1997, but only 25 per cent of staff have Web access. The ELGAR system gives full internal and e-mail facilities, on-line forms, a staff magazine, news feeds and a link for all staff into the Government Secure Intranet, giving full Web access. From their experience with MANDRIN DTI managers recognise that it is critical to 'win hearts and minds' so that the new intranet becomes a central reference point for staff, especially getting groups to provide up-to-date and interesting content, and persuading older staff onto the system. Knowledge-management systems do not come cheap and ELGAR's hardware and software costs will be substantial over the roll-out period 1999-2001. DTI cannot disaggregate intranet costs further within this total, although they will be a small fraction. The DTI intranet will be accessible by OST and agency staff.

3.27 For the business-facing agencies in the DTI group the development of intranets is much less important than the growth of their Web sites. The **Companies House intranet** began rolling out in Spring 1999 to desktops in Cardiff and Edinburgh. But many staff in operational areas like the post room do not routinely use PCs, and the large staff of examiners work on dedicated terminals, which cannot be used to access an intranet. The intranet provides a weekly staff newsletter, phone book, a set of desk instructions, and access to the Companies House Web site (but not the wider Web). In Spring 1999 there were 420 terminals but only 88 had full Web access. Interactions with other agencies in government are limited and mainly confined to two groups - policy level staffs and people involved in joined-up governance initiatives with other agencies, such as the Insolvency Service or the new Small Business Service.

3.28 **The Patent Office intranet** is a limited service run by the marketing section in tandem with the Web site. It has around 1,600 pages, and includes the staff magazine, health and safety information, and news about top policy-makers. Development work by the main directorates in putting up material on the intranet was still ongoing in mid-1999. There is still a strong separation between the patents, design, trade mark and copyright sections in their information systems - partly because they each operate under different pieces of legislation. Non-expert customers sometimes have to be moved between sections to secure the right kind of protection of their ideas. Key rule books, such as the important *Manual of Patent Practice*, are also in paper form rather than being on the intranet. But all 900 staff (including those on part-time contracts) can access the system, as can contractors.

3.29 **The Research Councils intranets** could become essential elements of their management information systems, given their relatively small volumes of transactions and labour-intensive review processes, especially as the development of electronic grant applications progressively captures more information in electronic form from the outset. The **Engineering and Physical Science Research Council** has a well-advanced plan on these lines with a pilot begun in November 1998. EPSRC staff visited examples of intranets in two large private sector companies and undertook an intensive discussion of the agency's long-term 'wish list' for better management information. A business development case for a full intranet serving all the staff was compiled and approved in May 1999. It envisaged spending around £65,000 to create a 'seamless, corporate, internal electronic information network that is easy to access and maintain' and that will provide virtually all the EPSRC's data on-screen to all staff in an integrated way.

3.30 **The Natural Environment Research Council** launched a simpler but effective intranet for its Swindon central office in 1998, which houses an induction pack, most human relations functions, a newsletter, vacancy notices and directories. It may be extended soon to staff in the council's permanent institutes and laboratories. A new management information system about to enter operation will allow future developments and accesses to databases to be browser-based. A similar pattern applies at the **Biotechnology and Biological Sciences Research Council** where an intranet has been running since 1997. This system also provides access to the 'voluminous' staff code for both the Swindon office and the 3,000 personnel in BBSRC research institutes. T**he Economic and Social Research Council** has an early form of intranet which holds mainly 'long-life reference information'. Managers estimate that their staff looks at the system perhaps once a week. The **Particle Physics and Astronomy Research Council** currently has no intranet, but some electronic communications resources are already developed and an experienced staff member has been appointed from another research council to create an intranet by 2000.

3.31 The agencies of DTI did not see the Government Secure Intranet as an integral part of their Web strategies at the time of our visits. For Companies House, most existing interactions with DTI are handled via conventional e-mail over the Internet and do not involve information needing special levels of protection, since most Companies House data is in the public domain already. Hence the high security and government-wide access provided by the GSI at higher cost does not seem appropriate for all Companies House PCs. Managers also anticipate that there may be additional problems (for instance, security and certification issues) in transmitting a wide range of materials freely to business customers if the agency has extensive GSI connections. The Patent Office had not extensively considered the Government Secure Intranet when we visited, and could see little extra advantage for much of their work. However, the agency has now been accredited to join GSI for those staff members who need to deal extensively with counterparts in DTI and Whitehall. None of the research councils mentioned the Government Secure Intranet as needed for their work.

Conclusions: DTI on the Web

3.32 DTI and its executive agencies dealing with firms or citizens have developed plans for meeting the 25 per cent 'electronic' transactions target by 2002 and accomplishing more in this field in the next three years. We noted progress by Companies House and the Patent Office above. DTI aims for half of the annual applications and casework for the Redundancy Payments Scheme (which is administered from headquarters) to be handled electronically, in addition to the existing capability for making payments direct to people's bank accounts. The Radiocommunications Agency can already assign licenses for radio frequencies electronically, and by 2002 it expects around half these transactions to involve only electronic application and payment processes. DTI has also developed additional services for small businesses in which ICT themes have become increasingly prominent. In its Web site and its transactions policies the department has sought to live up to the challenge posed by the Foresight teams in the mid-1990s of 'leading by example' in the development of the digital economy.

3.33 Yet some important opportunities remain for advances towards 'information age' government. In headquarters the management and budgeting lines for Web activities could be improved and with investment the DTI Web site could be more interactive and orientated to transactions. Assessing costs and benefits here is tricky because of poor existing data, but current Web spending seems easily justifiable. DTI estimates that an average phone call to its central Enquiry Unit costs £1.60 directly, and £2.60 taking account of overhead costs - very comparable to the DSS and private sector figures. With 400,000 phone calls a year to the DTI Enquiry Unit alone, for each one per cent of calls displaced onto the Web site the department could save at least £6,400 annually. Equally with 175,000 user sessions on the DTI Web site a month, if (say) one in ten accesses would otherwise have resulted in a phone call the business benefit to the department is already £0.6 million annually. Managers estimate that each pamphlet or brochure viewed on line saves the department about 50p a time, giving savings of at least £60,000 a year, while on consultation documents Web downloads save up to £3 a time. Normally only around 500 copies of consultation documents would be sent out, but in a recent case there were 5,000 downloads of an equivalent document - giving both a notional £15,000 saving and vastly greater take-up. DTI also sees itself as an organisation closely related to business in its mode of operating. But most major companies now assign some positive public relations or 'goodwill' value to Web site accesses, such as 50p per visit (see Comparator A). Each visitor to the DTI site keeps the department in the public eye, and enhances its ability to deliver government messages effectively: at 50p a time it would suggest PR benefits of over £1 million a year on current, DTI Web site visits. In other areas DTI could also extend the scope of transactions included in the *Modernising Government* targets, for instance, formally bringing the research councils within their scope.

3.34 The department and its agencies may also need to step outside a current mind-set of automating only existing transactions with citizens and firms, and instead to creatively examine opportunities for new forms of service provision which the Web makes feasible, such as using database access to achieve targeted electronic publishing. The draft Freedom of Information Bill, plus a general shift towards storing documents and running filing systems electronically rather than in paper-based ways, could anyway have a substantial impact here. For example, once the research councils begin to automate their final report forms on grant-funded projects, they will rapidly build up valuable databases of substantive scientific information in PDF or other electronic form. Freedom of information provisions in future may compel councils to provide copies of final reports on demand - and some of the physical science councils (but not ESRC) envisage that they would already do so, if requested. For the price of some inexpensive servers the councils could then make all their final reports available via the Web in a zero-touch way, just as patents data is already accessible. The impact of providing fuller, faster and easier information access here might not be easily quantifiable in advance, but it seems likely to be positive for the development of the UK's scientific and research base as a whole. Similar opportunities may exist across a wide range of the DTI group's activities.

part four

the co-ordination of Government on the Web

4.1 Management and budgetary responsibilities for most Web sites provision and most intranets rests essentially with departments, agencies and non-departmental bodies. Very little Web-related spending is made centrally within government as a whole. Ministerial responsibility for departmental administration was widely cited in our interviews as an important influence on the strong differentiation of departmental Web sites from each other, and on the variable progress of intranets. One manager assured us in an interview that his agency's site had remained largely unchanged for two years because he could not alter a single page without ministerial permission. Nonetheless, we showed in Part 1 that the advent of the Internet and World Wide Web challenges all agencies to reconsider how they communicate with citizens and organise their business processes. Because of the pace of technological and social change in this area, aided by ministers' emphasis on joined up government, civil servants and public officials are now looking to central agencies for more guidance and help in formulating their Web and intranet policies. In addition, *Modernising Government* recognises that achieving 'information age government' raises corporate issues for Whitehall as a whole, and indeed the public sector as whole. Major changes in **ICTs** require substantial and co-ordinated investments across programmes and departments. And public officials have frequently learnt (and then relearnt) difficult and sometimes costly lessons in implementing ICT changes. Central agencies have a strategic interest in controlling the adoption of new technologies so as to minimise mistakes and to foster the most rapid learning from experience possible.

4.2 These contradictory impulses - towards devolving power to departments and agencies, or recentralising controls at the heart of government - have led to differing patterns of control at various times. In the late 1970s ICT policy was relatively centralised, and linked with an industrial strategy of favouring British 'national champions' in the IT area. In the 1980s the balance swung back towards the departments controlling their own IT procurement, and the Treasury's central control mechanisms over IT were largely dismantled. The creation of Next Steps agencies led to further devolution of control over large computerised systems to the executive agencies directly operating them (except in the DSS, where control was centralised across the department in ITSA). Now the development of the Web and the Internet raise conflicting issues about controls within departments and agencies, as business units and content providers set more ICT policy, rather than specialist IT staffs (see paragraph 1.38). In this Part we look first at the range of central agencies involved in government on the Web issues; and then at overall performance on the 25 per cent electronic transactions target across central government.

The role of Central Agencies

4.3 One key agency with responsibilities for co-ordinating the development of modern public services is the **Cabinet Office**. The department has just over 1,600 staff, and running costs of £200 million. Its brief includes organising the Cabinet committee system and ensuring that decisions are minuted and implemented; supporting ministers with government-wide briefs and the Cabinet Secretary in his role as head of the civil service; and undertaking a range of trans-departmental roles to facilitate better government (often in collaboration with the Treasury). Until recently the Cabinet Office was divided into two parts, with a strong separation between the Cabinet secretariat and the Office of Public Services (OPS), which included a range of different offices with trans-departmental briefs and responsibilities. In January 1998 OPS was abolished as a separate body and reabsorbed into the Cabinet Office, following a report by the Cabinet Secretary, approved by the Prime Minister, which identified a need for a stronger central agency promoting good practice and government modernisation on a broad front. A second Permanent Secretary post was retained in the Cabinet Office to co-ordinate work on public service delivery, civil service management matters, and information and organisational issues, and this group includes divisions charged with modernising government and the public services, and with policy and innovation issues.

In this Part:

The role of central agencies

The 25 per cent 'electronic transactions' target

What more might be done

A new Centre for Policy and Management Studies began work in mid-1999 under the Cabinet Office to develop research and training programmes orientated to promoting innovation across central government. The most important statement of government's overall policy is the *Modernising Government* white paper, issued in March 1999 by the Cabinet Office, with an introductory letter from the Prime Minister. It identifies the key principles of modernisation as being the promotion of a joined-up approach to policy issues; adopting a user-focused approach; developing an excellent quality of service for citizens and customers; and promoting the greater use of ICTs and 'information age government'.

4.4 Within the Cabinet Office there is a small policy unit of 29 staff (of whom 12 are policy-level staff) called the **Central Information Technology Unit (CITU)**. First established in 1996 CITU has remained a small body, and in 1998-99 had a budget of £4.7 million a year, much of it spent on commissioned research and support of some general, government interest initiatives. CITU produced the green paper *Government Direct: A Prospectus for the Electronic Delivery of Government Services* in late 1996. It examined a range of possible developments to make services 'more accessible, more convenient, easier to use, quicker in response and less costly to the taxpayer'. The emphasis was mainly on the use of smart cards by citizens to allow them to interact with government, much as bank customers have been able to do with banks in managing their accounts and withdrawing cash. The *Government Direct* paper also paid exclusive attention to citizens accomplishing transactions with government, rather than simply seeking information. At this point the published text put little emphasis upon 'joining up' government, and the Internet and the Web did not feature in a major way in the document. When ministerial thinking changed after the election, CITU developed one of the four work strands leading up to the *Modernising Government* white paper, dealing with 'information age government'. CITU commissioned extensive research (including large-scale surveys and focus groups) from the survey company BMRB on how citizens viewed a wide range of mechanisms for interacting with government agencies, including touch-tone phones, digital TV, electronic kiosks and PCs. The results were published in Autumn 1998 as *Electronic Government: The View from the Queue* and widely circulated within government. Again the focus was firmly on transactions or dealings with government, and the document tried to determine from the survey and focus group responses what the potential was for electronic transactions to develop, and which electronic mechanisms would be most or least popular.

4.5 There were further developments in CITU's strategy towards government on the Web from Autumn 1998. The Unit commissioned the Web private sector consultancy Cyberia to undertake focus group work on *Government Web Sites and the Delivery of Public Services*. They found that the existing pattern of sites was confusing for many users, with a jungle of different styles for navigating sites and information organised more in line with insider knowledge than citizens' needs. In January 1999 CITU created a Government on the Internet working group including representatives from four central departments and agencies, three other Whitehall departments, the Local Government Association, the National Health Service, the Communications Unit in 10 Downing Street, Cyberia staff, and with a Cabinet Office secretary. The group began work on two main projects, producing a set of 'Guidelines on Government Websites' designed to bring more order and coherence to departments' and agencies' sites and to make them more usable as a whole by citizens: these recommendations were publicised in October 1999. They also considered the case for relaunching CCTA's **open.gov.uk** site in a new format (see paragraph 4.12).

4.6 CITU's ability to influence departments'and agencies' policies is limited because the unit has only a small development budget of £3 million annually, concentrated in recent years mainly on commissioning research and on setting up the Government Secure Intranet (GSI). CITU also provides £60,000 for the security and maintenance of the **open.gov.uk** site. Both GSI and the Web site are run by another agency, CCTA, and are discussed below. CITU have very few policy-level staff and concentrate on trying to spot future trends, bring together information on good practice from across government, commission small amounts of research, and organise conferences, meetings and other forms of dissemination across the civil service. But the Unit has never seen itself as having any kind of regulatory role, and is not resourced to monitor trends in government Web sites or intranets in any systematic way. When CITU was asked to collate data on the 25 per cent target, they decided to sub-contract the work involved to CCTA. The result is that no government department or agency in Britain apparently collects systematic information on the level of use of public sector Web sites in general, or on trends in usage. CITU's look-ahead advice on future directions for the public sector has often been listened to by departments and agencies, where staff with ICT roles are understandably made anxious by the current rapid change of pace and direction in technological developments, and are keen to correlate their strategies with other agencies. Whitehall departments have often sought guidance on issues such as web design from CCTA and CITU. But departments and agencies with large ICT budgets do not see small-budget bodies like CITU or CCTA as significant players with any right to regulate operational decisions, such as Web site design. CITU's greatest resource in influencing departments and agencies is their ability to involve the Cabinet Office ministers, the Cabinet Secretary, and on occasion even the Prime Minister, in backing central initiatives.

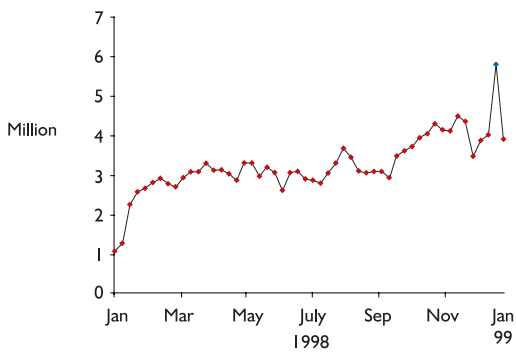
4.7 A second central agency involved in the development of government on the Web is **CCTA (the Central Computer and Telecommunications Agency)**. CCTA is a 'Next Steps' agency, a specialist provider of information services and advice within government. In the early 1980s the organisation was an

arm of the Treasury and played a much bigger role as a central regulator of government IT spending and contracts. As central regulation of IT decision-making was wound down, CCTA was radically reduced in size. By the 1990s it became essentially a trading agency, selling services and advice to departments and agencies on a commercial fees basis. The agency moved out of central London to Norwich, and now has a staff of 200 (down from 540 in 1988) and running costs of just over £13 million a year. In Autumn 1999 the Gershorn report to the Treasury recommended that along with other procurement agencies CCTA should become part of the new Office of Government Commerce (OGC), which would have a supervisory board chaired by the Chief Secretary to the Treasury and a head appointed at Permanent Secretary level. OGC's role is to provide a 'one stop shop' for procurement within government, and it will aim to achieve immediate savings of £1 billion over the next three years.

4.8 CCTA played a central role at the beginning of government on the Web developments by establishing a central Web site for routing users to departmental and agency sites at the address **open.gov.uk** in October 1994. (We avoid here CCTA's long-time description of the site as the 'Government Information Service', or GIS for short, which is very easy to confuse with a completely different initiative the 'Government Secure Intranet', GSI for short.) Many officials stressed to us the importance of the **open.gov.uk** initiative in getting their department or agency started on the Web, because CCTA also hosted sites on its server for agencies new to the Internet. CCTA's basic advice notes on Web publishing influenced the initial style of government Web sites in 1995-97, emphasising simple and uncluttered presentation of information, and accommodating the needs of partially sighted or blind users who access using special site reader software. The **open.gov.uk** site quickly became an established way of finding public sector sites in the period 1995-97, providing an alphabetical list of organisations from central government, quasi-government agencies, the National Health Service and local authorities. Public bodies with sites run by CCTA were automatically registered, and bodies whose sites were hosted by other ISPs only had to notify CCTA to be included. The site also included a 'functional index', which depended on agencies and other bodies filling in a questionnaire. And **open.gov.uk** also provided a search engine where in theory users could type in ordinary language search words and be directed to relevant sites.

4.9 It is now difficult to establish how successful CCTA's site was at different periods. CCTA did not publish data on user sessions for **open.gov.uk**, but only on total hits (which is not a very useful index, because accessing a Web page with multiple elements will count as multiple hits). From mid-1997 CCTA also set up on the same servers as **open.gov.uk** a Royal Web site on behalf of the Queen and the Royal Family, and hits to this basically non-governmental site can serve as a useful point of comparison. Figure 34 shows the weekly pattern of hits which across 1998 averaged 3.3 million a week on the open.gov.uk site, which we estimate at around 470,000 user sessions a week or around 1.9 million a month. In the same year there were just over two million hits a week on the Royal Web site, which we estimate at around 286,000 user sessions a week or 1.14 million a month. Although the open.gov.uk site shows some signs of growth at the very beginning and very end of 1998 the mid-year trend line is fairly static - in a period when Web use generally was rising sharply in the UK and worldwide. Although systematic update material is not available for 1999, data on 'page requests' is available for the somewhat redesigned open.gov.uk site now operated across four Web servers by CCTA, plus the Royal Web site. ('Page requests' data avoid counting multiple hits per page, but still they do not give the more useful 'user sessions' data, since one user may request multiple pages). For a recent week in mid October 1999 there were 2.6 million requests for pages from **open.gov.uk** on the CCTA's government servers, or 376,000 requests for pages per day. By comparison the Royal Web site traffic in this week was only 180,000 page requests, or just under 26,000 page requests per day. In the same week, the top five sites clicked on to from **open.gov.uk** were the Central Office of Information (1.3 million hits), the Department of Health (0.74 million hits), the Department of Environment, Transport and Regions (0.38 million), the Commonwealth War Graves Commission (0.37 million) and the Inland Revenue (0.25 million). Just below this group came the Home Office, the Courts Service, the Metropolitan Police and the Health and Safety Executive.

34 WEEKLY NUMBERS OF REQUESTS (HITS) ON THE OPEN.GOV.UK SITE DURING 1998



SOURCE: LSE SURVEY

4.10 The **open.gov.uk** site is now well registered with the major search engines and CCTA claims that it is 'one of Europe's major public sector Web sites'. But the site has always suffered from the fact that its address or URL is not intuitively findable. Outside the British civil service open government is not a very widely used phrase. An averagely informed user might well guess that the Department of Trade and Industry is **dti.gov.uk**, that the Department of Social Security is **dss.gov.uk** and that the Benefits Agency is **ba.gov.uk** . But she or he would be very unlikely indeed to intuitively associate British government as a whole with the word 'open'. Names like 'central.gov.uk' or 'hm.gov.uk' or 'any.gov.uk' or 'whitehall.gov.uk' might have been more intuitively findable, and more memorable once users had accessed the site once. CCTA might also have registered these and other possible URLs and provided router pages there to open.gov.uk even if that name remained unchanged. The design of **open.gov.uk** was also criticised by many officials in our interviews. Until Summer 1999 the site used a frames design. This approach meant that when users clicked on from **open.gov.uk** the CCTA's logo and search keys still took up around a third of their screen, forcing the new site to be displayed in only part of the screen, so that parts of the new screen were not displayed, nor was the new site's URL visible either. The **open.gov.uk site** was also never redesigned from its launch date in any respect until late Summer 1999. (For instance, for nearly three years the home page had a button on it for 'Government Direct' the 1996 green paper with this title, which received 2.2 million hits in 1998, even though the material included was by then out of date. The **open.gov.uk** homepage also confusingly included another direct access government button with different material) Not only did **open.gov.uk** set a conspicuously static example for other agencies, but the site's home page still does not alert users to current developments. There is a 'What's New' page one click lower down which provides eclectic material supplied by departments. The CCTA's search engine was very widely criticised in our interviews, and in multiple tests we made it never succeeded in prioritising information in any understandable order. Given the general advance in the search engines provided by the main Web portals across this period, the **open.gov.uk** site effectively became less searchable than the Web as a whole from 1998 on. In addition many public bodies registering their sites on the **open.gov.uk** organisational index did not complete the information necessary for its 'functional index', which was thus seriously underpopulated and rather misleading.

4.11 Departmental Web-trends data which we examined show that references from **open.gov.uk** are not numerous. One in 12 DTI site users responding to an on-site survey guessed its URL, compared with only one in twenty who found it via **open.gov.uk** . After 1997 therefore there was a steady drift of departments and agencies away from being hosted by CCTA and towards setting up their own sites. Some interviewees felt that CCTA adopted a deliberate policy of charging 'over the odds' fees in order to encourage them to move on to private sector ISP firms. Critics also noted that setting up the Royal Web site on the same CCTA servers produced some times when **open.gov.uk** was inaccessible because of the volume of users logging on to catch the more sensational royal developments. A recent increase in bandwidth has helped address this problem, however.

4.12 A decision was taken in late 1998 to relaunch the **open.gov.** Web site, partly as a result of CITU looking at some overseas examples of more integrated government approaches to establishing an overall Web presence, and partly reflecting dissatisfaction from 10 Downing Street staff handling the government's overall communications strategy. The relaunch was devolved to the Government on the Internet working group, chaired by CITU, with Cabinet Office, CCTA, Treasury and Downing Street representatives all involved: it began work in January 1999 and aims to produce a relaunch in early 2000. An interim refurbishment of the site took place in late Summer 1999 which effected considerable improvements, getting rid of the frames basis, speeding up the site, and improving the homepage and functional index. At this time it is not clear whether the **open.gov.uk** name will be retained in the fully relaunched site in 2000 or whether a new site name will be used. But the aim is to produce a much more modern and integrated 'front end' for reaching public sector Web sites as a whole, and one which will link more coherently with all other central government sites as a result of the recommendations on Web site design produced by the same working group in Autumn 1999.

4.13 A second key initiative undertaken by CCTA with development funding from CITU has been the **Government Secure Intranet (GSI)**. Set up in April 1998, GSI is a central e-mail and Internet access facility for central government as a whole, managed by CCTA but with the connections and operations actually provided by the private sector firm, Cable and Wireless. A section of the Government Communications Headquarters (GCHQ) in Cheltenham specified GSI to provide secure e-mail facilities for documents up to 'Restricted' status without need for any further encryption. GSI was designed by Cable and Wireless within this specification. This security feature is a powerful incentive to join for senior policy level staffs and for agencies handling personal information on citizens. In order to maintain this enhanced level of security new users to GSI have to register and have the physical security of their whole Local Area Network infrastructure that they connect to GSI accredited for security, as well as not having external connections at lower security levels accessing into their systems. **Firewalls** are provided between the GSI-connected elements of departments or agencies and other domains inside organisations. In addition to the normal GSI service a higher security service called xGSI also exists which provides protection for documents and e-mail communications up to the 'Confidential' level, again devised with help from GCHQ. Cable and Wireless anticipate the future development of a GSI extranet and a GSI suppliers community to connect up other government bodies, for example, local government.

4.14 The standard facilities provided by GSI in 1998-9 were advertised by CCTA as inter-departmental e-mail and document and file transfers, e-mail to the Internet, Web browsing on both the Internet and on GSI (for material not available to the public), and directory services. However, the directory services, which were supposed to allow officials to find the right person to call in other GSI-connected departments, have been put up very slowly and are not yet fully established, attracting a good deal of criticism from our interviewees. Some departments on GSI have provided e-mail addresses only for sections, but not individual addresses for officials within each section. Other GSI services and features are also seen as slow to develop. CCTA speaks of a 'GSI community' and stresses that GSI "allows departments to publish material for the benefit of government as a whole; professional groups to establish collaborative facilities for information and discussion; and shared purchasing of facilities such as news feeds and database access". Despite discontent with the slow arrival of directory services the number of departments and agencies connected has grown steadily from four initially in April 1998 (one of which was the Cabinet Office) to 40 by Autumn 1999, including virtually all of the main Whitehall departments. Developments planned for GSI's immediate future by CCTA and CITU include secure links to European Union sites; remote access to GSI for staff members who are not accessing from a secure physical environment; an extranet for local authorities; and a range of commercial services including authentication, notarising and proof of receipt of electronic materials.

4.15 In the longer term CITU have an idea of converting GSI into a fully-fledged 'government portal', through which citizens would be able to reach the whole of government and which would become an important route for two-way transactions. PA Consulting was commissioned to produce a feasibility study, which was published on the CITU Web site in Summer 1999 and sets out a possible technical architecture for such a portal. Operational responsibility for developing a useful government portal is still unclear, since it would be beyond CITU's resources. Both DSS and the Inland Revenue have been suggested as suitable developers, since they are the departments with the highest levels of contact with citizens. The broader portal concept involves the development of what are called 'metadata', which are essentially ways of labeling the contents of a Web page in such a way that it can be instantly indexed by modern Web search engines, allowing much fuller and more reliable information to be provided about the page to potential readers. Good metadata would also allow more sophisticated and faster searching, with results displayed much more intuitively - so that readers can check the most useful possible sites for their topic first. A key CITU objective is that all UK government data should be held and structured in such a way that it can be accessed from GSI. The viability of any portal scheme depends a great deal on how far departments and agencies actually sign up for GSI, which on a large scale may be appreciably more expensive and perhaps on occasion slower than operating with conventional Internet e-mail and file transfer facilities. Most ministerial headquarters have signed up all their staff, and we noted above in Part 2 that some DSS agencies are keen to be connected also. However, business-facing agencies in DTI did not see GSI as necessary or appropriate for the vast bulk of their work, although most will have some connection.

4.16 The 'government portal' ideas being examined have not extended to the idea of giving citizens (and perhaps firms) access to free e-mail and Web addresses, on the lines followed already by the Swedish Post Office. There are two reasons why these strategies may be worth considering. First, in the longer term a prominently-used government portal might be essential if the visibility of government in society's information networks is not to reduce continuously over time, with adverse impact on government's ability to get salient messages across. And second the current proliferation of ISPs and portal sites may be superseded in the near future by a shake-out into a few large portals. If this occurred, government might come to depend on links to these established portals, and find that the providers are able to exact a significant charge for channeling users to government sites.

4.17 ICTs have important implications for capital spending, and possibilities for reducing labour costs also. **The Treasury** have no units focusing solely on ICT issues. Treasury discussion with departments now takes place at a number of levels, notably through the Public Service Agreements (PSAs) which set out the outputs which departments will deliver in return for the resources allocated to them. ICTs will in many cases play a key role in the delivery of these outputs. A staff of 150 work on the design and monitoring of the PSAs, mostly working in teams of 12 to 15 'shadowing' individual departments. Two central teams with about 12 staff in each are responsible for budgeting and the PSA framework, one of which addresses high level ICT issues among other matters. The current round of PSAs were finalised for three years in 1998. They make reference to the target for 25 per cent of government transactions to be 'electronic' by 2002, and departments have to sign up toward meeting the target. During 2000 the Treasury will review the PSAs to see what changes are needed in the next round, and will probably incorporate reference to the further *Modernising Government* targets of 50 per cent electronic transactions capability by 2005 and 100 per cent by 2008.

4.18 In discussion with us the Treasury recognised that the development of government on the Web might be held back for the time which it can take larger agencies to change their business planning processes. The absence of competition within government previously meant that the financial drivers for change were different for public sector agencies. However, the Treasury hope that the new focus on outputs which PSAs have introduced will create incentives for agency managers to look more vigorously at better ways of delivering their business. The

Treasury see potential scope for improving the definition of an 'electronic' transaction used for the PSA targets, but any such refinements would need to be discussed with CITU who take the policy lead in this field.

4.19 A number of other central agencies and groupings are involved in influencing government on the Web issues in more peripheral ways. The **Central Office of Information (COI)** maintains a key Web site of all government press releases. It also has a small staff which offers Web site design services on a commercial basis to other public sector agencies, again a facility often used by departments and agencies in the early stages of establishing a site. COI chairs and convenes the **Government Internet Forum**, which holds monthly meetings open to all Webmasters and other staff immediately involved in Web and intranet developments around Whitehall and its agencies. The Forum has played an important role in disseminating knowledge and ideas between agencies because of its representative character, incorporating a wide variety of department and agency viewpoints, unlike the Government on the Internet Working Group which has a limited membership selected by CITU, who convene it. A further potentially influential central grouping was created in May 1999, following a recommendation in the *Modernising Government* white paper that government as a whole needed to adopt a more 'corporate' and joined-up approach to using ICTs to transform the public services. Each of the Whitehall departments has nominated a senior official at board level to act as their **Information Age Champion** and to spearhead change on the components of the overall government IT strategy, with the Cabinet Office providing some support for their work. The information age champions have now begun to meet as a (large) group, but it is still too early to assess what impact this innovation will have.

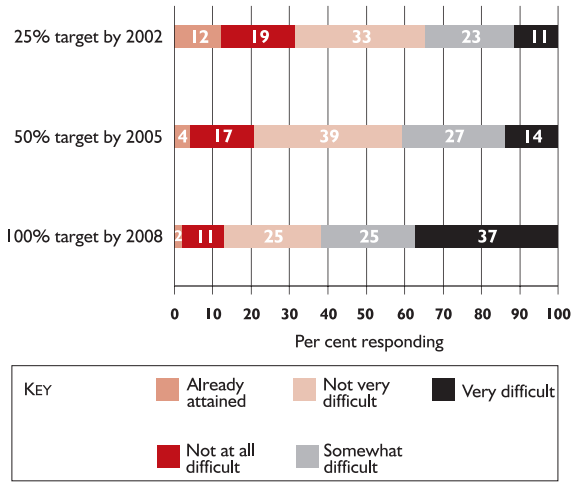
4.20 Some general policy issues arising from Web growth and the *Modernising Government* white paper remain to be clarified, despite the proliferation of bodies with a toe in the water of central Web policy. Top of these problems is how to handle e-mail, which is the normal enquiry mode associated with Web access. We noted in Part 1 that in November/December 1998 only a minority of Whitehall departments and agencies published e-mail addresses and accepted e-mails on substantive issues or enquiries, but the numbers involved have since been rising gradually. One common civil service practice is to set a norm so that any e-mails accepted are required to get a response within the same time-limit as **white mail**, normally 15 working days. In practice, hard-pressed officials have incentives not to let a backlog of messages accumulate, so e-mails often get faster responses. However, in some cases agencies and departments have interpreted parity with white mail to mean that all responses should be delayed for 15 working days, partly for fear of encouraging repeat correspondence or of stimulating an unmanageable increase in e-mails by providing any faster service. A few agencies take the view, however, that e-mails should be treated more like phone calls than white mail, and hence should be responded to immediately or at most within a couple of days - a view adopted by the CITU-chaired Government on the Internet Working Group. Where agencies do accept substantive e-mails, practices vary greatly as to which officials receive them. Only a few organisations (such as the Department of the Environment, Transport and the Regions) publish on their web site quite detailed breakdowns of topics of whom to e-mail with what issues. Other agencies publish only a single e-mail address from which messages are routed to appropriate officials, often by a central enquiry team which also handles phone accesses. But the most general Whitehall practice is still not to publish an e-mail address for substantive messages, but only to provide a commenting facility which allows people to notify the Webmaster of glitches on the site or to give feedback on its design. Even so users will often seek to send substantive enquiries to such addresses. Lastly many organisations (including some important Whitehall departments until very recently) do not include any facility for members of the public to e-mail them.

4.21 The risk of encouraging an avalanche of e-mails from the public or from businesses is often raised when government officials discuss this issue. It is clearly important that e-mail contact procedures are worked out both on a common standard across government and linked to a reassessment by agencies of how their external Web sites are constructed. Well-designed sites with simple and direct language, proper interactive features and providing access to substantive and easy to understand information are least likely to generate a flood of e-mails from users. Badly designed or poorly maintained sites, or where the information provided is hard to understand or becomes out of date, will automatically trigger requests for clarification. Unnecessary e-mails are also less likely if multiple contact routes are clearly provided, especially phone links, and if members of the public get some directory services indicating who to contact. There are also risks that mass e-mail campaigns will be made against government sites at times of particular controversy in either the UK's foreign relations or domestic politics. But it is relatively easy to filter out mass e-mails by their originating site, or by the inclusion of particular words in the heading or message. Where departments and agencies regularly receive e-mails on a common topic it is also often possible to recognise such messages (for example, requests for a leaflet or form not available via the Web site) and to send back an automatic reply. Again pre-structured enquiry facilities, where people enter their address details and pre-code their queries, can often be routed straight to agency databases and trigger an appropriate response in a zero-touch manner - such as the dispatch of a form. A focus on zero-touch technologies might well allow agencies to reduce the need for officials to intervene in meeting requests for information or access to basic facilities. However, some senior officials cite authentication/verification issues, security concerns and complex business processes as reasons why such developments are still some way off.

The 25 per cent 'electronic transactions' target

4.22 A central element of the white paper chapter on 'information age government' is an October 1997 pledge by the Prime Minister that 25 per cent of transactions between citizens and government should be capable of being conducted 'electronically' within five years. The 1999 white paper *Modernising Government* greatly extends the planning horizon by specifying additional targets for departments' and executive agencies' capacities to undertake 'electronic transactions', which must reach 50 per cent capability by 2005 and 100 per cent by 2008. In our survey of agency heads and permanent secretaries we asked them to assess the difficulty of achieving the white paper's target for the proportion of transactions with citizens to be carried out electronically (see Figure 35). One in seven respondents said that they were already meeting the 2002 target of 25 per cent electronic transactions, and a further half said that it would be "not at all" or "not very" difficult to meet the target. Nonetheless one in seven respondents felt that the 2002 target would be "very difficult" to meet. Over half of respondents also felt that they would have "little difficulty" in meeting the 2005 target of 50 per cent electronic transactions, and the proportion expecting it to be "very difficult" increased only slightly. However, only two-fifths of respondents expected a straightforward path to achieving the 100 per cent electronic transaction target by 2008, and a third rated this last target as "very difficult". We asked a supplementary question to assess how far achieving the target would be accomplished via telephone transactions alone (see Figure 36). For the 2002 target nearly half of agency heads saw phone transactions as the predominant element in meeting the 25 per cent, but this proportion fell to less than two-fifths of agency heads for the 2005 and 2008 targets. There was a consensus that phone transactions would make up a quarter to a half of electronic transactions by 2005 and continue at this level for 2008.

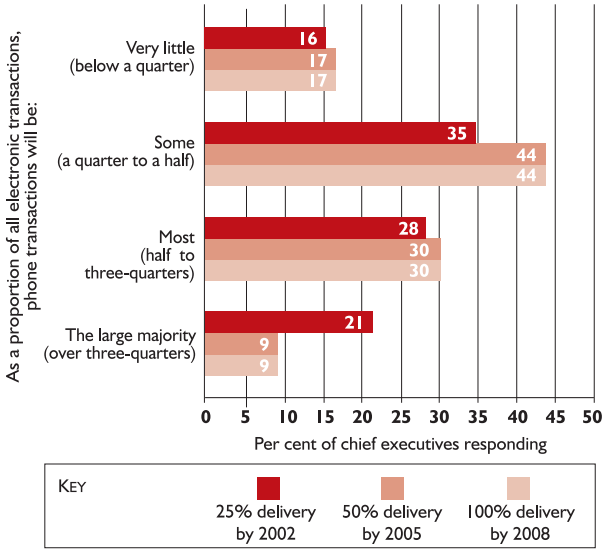
35 How chief executives saw the difficulty of attaining the 'Modernising Government' targets



Source: LSE Survey

4.23 Although CITU has not previously had a monitoring role, it has taken on responsibility for collating data on progress towards the 25 per cent target (although the work involved is actually contracted out to CCTA). 'Transactions' are defined narrowly by CITU and the Cabinet Office as any two-way dealing between a government office and a citizen: one-way processes are excluded, for instance a citizen just phoning a department for information or accessing a government Web site. The Cabinet Office worried that if a transaction was more broadly defined to include one-way accesses then departments and agencies might simply insert an electronic phase into otherwise paper-based processes, thereby evading the point of the 25 per cent pledge. By contrast 'electronic' transactions are very broadly defined by CITU and the Cabinet Office as any which systematically employ phone, video, **electronic data interchange (EDI)**, computer payment, a kiosk or ATM (automatic teller machine), or a Web or Internet connection. 'Systematic' phone communication excludes ordinary random or unplanned phone calls, and implies the use of call-centres and well-established, phone-based administrative procedures. Even so, it is difficult to understand why *Modernising Government* continues to define 'electronic' as embracing systematic phone communication, other than the longer history of this particular phraseology in the *Government Direct* policy. In the current period, 'e-mail', 'e-commerce', 'e-banking' and so on, are all taken in normal parlance to refer to Internet-based or Internet-only transactions. So the white paper's use of 'electronic' is likely to become increasingly idiosyncratic and liable to misinterpretation by all but the most expert of government insiders. Over the next few years explaining to the media, the general public and even the great majority of public servants themselves that 'electronic dealings' includes phone-based transactions (and not just Internet/Web dealings) is likely to be inherently confusing and time-consuming, detracting from the simplicity and effectiveness of the original pledge.

36 How chief executives see the importance of phone-based transactions in future electronic transactions



Source: LSE Survey

4.24 CITU initially organised a data trawl of Whitehall departments in Autumn 1998, which revealed that there were then wide inconsistencies in the interpretation of what constituted a dealing or a transaction, undermining the usefulness of the statistics which departments initially put forward. Following a meeting of all departments, CITU re-specified 'transactions' in the way set out in paragraph 4.23, and allowed departments to focus on a sample of their main 'dealings' with citizens (construed as a series of 'transactions'). In April 1999 revised figures on departments' progress towards meeting the 25 per cent target were produced on an agreed basis, announced in Parliament and posted on the CITU Web site. The new data separated out capability to handle 'electronic' transactions from actual transactions, and also counted separately payments made by agencies through the banking system (which have historically been much more automated) from other forms of dealing. However, the figures did not distinguish which transactions were phone based and which were Web- or Internet-based or used a PC. Accompanying notes to the published tables for each department almost made clear this distinction in many cases, but not quite. So in June 1999 we asked CITU to undertake some further analysis, going back to departments and asking them to clarify which dealings are phone-based and which are Web-based or Internet-based.

4.25 Figure 37 shows electronic dealings for each department situation in 1999 and in departments' projections for 2002, excluding payments made through the banking system which have mostly been developed over many years and hence say little about departments' current progress on modernising government. In addition to the already published data we asked CITU to go back to departments and to estimate capabilities for 1999 and 2002 which excluded telephone-only transactions. Additional data on this basis are included in Figure 37. (For details on these data, see Appendix 11). Across government as a whole the number of transactions excluding payments was estimated at 480 million in 1999, of which departments could already process just under a third electronically on CITU's definition, falling to just over a fifth when telephone transactions are taken out. For 2002 the projected volume of transactions is expected to grow to 518 million, and electronic capability to expand to 70 per cent including phones, and 59 per cent excluding phones. Figure 37 shows that the vast bulk of capability to handle non-payment transactions will be operated by the top nine departments, which are arranged in descending order of the projected size of their total transactions in 2002. All the big departments or departmental groups will be comfortably above the 25 per cent target in 2002 in terms of their capabilities for processing transactions. Six of the successful eight major departmental groups will also have an actual take-up level of electronic transaction in 2002 which is comfortably above 25 per cent. But achieving actual, take-up rates close to this level is much more difficult for three departments. Inland Revenue will achieve 21 per cent take-up of electronic transactions on its declared data, up from 18 per cent in 1999. It expects only three per cent self-assessment returns to be submitted electronically in 2002, which may seem very conservative. However, there do seem to be some glitches in the current electronic versions of simple forms for self-assessment so that the Revenue's figure is probably realistic. The Department of Environment, Transport and the Regions will achieve 17 per cent take-up of electronic transactions, up more appreciably from 9 per cent in 1999. And we noted in Part 2 that the Department of Social Security will still have negligible electronic take-up, apart from handling just over a sixth of retirement pension enquiries over the phone.

4.26 Although Figure 37 seems to chart encouraging progress, there is a strong sense in which looking at the departmental group statistics is in fact rather misleading. Within departmental groups, and especially in those with most transactions, the most detailed CITU data on individual major dealings show that the level of change in electronic transactions is not very large in many cases (see Appendix II). The apparent improvements in government-wide and departmental totals can be traced back in the main to positive developments in just ten agencies, which either have made the most substantial improvements in electronic access or have the largest existing volume of transactions with citizens:

- Rapid progress towards digital administration in non-payment transactions is heavily concentrated in the following six agencies:

  - **HM Land Registry** will double its already impressive take up for pre-completion on-line searches (8.5 million new electronic transactions), and develop from scratch a take-up of nearly 50 per cent for post-completion searches (6.4 million new electronic transactions). In addition, it will make 5.6 million new, electronic payments transactions.

  - **The Employment Service,** within the Department for Education and Employment, will grow the take-up of vacancy taking and filling accomplished electronically from one-sixth to two-thirds (10.9 million new, electronic transactions), and create some capability for handling jobseekers' allowances electronically (nearly 2.5 million new, electronic transactions).

  - **Companies House** will grow its total appreciably (3.3 million new, electronic transactions) and the **Patent Office** less so (0.3 million new electronic transactions), both within DTI (see Part 3).

  - **The Driver Standards Authority**, within the Department of Environment, Transport and Regions, will double the electronic take-up of driving and theory tests to over 90 per cent (1.2 million new, electronic transactions).

37 How far central government departments will conduct electronic dealings with citizens (excluding payments through the banking system) in 1999 and 2002

Departmental Group	1999				2002			
	All dealings (000s)	Per cent of actual dealings electronic	Per cent electronic *capabilty* excluding phone	Per cent electronic *capabilty* including phone	All dealings (000s)	Per cent of actual dealings electronic	Per cent electronic *capabilty* excluding phone	Per cent electronic *capabilty* including phone
Inland Revenue	227,714	18	29	42	**245,214**	21	72	80
Department for Education and Employment	65,067	6	9	18	**63,150**	27	32	45
Department of the Environment, Transport and the Regions	50,260	9	11	18	**50,398**	17	55	76
HM Land Registry	23,807	19	22	37	**32,105**	57	74	88
Department of Social Security	33,370	2	2	4	**31,289**	2	3	4
Ministry of Agriculture, Fisheries and Food	1,670	16	6	24	**18,262**	39	70	99
HM Customs and Excise	17,616	28	15	28	**17,616**	33	68	79
Department of Trade and Industry	8,917	16	21	22	**13,184**	52	83	84
Lord Chancellor's Department	12,409	22	24	28	**12,244**	29	41	48
National Savings	8,272	4	23	46	7,952	na	na	na
Department of Culture, Media and Sport	7,380	47	27	55	na	na	na	na
Northern Ireland Civil Service	6,694	11	11	20	7,056	54	68	91
Foreign and Commonwealth Office	3,114	24	32	43	5,657	38	43	47
Scottish Office	3,438	43	43	44	4,767	85	87	95
Ministry of Defence	4,291	64	32	64	3,714	93	65	93
Office of National Savings	3,028	22	21	41	3,028	28	33	47
Home Office	1,303	6	0	6	1,466	35	3	35
Cabinet Office	711	46	51	52	720	47	54	55
Welsh Office	529	43	60	98	529	53	75	98
DFID: International Development	72	28	1	28	62	27	2	27
HM Treasury	37	0	100	100	37	0	100	100
Department of Health	129	86	8	93	19	18	29	42
Export Credits Guarantee Department	1	59	47	95	1	60	42	60
TOTALS	479,828				**518,471**			

Note: na means the data is unavailable

Source: CITU DATA

- **The Courts Service**, within the Lord Chancellor's Department, is creating from scratch an electronic capability to issue claims and make payments to jurors, and is making slower progress on probate. In all 0.8 million new electronic transactions should result.

■ Two agencies will show rapid change because of new administrative procedures being introduced:

- **The Ministry of Agriculture, Fisheries and Food,** will show rapid change because the introduction of a new computer tracking system for cows will grow its total annual volume of transactions from 1.7 million in 1999 to 18.3 million in 2002. In CITU's ratings the Ministry's total for non-payments transactions will become larger than that of Customs and Excise, and more than half that of DSS. Two-fifths of the cattle tracking transactions will be electronic, adding 6.7 million new electronic transactions.

- **The Inland Revenue** will introduce a new Construction Industry Scheme for income taxation, with 17.5 million new transactions, of which just under a quarter will be electronic, adding 4.4 million new electronic transactions.

■ Three agencies will make large volume increases in the numbers of transactions they process electronically, but with only fairly small upward shifts in the percentage of transactions so processed:

- **Inland Revenue** will grow its electronic take-up of PAYE transactions from five to nine per cent (up 4.9 million on a base of 112 million transactions), and move from a one to a three per cent electronic take-up of self-assessment (up 1 million on a base of 51 million transactions).

- **The Driver and Vehicle Licensing Agency (DVLA)**, in the Department of Environment, Transport and Regions, will grow the electronic take-up of vehicle licensing from three to nine per cent (up 2.3 million on a base of 38 million transactions) and of driver licensing from 4 to 11 per cent (up 0.4 million on a base of 6 million transactions).

- **Customs and Excise** will create a ten per cent electronic take-up of VAT collection from scratch (up 0.8 million on a base of 7.8 million transactions).

Conclusions: Developing government on the Web

4.27 The current central machinery for co-ordinating and promoting the development of government on the Web is rather weakly developed. Central capacity to shape the development of departments 'and agencies' planning for government on the Web is limited by:

■ the manner in which the overall target regime for information age government has been specified by the Cabinet Office (see paragraph 4.28);

■ a lack of systematic and useful monitoring information;

■ continued uncertainty on macro-issues (such as how far swipe or smart cards will be used in government interactions with citizens, rather than the temporary ID numbers for specific transactions which are more characteristic of the Web);

■ the small development budget available centrally for coordinating investments; and

■ the absence inside central government of any substantial equivalents of the drivers for efficiency-improving and cost-saving changes found in the private sector.

Central initiatives such as the creation of the **open.gov.uk** site were important when they were first made, but were subsequently allowed to stagnate for long periods. Government on the Web has developed in an unplanned manner, and it is now hard for citizens to navigate central government sites. There is a risk that this history might currently be repeating, if the Government Secure Intranet were to prove too slow to become more than just an expensive e-mail facility.

4.28 The Prime Minister's 25 per cent electronic transactions target has clearly had a useful effect in bringing the modern capabilities of government on the Web to the attention of a wide range of agencies and departments. The basic pledge that government as a whole will be able to process a quarter of transactions in a broadly electronic fashion by 2002 has already been substantially met. Looking beyond this achievement, however, there are grounds for scepticism about the implementation value of the overall target regime in its current form, and about the usefulness of the monitoring information being collected as indicative of the overall trends across government. It is not clear what value attaches to quoted capabilities greatly in excess of actual current take-up. Although departments' ICT systems may have the capacity to handle expanded traffic, the organisational capacity to handle the logistical frictions generated by a greatly expanded volume of electronic traffic may not be in place. The existing monitoring data also suggest that a flat rate, across-the-board

target imposes little real discipline on some large departmental groups and agencies, since they can point to already existing high volumes of electronic transactions without yet implementing any substantial new changes in their practices. The vast majority of our interviewees expressed strong doubts about the meaning to be attached to CITU's definition of an electronic transaction. In responses to our survey most chief executives and permanent secretaries did not see the 25 per cent target or even the 50 per cent target as very demanding. The Cabinet Office should consider reviewing the overall target regime so as to focus down on *improvements* in individual agencies' capabilities to process transactions and dealings, separating out:

(1) accesses by e-mail, the Web, digital TV and intelligent voice recognition on the one hand; and

(2) accesses by phone on the other.

The target regime should incorporate reference to *actual take-up levels* for both these routes, and not just theoretical capabilities. The target regime should also address *new progress against established base levels* for the take-up of electronic transactions, rather than focusing solely or mainly on across-the-board figures for government as a whole.

4.29 The Cabinet Office should jointly review the options available with the Treasury, in the context of the Public Service Agreements. Staff involved in such a review may find it helpful to take account of established guidance on the design of performance measures available from a range of official sources, including the National Audit Office. This literature all suggests that effective performance indicators must exert some pressure for improved performance on *all* the agencies covered. Performance targets for several years in the future, which can already be met by a large number of agencies, are unlikely to be effective. Those agencies comfortably above target have no incentive to improve. At the same time other agencies which start well below the target level may face a practically impossible task in coming up to the level in the time available. They could attract unwarranted public criticism, which is demoralising for current managers and staff seeking to effect improvements from a poor historical base.

comparator A

A.1 Commercial companies have been at the forefront of the hectic pace of change in Internet and Web use, so their current experience may provide the most useful available indicators of trends likely to hit the public sector over the next few years.

A.2 We undertook a set of interviews with leading-edge private sector companies in the UK, to assess how far the development of Web-based computing had altered their business processes, internal organisation and patterns of relations with customers. The companies covered were:

- BT - a leading UK telecommunications company;
- Tesco - one of Britain's biggest supermarket chains;
- DHL - a major force in the private sector parcels and package-moving business;
- Dell - a major supplier of personal computers and computer accessories;
- The Financial Times group - an important media company;
- Glaxo-Wellcome - a key company in the pharmaceuticals industry;
- Barclays Bank - one of the 'big three' UK clearing banks;
- Citibank - a US bank providing its UK customers with telephone and on-line banking and;
- CISCO - the UK subsidiary of a major international IT software and hardware company.

We are very grateful to all the companies for their help in undertaking this project. Wherever feasible we name the companies whose practices we are referring to, but in a few cases we have anonymised the firms involved because the information covered is commercially sensitive.

A.3 The point of these comparisons is specifically to draw lessons for the future from unusually forward-looking and 'advanced' companies, and not in any way to describe the current state of business practice on Web-based computing - which is anyway changing very rapidly. So these nine firms were

Private Sector Firms and the Web

not chosen to be representative of all large companies, let alone of business as a whole. Instead we focused on companies which are already further along a pathway to electronically interacting with their customers and contractors, which already have a substantial Web presence and involvement, and which resemble central government in being large-scale employers. Four key lessons emerge covering:

- The experiences of firms in using their external Web sites to provide information for and develop electronic transactions with their customers.
- How firms use intranets and extranets in their internal business processes.
- How companies organise control over Web-based computing, control access to the external Web site and the company intranet, and manage the quality and development of both sectors.
- Firms' experience of developing a business case for investing in Web-based computing, the level of spend committed, and how they estimate the benefits of their Web site or intranet use.

Using external Web sites – the experience of leading companies

A.4 All the firms in our study emphasised the growth in customers' uses of the Web, the high level of uncertainty about customers' behaviour and future trends, and the rapid pace of technological changes in Web development in general. Developing their first Web site was still a recent experience, often forced through under intense time pressures to be first into the UK marketplace. For the international companies like Cisco, DHL and Dell, creating Web provision from scratch involving matching already well-developed practices begun in their United States parent companies, but adapted to European conditions (for example, by having multiple languages on the site). These companies mostly felt under intense competitive pressure to not fall behind rival firms in the styling, functionality or sophistication of their external sites. Some firms dealing directly with the mass consumer market - such as BT home provision, Tesco and Lloyds - stressed the extent to which the mass media and competitors now viewed their external Web site as a key barometer of their awareness of market trends and their responsiveness to consumer demands. Failure to invest adequately in the Web site and to keep it up to speed with competitors would quickly attract adverse commentary, and have severe, indirect, reputational costs, as well as the site becoming less successful in attracting Web users directly. Other firms - such as Cisco, Dell, and BT business services - dealt mainly with sections of business which are already heavily Internet-orientated, where customer responses were finely tuned and highly demanding. Both customers and the trade press would be highly critical of any low functionality elements in their Web provision.

A.5 All the firms stressed the very fast response times involved in maintaining an effective Web presence, and the near-instant come-back from Web users if things did not work as they were supposed to. But they also emphasised that the Web as a medium is well-adapted to a process of continuous organisational learning, making incremental improvements and seeing their effects on customers - for instance, putting up new Web pages or facilities and then taking them off again, if they are little used. Accurate and immediate feedback information is vital here, and most companies invest a good deal of time and resources in carefully tracking the use made of their external Web sites and analysing users' behaviour. Their Web teams are constantly devising new **fixes** and options to expand usage and encourage the retention of users in the site. DHL even provide a game in part of their site for customers to take 'time out'. Companies' information is not confined to the raw number of **hits** or accesses on a site, (which can be misleadingly inflated by Web pages composed of multiple elements, each of which registers as a separate hit when it is accessed.) Firms are chiefly interested in the number of **user sessions** or visits, that is discrete occasions when a user reaches their site, plus the number of **click-throughs** that they make when on-site, the number of **page accesses**, the length of time that users spend on site, and the extent to which site visits result in transactions - either completed on the site electronically, or often completed via phone calls.

A.6 A widely recognised pattern of customer behaviour at present in the mass market is for customers to undertake product research via the Web - for instance, in Dell's case deciding what configuration of PC they want to buy.

> Dell's rule of thumb before Web use took off was that it took an average of three phone calls to close the sale of a PC - one where the customer got a first quote, a second to get more information or to change the PC configuration, and a third to place the order. But most customers now access the company's Web site first. They design and cost their own PC configuration on screen (getting information on components' compatibility automatically), and then firm up and print off a definite order. It then takes them only a short call in to Dell to tie up the order. Dell calculate that for Internet sales, it takes an average of half a phone call to close a sale.

A wide range of consumer research suggests that people who access a company's Web site to research a large purchase are much more likely to 'close' a sale with the firm than otherwise similar people brought into contact with the company by other means, such as press or TV advertising, or phone sales. Well-designed Web sites seem to work here because customers can much more quickly and effectively focus on their own individual needs, interests or 'sticking points', without being hurried or directed by a salesperson. Customers can also make comparisons between different companies much more quickly and effectively on the Web, so that when they come to place an order they are more confident in the deal on offer.

A.7 Mass market Web sites are still less developed than sites targeted on business-to-business markets, but they can offer companies radical opportunities for moving towards an electronic transactions paradigm. For example, BT are developing new Internet-based methods for tailoring marketing to the audience. In the future, if a customer enquires about or orders the BT **internet service provider (ISP)** service over the Web, the site will automatically ask if she also needs to consider purchasing a modem to connect to the ISP. And the site design can be variegated, so that the same information (say, about the uses of a pager) might be presented in radically different forms to a young person aged under 25 or to someone aged 65 or more. Similarly Tesco runs Tesco Net as an internet service provider, which enables them to advertise their own products to general Internet users.

> Tesco own an Internet Service Provider (ISP), for which they initially made a monthly sign-up charge, but later operated as a free service. Tesco see the Internet as like a shopping mall. By running an ISP they get the front door and customers who log on ("walk" through the front door) see Tesco's name first. For products that Tesco do not sell, there are third party providers, such as Interflora. There are cost savings too. Without an ISP, Tesco would have to link their Web site to the 250 service providers there are in the UK.

A.8 Web sites targeted on business and 'expert' users show the same pattern of facilitating research and specification of needs by customers. But they can also go a lot further in moving to fully electronic transactions, usually because the company deals over the Web only with registered account holders, who can develop long-term familiarity with their site. For example, DHL register customers as account holders on their Web site (after a time-lapse to check for duplicate accounts taken out by people who have forgotten their previous account number).

> DHL's account holders can make bookings for parcel pick-ups and deliveries on the Web site. DHL's system automatically routes the booking to the nearest courier to the customer within five minutes of receipt, printing out a request with collection details, and giving the customer direct contact with the courier. Customers can then follow all stages of their order from the Web site, checking on the location of their parcel until it is delivered. DHL find that providing good tracking information is as important to customers as actually managing the shipping process effectively.

A.9 Perhaps the most ambitious firm in dealing with business users is Cisco, which aims to achieve near instant processing of orders for electronics components via its Web site.

> Cisco's UK customers go through a rigorous Cisco accreditation process to become 'business partners'. They can then file orders electronically from the Web site, are invoiced electronically, and can track the status of their order 24 hours a day via the site. After Cisco receive the order, and the payment process has been approved electronically, they move the order on to their suppliers and to a parcels company (Federal Express) which delivers their components direct to customers. The Cisco ideal is a **zero-touch process** in which the transaction is so automated that no company employee has to touch a keyboard in the order-filling chain. Cisco estimate that 45 per cent of their unit volume is directly shipped without a Cisco touch. An on-line customer care system allows any of their partners or their own staff to solve problems with Cisco applications. Trouble-shooting information and fixes or changes are posted on the Web site and can be downloaded by customers. This approach lets customers get straight on with fixing problems instead of calling the company helpline, getting rerouted and waiting for help. The company's customer-care ratings among its sophisticated client-base have improved since it moved onto the Web. In addition, more Cisco staff are now available on the helpline to handle a much smaller flow of non-routine problems, allowing the helpline staff to become more specialised in the most challenging and tricky issues.

A.10 All the companies agree that putting up a Web site and expecting it to generate or attract business on its own is unlikely to attract significant traffic. In addition to being registered with all the major portal companies, Web sites need to be actively advertised and promoted. Whereas a couple of years ago a well-designed company site with favourable write-ups in the media or trade press might attract visitors because of its rarity value, now there will be hundreds of equivalent sites in all business sectors. Amazon.com, the premier internet bookseller, reputedly spend around $10 million a month promoting their site, and companies we visited accepted that relaunches of their sites often needed significant spend on banner ads in major portals (up to £50,000 in one case), just as with press or TV campaigns. Co-listing sites on a reciprocal basis with other non-competing companies (such as suppliers or business partners) can also offer benefits. In addition, companies spend heavily on branding their Web site - for instance, putting its address on every piece of stationery, every business card, every leaflet and newspaper or magazine ad, and now even TV advertisements and poster campaigns. As one firm commented: "If the coffee cups said 'Dell' they would have the web site too."

A.11 The most business-critical uses of Web sites relate to interaction with the company's legacy systems. On the one hand, the flexibility of the **TCP/IP** format means that Web-based systems can be made to sit on top of and interrogate legacy databases, using a custom-built interface, which takes the Web site far beyond mere brochureware. On the other hand, such interfaces may necessitate major modifications of existing systems, with far greater cost implications than the original development of the Web site. Product information derived from the company's stores database, for example, may have to be extensively translated for the customer, as stores systems may have extremely technical descriptions, with unintelligible abbreviations and different descriptions held in different parts of the system. The companies we visited vary a great deal in their current state-of-play in Web-enabling legacy systems. Undertaking a complete recasting of fundamental database systems has so far been a relatively rare response. The main effort has been to keep older systems running, but to make them capable of being partly interrogated by customers from the Web site or by people in the company beyond the narrow bounds of the section responsible for each kind of information. Most companies have fixes for linking legacy databases to their external Web sites, which they recognise have limitations and may not be sustainable in the longer term. One or two companies have been held back by the difficulties in achieving inter-linkages from developing new Web site applications and uses.

How leading firms use intranets

A.12 All the companies run intranets, with a wide variety of origin and use. Some companies, such as Dell, inherited their Intranet from the US parent company - so the current version in the UK was rather 'US-centric' when we visited but was quickly gaining company-wide acceptance. Other firms, such as Tesco and DHL, have intranets for their IT staff which they were considering expanding company-wide. BT however, have developed their intranet into a very extensive system, playing an integral and vital role in BT's business processes. All the companies started with the advantage of an established internal communications network that linked up their operations for simple e-mails and some data transfers. Adding a Web-based intranet gave critical additional facilities, which greatly increased usage in all the firms because people could now publish information and materials internally, making it available for any interested party within the organisation to access. Intranets can also handle many different kinds of files - including short video and audio clips; picture, photograph and graphics files; documents in many formats, including compressed formats for long documents; data files and spreadsheets; and software or applications. Intranet files are also searchable using Web-based search engines, some of which are very sophisticated, in addition to being indexed and site-mapped by the company's intranet managers.

A.13 The most simple uses of the internal publishing function was to make available on a company-wide basis information for internal consumption that would otherwise have to be printed and periodically up-dated (usually with a time-lag). For instance, storing the full, company internal phone and e-mail directory on the intranet saves printing costs, allows the information to be kept constantly up to date, and provides the information in a computer-searchable form. Similarly company personnel departments use intranets extensively for publishing staff manuals, explaining pensions systems and entitlements, and advertising job vacancies. They also employ Web-based forms for submitting and processing private medical insurance claims, handling expenses claims, and so on. In the USA human relations (or personnel) applications have been one key motor for intranets' expansion. Intranets can also be set up to republish material entered on the company's external site, such as company press releases and marketing announcements, often in more extended forms or with additional materials - such as press criticisms of the company as well as its own PR outputs. Internal forecasts, company documents setting out business trends and priorities and constantly updated pricing schedules are all natural materials for intranet publication. For example, in a fast-moving field (where prices and specifications can change rapidly) allowing phone sales personnel or field sales personnel equipped with a portable PC and modem to download the most up-to-date prices for each new customer on a daily basis is an important advance in remaining competitive, compared with even weekly or bi-weekly price updates.

A.14 As with external Web sites, some useful applications rely on the company's intranet interacting with legacy systems. For example, information on sales levels and trends can be made available on the intranet for all units that need it in a form that automatically updates as new orders flow in and are processed by the legacy systems. Some companies, especially those dealing with business-to-business sales, saw a progressive blurring of distinctions between their intranets and their external sites in business critical areas. For instance, in DHL or Cisco the order tracking systems essentially make the same information available directly to customers on the Web site which is used by internal managers on the intranet for maintaining control of the sales and delivery process. At Dell, internal users access the intranet via the external Web site, although technically it is a **'true' intranet** which can only be accessed from inside the **Local Area Network (LAN)**.

A.15 Convergence pressures are also strongly apparent in companies' use of extranets to link their computer systems directly with those of suppliers. Large companies have typically been linked for many years with their long-term suppliers or business partners via **Electronic Data Interchange (EDI)** systems. The information exchanges accomplished, however, have generally been very delimited in advance, and confined to handling the same fixed kinds of information carried by companies' internal communication and file-transfer systems before intranets arrived. In some of the companies we visited extranets have developed rapidly. Tesco provides a (charged) extranet for its suppliers giving them information on product turnovers at Tesco stores, which is an extension of its previous EDI relationships. The more fully and flexibly and earlier its suppliers can be positioned to meet market trends, the better it is for Tesco. And for the suppliers too there are considerable advantages in knowing the detailed movements of micro-markets in which they compete. Cisco allow their suppliers to connect electronically to their internal systems with secure password access, using an application written by Cisco, in a so-called **virtual extranet**. Suppliers can then identify market trends through analysis of their accounts with Cisco over a significant time period, while the security mechanisms guarantee that they cannot interrogate commercially sensitive information on the accounts of other suppliers.

Corporations' approach to managing Web sites and intranets

A.16 Corporations with developed Web-based computing systems acknowledge that the change has important implications for their internal organisation. One fundamental question is which section of the company should have responsibility for setting company policy and exerting management control over Web pages on the external site and over the intranet.

There are several possible contenders for being assigned responsibilities here:

- the existing IT or information services (IS) division, on the grounds that the Web and intranet involve computer hardware, new forms of software and specialist skills;
- the advertising or marketing or public relations divisions, on the grounds that the external Web site in particular is an extension of the company's work in these divisions;
- a central section acting on behalf of the divisions providing content for the Web pages, on the grounds that only senior content-providers know how they want to position the company's Web effort against its overall strategy;
- a specially created 'new media' directorate, set up as recognition that the development of the Web and intranets has already become a distinct professional specialism in its own right.

Most of the companies visited argued that assigning Web issues to be controlled by an IT or IS division would produce conservative and unadventurous management, since such divisions are pre-occupied with security and integration with other systems, and anyway have a cultural jump to make in appreciating the significance and modus operandi of the Web.

A.17 However companies choose to control their Web site and intranets, they generally rely extensively on contractors to actually design the external site and to provide the infrastructure for the intranet. Web site development is an especially difficult area for companies to attract talented staff in-house, although that is what most would prefer to do in the near future. Most firms contract directly with a Web site specialist company for an initial design. Our interviewees observed that most such companies are experts in either the technology side or the advertising side of Web site design and it is difficult to find the two specialisms in one company. DHL use two companies, an advertising company which specialises in Web site design as their lead contractor, with a secondary contractor specialising in web-based technology. Sub-contracting Web design to the main IT contractor providing computer support and ISP services is thought less useful in many firms, because in the current high-demand market conditions for Web designers the main IT contractor will only sub-contract on the work to a specialist firm anyway. Having a Web site which is designed outside the company can create problems in subsequently altering pages or updating information, if all changes have to be implemented by the design firm - a main reason why companies are trying to develop their own in-house capabilities. Some companies have been able to get simpler updating signed off in-house, but still need the design firm to put through more radical modifications

to ensure that the overall design or integrity of the external Web site is not compromised. Companies use rules of thumb which take account of the need for maintaining and updating their Web sites - for instance suggesting that whatever amount of money is spent on the initial Web site design, the same amount should be assigned for updating and maintenance in the period up to the next major redesign.

A.18 Nearly all the companies we visited adopt a very strict approach to what goes onto their external Web sites, insisting that all content should be rigorously viewed as marketing tools and designed with sales value-added and consumer priorities in mind. Occasional problems arise when elite or 'politically' powerful sections of the top management see the site as a repository for information which they value highly, such as the company's annual report or the directors' photographs and biographies. The divisions controlling the Web site need to have sufficient influence to be able to insist that material that most Web users will find pointless or off-putting should be kept out of the site, or at best included well away from the site's front page (for instance, five clicks deep in the site structure). New pages or sections of the Web site have to meet very strictly enforced design rules, to ensure that pages have a consistent corporate 'look and feel' and operate in recognisably similar ways to the rest of the site. Achieving a distinctive branding of the site which does not change between major upgrades is a key objective. The use made of pages and sections is rigorously monitored by the section controlling the Web sites on a daily or at worst weekly basis, and sections or pages that are poorly used are quickly taken off.

A.19 Corporations adopt a more relaxed approach to the development of their intranets, with a view to encouraging their staff to make maximum use of this facility. Some of the big firms 'license' internal users before they are allowed to put Web pages on the intranet, giving them basic training in designing HTML pages and how to organise their part of the intranet, or make content providers sign some form of 'contract' in which they promise to keep up to date any pages or other information that they put on. Content management systems, such as that developed by Dell in Europe will mean that licence holders will not have to learn how to code HTML: this policy is likely to increase take-up but the system will still make it easier to standardise the presentation of content. Content-providers must also undertake that the information given is completely accurate and reliable, since other people in the company will use it in making decisions or planning their own strategies, without further consultation with the content originators. Some companies recognise that management of their now large and sprawling intranets could get out of hand. BT licenses users of its intranet and applies strong control procedures.

> BT assigns each Web page on its intranet a limited life when it is first put up, giving users a 'sell by' date after which the information provided is no longer valid. The content-provider must renew or update their page by this date. Automatic software searches for and removes any page where this step has not been done, replacing it with a notice giving the page author's name and e-mail address and that of their line manager. It also sends the page owners an e-mail telling them what page is problematic and what has been done. In addition, accesses to sections of the intranet are monitored and information is regularly fed back to content providers so that they know how much their pages are being accessed. BT's position is that an effective intranet must be organic, with pages being added and removed constantly. Otherwise the intranet will simply get bigger year-on-year, with large desert areas of effectively dead pages growing up, cluttering up search engines and slowing response times. More importantly, users of such an 'overgrown' intranet would no longer have confidence that the information that they access is uniformly reliable and up-to-date, thereby detracting from its fundamental usefulness to the corporation as a whole.

A.20 All the companies stressed that the development of Web sites, intranets and extranets creates novel management and control problems. Making content-providers take effective ownership of their intranet or Web pages is an important example. Unless careful procedures are developed, staff may tend to prioritise queries they receive via traditional communication methods over web-generated queries. Another example is the emergence of important **version control problems** when content is provided in different forms - such as press or magazine advertising, marketing leaflets, and over the Web. Companies tend to have strong mechanisms already to ensure that information updating does not get out of sequence in marketing materials using different media. But version control problems can also grow strongly with intranets if documents or information are also published in paper formats. Companies with whole-firm intranets now make the intranet version the authoritative one to try and control this risk, and to make available the most up-to-date information for staff. Over time company intranets may also 'host' a wide range of specialist networks, e-mail rings and electronic conferencing by specialist subgroups handling issues too immediately specific or private to be worth publishing pages on the formal intranet - a phenomenon called the **under-Web** in some contexts. Again companies see it as important to have clear policies to minimise the emergence of an under-Web.

How firms assess the business case for investing in Web - based computing

A.21 In the rapidly changing conditions of the Web all the companies we visited were clear that making a conventional business case for investing in the Web or company intranets was extremely difficult for a number of reasons. Those companies which are not yet adapted to processing large-scale

electronic transactions are still in the process of developing measures of the business value of their external Web sites. Many of the gains from the Web site are relatively intangible, such as a better market reputation; an ability for consumers to undertake better research before committing to their products; and improved customer-care perceptions. Web investments are also often driven by the need to respond to competitive pressures from rival firms investing in their Web presence.

A.22 A key factor for companies like Cisco, Dell, BT and Tesco in estimating the business case for Web developments concerns the potential for costs to be displaced from some other channel of contact between the company and consumers. Companies estimate quite high costs to them of simply answering customer queries over the phone even in call centres, let alone using phone-selling techniques to expand their markets or providing company helplines. This information is often rather rough and ready, and is always commercially sensitive. But rules of thumb quoted by different firms included:

- an average cost of £3 per phone enquiry;
- a cost of £1 per minute for a call centre enquiry;
- a cost per phone call in the USA of $6 each; and
- an average cost of £2 for each manual tracking or pricing/tariff enquiry handled by phone.

If customers can be persuaded to use the company's Web site (for instance to do research or seek basic information) instead of contacting company personnel over the phone then the whole of the estimated cost of a phone access can be saved, because the marginal cost of an extra Web access is effectively zero. Multiplied across thousands of accesses the savings from displacing customers onto the Web can quickly mount up to very substantial figures. So long as patterns of Web use continue to firm up, and other channels (such as phone contacts) decline, then these cost savings are potentially recurring. For 1998, Cisco estimated cost savings of $550 million from five main Web applications, out of a total company cost base of $2,500 million in that year. Companies with a great deal of direct mail contacts with customers can make similar savings to those on phone enquiries, especially if customers can be persuaded to use the Web instead of originating a great deal of inward white mail which is expensive to handle.

A.23 For companies with substantial contacts with customers via a dedicated sales force, franchised outlets or intermediary agents, the potential cost savings in encouraging customers onto the Web are even more substantial. However, these firms also often confront substantial **channel rivalry** difficulties and risks, which still extensively impede the use made of Web-based marketing. The risk is that by attempting to develop direct Web-based contacts between customers and the company, cutting out the sales force or the middle man, the company might erode the morale or effectiveness of its major existing links to customers. If the established links to customers are provided by intermediaries (for instance, retailers, agents or franchisees) the company may lose ground through stimulating defections of intermediaries to rival companies. By contrast if the established links to customers are the company's own salaried staff organised in a sales force or a system of front offices, the risks of channel rivalry leading to market share losses in a transition to Web-based customer contacts can be substantially reduced or eliminated.

A.24 Accesses to a company's web site also have a positive commercial value for it in terms of advertising and generating 'good will', bringing the company to customers' attention and developing its brand name and identity. Some firms attempt to factor in a cash benefit for this new media exposure, and then include it their calculations of the business case for their Web site. Each site access by a user is valued at a basic amount, and substantial click-throughs or time spent in the site at a higher amount.

A.25 Most companies we visited found substantial company-wide intranets hard to cost-justify and several firms took the position that estimating the business benefits of their intranets was unlikely to be feasible or helpful. Other companies interviewed assigned very substantial sums to the business process benefits, which cost-justified the relatively modest IT investments involved by a high factor. For instance, one very large company spent £20 million on its intranet in a recent year and estimated annual business benefits of £160 million, not just cost savings but also largely positive benefits not otherwise achievable. The main limitations on business benefits were reported in companies where putting pages up on the intranet was seen as a difficult process with longer timelines, and others where concerns over protecting intellectual property rights or maintaining internal commercial security limited content-providers' willingness to put materials onto the company intranet.

comparator B

B.1 The Internet and the Web are international phenomena, now used to varying degrees by governments across the world. The experience of government agencies in other countries provides another set of comparators for the UK. We chose three overseas governments to compare along five criteria; Web site strategies within departments; the development of intranets; key policy concerns; political support and commitment; and central strategies for control, co-ordination and guidance. As with our choice of private sector firms, we chose countries where we might expect web development to be advanced, using data provided by the University of Arizona in their 1995 survey of government Web sites across the world (Cyderspace Policy Research Group, University of Arizona **http://www.cyprg.arizona.edu**). The governments we visited were:

Australia — rapidly developing an international reputation for electronic service delivery, with more ambitious targets for electronic service delivery than the UK (100 per cent of all appropriate services electronically on the Internet by 2001).

United States — generally assumed to be ahead of the UK in technological development, the US government was rated at the top of the Arizona survey for 'interactivity' and 'transparency' of government Web sites.

Germany — a European country of comparable size to the UK, which also scored well on the Arizona survey.

B.2 Obviously, the spread of Internet usage across a country's population is going to affect the government's potential to communicate with its citizens electronically. Of the four countries we looked at, the US (with a population of 250 million) has the highest percentage of Internet usage, closely followed by Australia (with a population of 18 million). The UK lags behind, with Germany (population of 80 million) behind the UK, although reputed to be rapidly catching up. A key factor determining access levels is PC ownership, for which the figures are similarly ranked, and the price of connecting to the Internet, which is based on the cost of local telephone calls - Figure 38 suggests a clear link between the cost of local calls and Internet usage.

The Experience of Overseas Governments: Germany, Australia and the United States

38 INTERNET USAGE AND PC OWNERSHIP

	Percentage of population with Internet access	Average connection price per half hour (Summer 1999)
United States of America	38	Free local calls
Australia	36	10 pence (untimed)
United Kingdom	15	£1.18
Germany	13	86 pence

Note: These figures are for broad comparison only: there are many different methods of calculating internet penetration and average connection price which vary across countries.

SOURCE: LSE CENSUS OF WEB SITES

Web site Strategies within Departments

B.3 In all four countries, a majority of government departments and agencies have Web sites, ranging from a 'bare majority' in the UK to virtually 100 per cent in Australia and the US. In the US even by early 1997, virtually all agencies had Web sites. None of the governments control the layout, design or content of departmental Web sites from the centre. In Germany especially, the strong autonomy of federal ministries in Germany, laid down in the constitution and taken extremely seriously by ministries, means that there is no question of the centre dictating web strategies.

B.4 In spite of the absence of central control, different patterns of Web development have emerged across the governments. In the US, there is a proliferation of Web sites, with most divisions within departments and agencies maintaining their own; the DoD has 3,000 Web sites with about 1.5 million pages. Most large Web sites have no common 'look and feel' across their constituent parts. On the Social Security Administration (SSA) site for example, some sites show the 'Social Security On-line' logo at the top and contain links to all SSA relevant documents, while others have no heading and indicate that documents can only be ordered via telephone or mail. SSA have 39 Web managers administering the various sites. Departments which have tried to work against the proliferation of Web sites include DoD, whose new Web site policy makes commanders responsible for the content of their organisations' sites. In Australia, leading departments like the Australian Tax Office (ATO) struggle to maintain one site and control the lower pages; their IT services has brought the site under central control because 'we don't want eight ATOs. The UK and German governments, with their less ambitious range of Web sites and services, tend to have more centrally controlled sites within departments.

B.5 There is a wide variation across departments and agencies in the four governments in the extent to which Web sites are used for '**brochureware**' or for more interactive on-line service delivery. In Australia some of the largest departments are leading the field in Web site development. The Australian Tax Office is offering full electronic filing of taxes from July 1999, while 75 per cent of tax forms are already filed electronically through tax consultants. Sixty per cent of all those forms filed electronically are processed without human intervention, in a 'zero-touch' way. Likewise, in the US, the Internal Revenue Service has offered electronic filing since 1992 and by January 1999 electronic filing runs at about 23 per cent. IRS's goal, stated in the IRS Restructuring and Reform Act, is 80 per cent by 2007. Their Web site received 767 million hits between January and April 1999.

B.6 One Australian government site is especially innovative in on-line service delivery. The most visited and used site in the Australian Federal Government is the Australian Job Search (AJS), maintained by the Department of Employment, Workplace Relations and Small Businesses (DEWRSB), a database of jobs all over Australia with a full search facility. Job details are provided (largely electronically) to DEWSRB from multiple sources including the Government's Job Network, private agencies, employers and some publications. DEWRSB then make their database accessible to job seekers via the Web site and through a network of touch-screen kiosks. The AJS generally falls within the top 25 sites in Australia as a whole, receiving over a million visits and recording 500,000 job searches a day. Of these, 100,000 jobsearches are conducted on the Internet while another 400,000 are performed via the 2,100 kiosks deployed around Australia. A recently developed facility enables users to put up CVs and employers to search for applicants on the Web site.

B.7 In Germany, federal ministries have little involvement in service delivery. Most services (including tax collection) are delivered at State or local government level and their Web sites reflect their role as largely information providing organisations. Most federal government sites are purely descriptive, although users are more likely to be able to download documents, view the full text of laws or order something on-line than in the UK.

A distinctive feature of federal Web sites is that every site has an 'Impressum', which states who is responsible for the site within the ministry (including different names for content, technical issues and design), and also giving the address and details of the main contract company developing the site.

B.8 In contrast to the UK, the social security agencies of Australia, the US and Germany lead rather than trail other agencies in offering on-line services on their Web sites. In Australia the operational arm of social security, Centrelink, provides downloads of most publications on their site, which also promises that Centrelink staff will ring citizens in response to an e-mail request. The site receives 49,000 user sessions per month, with an average length of each session at around 12 minutes. In the US, the Social Security Administration (SSA) site was nominated as a 'best practice' site for federal agencies by *Government Computer News* in April 1999. The site has an excellent range of information in English and Spanish and includes the 'Top 10 services' on a home page list. Citizens can use on-line forms to order a Benefit Statement or claims forms and can estimate their benefits on-line. SSA's site received 2.6 million page views in February 1999 and 103,464 on-line requests for Pensions and Earnings Benefit Statements (PEBES), a personalised statement provided by mail direct from SSA databases (although the site itself does not interact with the mainframe), once key identification details have been provided. As early as 1997, SSA allowed individuals to request and receive their PEBES on-line; however, questions were raised about the privacy of the service and SSA replaced it with the more limited service currently available. In Germany, the Ministry for Labour and Social Affairs has won prizes for the best site in the federal government. The home page of the ministry contains a huge amount of information in English and French as well as German and many publications can be downloaded or ordered online, as can CD-ROMS and discs on pensions, career and work environment, in a zero-touch way. A news scanner gives updated news. The Ministry produces a CD that allows people to estimate their pensions for the current year. The Web site is part of a multi-channel approach to communication (e-mail, a call centre, CD-ROMS, discs and post). When the new '600-mark' law was introduced, the Ministry expected a high level of electronic interest and prepared information on the Web site immediately - which received four million hits within the first week.

B.9 Government agencies who were early to consider communicating with citizens electronically and are experienced in developing pre-Internet information technology have been quick to transfer their experience to new media issues. Centrelink in Australia have 'long had an IT culture'. The Australian Tax Office, for example, focused on electronic service delivery as early as 1989 and completely and successfully redeveloped their business systems during 1989-98, at a cost of A$500 million. By 1999 75 per cent of tax returns are electronically filed and ATO is fully committed to becoming a 'digital organisation'; eventually, as one official put it, 'ATO will become its Web site'.

B.10 Government Web sites that are innovative and lead the way in linking external sites with legacy systems are expensive. The ATO's Web site cost A$200,000 to set up in 1996 but now costs about A$1 million per year to maintain. ATO are expecting around 100,000 citizens to use the electronic lodgement service in the first year, and anticipate the greatest challenge from this development to be technological education and help for people accessing the service from their homes on a bewildering array of machines and applications. They quote a saying that when deploying a new facility on the Internet, you will need one person on a help desk for every 100 people using it. Centrelink realise that even after the Electronic Transactions Bill considered by Parliament in 1999, a big investment would be needed to enable Centrelink to deal with electronic communications in the same way as other channels. Centrelink recently estimated the cost of delivering their six top transactions electronically, at a cost of $100 million which, in spite of the Australian Government's commitment to electronic service delivery, so far remains unfunded. In Germany, the front-end site for the federal government is a major resource and costs around DM1.4 million to run annually, excluding staff costs and the research effort involved in gathering news (the most substantially funded site we found in Germany). There are three people working on the Web site internally. It is controlled centrally within the Federal Press and Information Office but ten staff have the facility to press releases on the site, through a distributed editing system.

B.11 Various strategies however, illustrate how innovative Web site development can improve usage figures at low cost. In the US, SSA limits colours and keeps images small. The agency places breaking news on its front pages; previously the home page drew little traffic. The German Ministry of Labour and Social Affairs has a strategy of ensuring that in three clicks, users find what they want.

B.12 Strategies to push-up electronic usage are possible within the context of avoiding social exclusion. In Australia, the introduction of a goods and service tax is being used to implement a universal 'Australian Business Number'. Businesses that do not register will not be eligible for GST credits. Registration is available on the Business Entry Point. The Government plans to maximise collection of the new tax. And ATO plans to use electronic lodgement to force tax consultants to communicate with ATO electronically, as tax consultants will not be allowed to lodge taxes on paper; 'those that cannot automate will not stay in business', although ATO know they must keep other channels open for citizens who do not use tax consultants. Dealing with ATO electronically will be compulsory for businesses with an annual turnover of over A$20 million and optional for businesses with a turnover of under A$20 million.

B.13 Various 'joined-up' government initiatives via Web sites have been tried across the three countries. Australia leads the field in the development of 'entry points'. The entry point to the Australian Commonwealth Government is held at

www.fed.gov.au and a central system of domain name allocation ensures that departmental sites are reasonably easy to find. The Business Entry Point (at **www.business.gov.au**) is being heavily promoted as a starting point for any business user of the Internet. The entry point makes 60,000 documents available and includes contributions from over 50 Commonwealth and 100 State and Territory agencies. At State level, several governments are developing government-wide intranets. The Victorian government use a 'Channel' approach to direct citizens to the information they need (via the 'Health Channel', the 'Land Channel', the 'Business Channel' and the 'Education Channel'. There has been some debate within the Premier and Cabinet's Office about the effectiveness of the 'life event' approach - they have carried out research that suggests citizens do not find it helpful. In the US, a 1998 initiative called WebGov to create a front-end for all government sites has not yet materialised and locating federal sites remains a problem. Users remain reliant on private sector sites which use the long-lived and fragmented Government Information Locator Service, a decentralised collection of agency-based databases. In Germany, there are virtually no joined-up sites apart from the main federal government site at **www.bundesregierung.de** which provides a wide range of information in several languages and links to all ministries. The average number of pageviews for the site during 1999 was 1.2 million; the average number of user sessions were 257, 000.

Development of Intranets

B.14 The countries divide into two with respect to intranet development. In Australia and the US virtually all departments and agencies have been running intranets for more than a year, while in Germany, like the UK, many key departments are at pilot stage. The Australian Tax Office has had an intranet for 4-5 years; now all 17,000 staff have access. Centrelink has an intranet to which all 24,000 staff (2,000 in Canberra, the rest in 401 Centrelink offices across the country) have access; it receives 100,000 staff page requests every day. The most used application is MapStat On-line with a database of Centrelink offices that allows staff to key in a postcode and get details of all local services, which receives 370,000 hits a month. DEWSRB was the first Australian government agency to develop an intranet; 2,200 staff across 70 offices now have access. The Australian Customs' Service has had an intranet for four years, which is now used by all of Customs' 4,000 staff (700 in Canberra and 3,300 dispersed around 80 locations). In the US, the Department of Housing and Urban Development launched an intranet for its 10,000 staff in November 1996. In its first month it received 21,000 log-ins, which by March 1999 had risen to 970,000. In Germany, the Ministry of Labour and Social Affairs has an intranet to which all staff have access; the Ministry for Families, Senior Citizens, Women and Youth have a prototype intranet with three departments using it. There has been some resistance to the intranet from staff, some of whom initially viewed it as a control mechanism, so it is being introduced slowly in a 'snowballing' way.

B.15 Across all countries there is a link between intranet development and electronic service delivery through the external Web site. Those departments at more advanced stages of electronic service delivery had well-established intranets while those at a preliminary stage with electronic delivery (such as the UK Benefits Agency) were also lagging on intranet development. The most advanced users are now narrowing the organisational gap between their intranets and their external sites. The ATO has brought the management of the intranet and the external site into the same team because of the linkages between them. The external site is now a subset of the internal site and the Internet is now being used to enable ATO to open up its internal processes. Since February 1999, ATO's legal database has been mirrored on the external site so that taxpayers can look at the same legal reference points and case law as ATO lawyers; it is updated whenever the internal system is updated.

B.16 In Australia, the US and Germany, a far higher proportion of staff could see their own Web sites through their intranet than in the UK. In Australia and the US, virtually all federal government employees have access to either the Internet or a mirror of government sites via their departmental intranet. In Germany, all staff of the Ministry of Labour and Social Affairs and of the Ministry of Economics and Technology have access to their own site; of the other agencies we visited, only the Ministry for Families, Senior Citizens, Women and Youth had a small percentage of staff with Internet access at the time of our visit.

B.17 Government-wide intranets have been considered in all four countries. Australia experimented with the idea of a government intranet, after December 1997 when the Prime Minister proposed that there could be benefits from a 'whole of government' secure intranet. The Office for Government On-line (OGO) market-tested for potential savings in the provision of a dedicated infrastructure in 1998, but concluded that the cost of suitable dedicated network architectures did not provide a sufficiently strong business case to warrant the government proceeding with this approach. Agencies are currently using a range of existing infrastructures, such as 'secure gateways' (a series of protected networks developed for law enforcement agencies during the 1990s) or are acquiring additional infrastructure through existing whole of government telecommunications arrangements. OGO is now seeking to develop a secure intranet using a virtual private network. Germany, like the UK is developing a technical infrastructure; the IVBB or the Bonn-Berlin Highway. In contrast to the UK, German federal departments are mandated to sign up to the service - but the network is centrally financed and all governmental organisations are automatically entitled to free access, including access to the Internet. The contract is managed by the Co-ordination unit of the Interior Ministry. It was let in January 1998 for ten years and costs about DM40 million per year. Around 65 per cent of federal personnel now have access. As in the UK, there have been question marks

over the quality of service delivered and the level of security. The Interior Ministry promise that early problems will be overcome with an increase in bandwidth, but some officials across departments we visited expressed concern about the speed of response, the search engine and the firewall, which does not allow Java script or zip files to pass through. One central agency uses Compuserve on stand-alone PCs to gain Internet access unimpeded by the firewall.

Key Policy Concerns

B.18 Australia and the US are both federal governments covering dispersed populations across huge geographical areas. Therefore, they have most to benefit from the Internet as a new channel of communication, and have had a longer and more sustained commitment to electronic service delivery. In Germany, the move of the parliament to Berlin, and the planned division of most ministries between Bonn and Berlin have been key driving factors in shaping Web developments.

B.19 The three governments have different approaches to security concerns. In Germany, there is a firewall between the IVBB and the Internet, because the Ministry of Interior believes that it is impossible for all ministries and agencies to develop the necessary security to allow direct access. Therefore ministries do not have to achieve the same level of security accreditation as UK departments need to sign up to the UK GSI. All external e-mails to ministries go first to the Interior ministry and are scanned for pornography or other potentially subversive material, and are then passed on to the relevant ministry via IVBB. In Australia arrangements appear more adhoc. Some interviewees suggested that Department of Defence concerns over the security risk of a government-wide network blocked the development of a government-wide intranet. OGO feel that Australia has a well-defined set of policy and practices guidelines that assist agencies implement on-line service delivery in a secure manner.

Political Support and Commitments

B.20 Key policy concerns have shaped the extent to which political leaderships have committed themselves to electronic service delivery. The Australian Prime Minister set explicit targets for electronic service delivery by the Federal Government, promising in December 1997 that by 2001 'all appropriate services would be delivered electronically'. Similar commitments have also been made in some states; the Victorian Premier, for example, made a commitment to 100 per cent on-line service delivery some years before the Commonwealth Prime Minister. In the US, targets were set early when in the 1994 National Performance Review Al Gore promised to provide all citizens with electronic access to government by 2000, by connecting every classroom, library, hospital and clinic to a national information infrastructure. In Germany there have been no such commitments, although there is a general awareness that web usage is growing rapidly and that there are clear benefits to electronic communication.

B.21 In all countries, legislation for electronic commerce is an important issue for the expansion of electronic service delivery. In Australia, the Attorney General's Department have produced a bill on the legal framework for electronic transactions, as part of their role in servicing an Electronic Commerce Experts Group, set up by the Prime Minister. The bill is aimed at encouraging a greater take-up of e-commerce through creating a secure and predictable legal environment, but applies also to government agencies. As its author points out, it is largely a facilitating bill, which aims to remove impediments to electronic transactions (many of which do not actually exist). They undertook consultation with departments from December 1998. The new law is based on a private sector model law. Their strategy has been to be technology neutral, and businesses will be able to choose which technology they use. The implementation timetable for the bill runs up to 2001, to give departments time to adjust and to make system amendments. Public sector agencies will use OGO's Gatekeeper project, a public key authentication framework for government. It will allow companies to register with a Gatekeeper-accredited certification authority to produce digital certificates to be used by all public sector agencies. The Gatekeeper approach will be mandated for public sector agencies unless they have a very good reason not to use it. In the US, various agencies are using encryption techniques. SSA uses encryption but are testing public key infrastructure before relaunching the PEBES application.

Central Co-ordination

B.22 The key policy concerns above shape central co-ordination and control. In Australia and the USA, strong central concern and key commitments to electronic service delivery reflect the obvious benefits that Internet usage can bring to governments there. None of the countries offers a clear strategy for central co-ordination. In Australia, the advanced stage of electronic service delivery in several key agencies could not be attributed to central agency intervention. However, in all countries there are units with responsibility for central co-ordination:

Country	Central Agencies
US	General Services Administration (GSA) Federal Technology Service (FTS) Office of Management and Budget (OMB) Government Information Technology Services Board (GITS) Chief Information Officers Council (CIOC)
Australia	Department of Communications, Information Technology and the Arts (DCITA) Office for Government On-line (OGO) National Office for an Information Economy (NOIE) The On-line Council

Germany	Co-ordination Unit of the Interior Ministry Federal Press and Information Office
UK	CITU, CCTA, COI (see Part 4)

B.23 Different models of central control and co-ordination were evident across the three countries. Australia has devoted the most central resources to electronic service delivery (as opposed to IT in general). However the Australian central agencies have variable reputations and the major electronic players, such as ATO, Centrelink and the Health Insurance Commission (and even innovative State governments such as Victoria) are leading the field, advising central agencies and driving central initiatives. The Department of Communications, Information Technology and the Arts is a central player. The creation of this department has meant that there is, in effect, a Minister for Information Technology (Arts appears to be rather an add-on). The Office for Government On-line (OGO) is a unit within the DCITA, with around 50 staff. The National Office for the Information Economy (NOIE) is also within DCITA. Its 65 staff provide advice, support and co-ordination to other agencies and develop policy advice to the Government on matters which are essentially Internet-specific. NOIE also allocates around A$1 million in small grants to voluntary organisations or business groupings to encourage Internet usage and the office plays a role in the Federal Government's development of the legal framework for authentication, interoperability and standards and international work with the World Trade Organisation and the Asia-Pacific Economic Conference. In addition to the above, the On-line Council was established in 1997 as a Commonwealth initiative to foster co-operation and consistency on on-line issues between the Commonwealth, States and Territories and local government. Senior Ministers from State, Territory and local governments meet twice a year to discuss policy issues related to the information economy, particularly national strategic approaches to the use of information and communication services. The On-line Council is serviced by NOIE and supported by a committee of senior officials representing all jurisdictions, local government, OGO and other relevant government agencies (the officials meet four times a year). The Council is chaired by the Minister for Communications, Information Technology and the Arts. Although there have been no initiatives in Australia to create 'IT champions', as in the UK and US (see paragraph C20 above), several individuals appear to have emerged as champions and play a key role in pushing electronic service delivery forward: the Minister for Communications and Information Technology, the Assistant Commissioner for Electronic Services Delivery at ATO, the Deputy Commissioner at DEWRSB, (at State level) the State Treasurer in Victoria and (at local level) the Mayor of Melbourne City Council.

B.24 In the US, a proliferation of central agencies, initiatives and committees play a role in information technology development. The National Performance Review reform programme of 1994 spawned Vice President Gore's Access America initiative to make government services available electronically. It also established the Government Information Technology Services Board (GITS) which branched off in 1996 as a separate office to promote cross-agency service applications. The General Services Administration (GSA) plays a role in encryption and digital security, trying to create a government-wide digital certificate service through the Access Certificates for Electronic Services program. Within GSA, the Federal Technology Service (FTS) offers agencies various services through its 'smart government' and 'connected government' initiatives, such as systems integration support, risk planning, outsourcing advice and various Internet, e-mail and e-commerce services (at a fixed monthly price) through its CINEMA program. The Office of Management and Budget (OMB) (the central agency with the most authority, due to its role in the budgetary process) has mandated agencies to offer all government services electronically within 3.5 years, as part of the Government Paperwork Elimination Act, to be implemented by 2003. OMB drafted a 13-page regulation to guide agencies on how to increase on-line business, including information about using digital signatures and other authentication procedures.The regulation states that 'Agencies should develop and implement plans to use and accept documents in electronic form and engage in electronic transactions. It is administration policy that a decision to not allow the option of electronic filing and record-keeping should be supported by a specific showing that 'there is no reasonably cost-effective combination of technologies and management controls that can minimise the risk of significant harm.' OMB was also responsible for overseeing a Chief Information Officer initiative across the federal government: as part of the 1996 Defense Authorization Act, under which Cabinet agencies were mandated to name Chief Information Officers (CIO) who reported directly to the agency head and had primary responsibility for all IT activities. These CIOs have been brought together in the Chief Information Officers' Council, with six sub-committees (focusing on interoperability, information technology capital planning, IT work force issues, the year 2000 problem and outreach) and a budget allocation, to formulate various aspects of on-line policy, including a strategic plan (1998) and an IT architecture plan (1997) for the federal government.

B.25 In Germany, there is much less input from the centre. The co-ordination unit of the Interior ministry is responsible for technical standards, common software development, common procurement rules and common communications in and between ministries. The unit has no authority and can only recommend or instigate agreements, but has now a major central role in developing the German equivalent of GSI, the Projekt Informationsverbund Berlin-Bonn (IVBB) or the Bonn-Berlin highway. The Federal Press and Information Office (a

large operation of 650 staff) in the Chancellors' Office also has some central responsibility, most notably for maintaining and developing the main federal government site. The Office is becoming more pro-active with the new government and they plan to co-ordinate layouts and 'look-and-feel'.

B.26 In Australia, the Australian National Audit Office (ANAO) is carrying out a survey of agencies' electronic service delivery efforts in 1999. In response to their results, ANAO and the Office for Government On-line (OGO) have developed a four-stage model of government agencies' service delivery via the Internet in 378 initiatives about which they received information. The ANAO has used this model to represent graphically the services that agencies expect to deliver, now or in the future, on the Internet. The model's horizontal axis refers to increases in the sophistication of technology requirements, and the vertical axis refers to increasingly complex service delivery. It is up to each agency to decide at which stage it wishes to position itself to deliver services. Therefore, no single stage is better than another. The four stages are as follows:

Stage 1 — The Agency has a Web site that publishes information about itself and its services. Users have read-only access and can download documents;

Stage 2 — Quite close to 1 - an Agency allows Internet users to access the agency database(s), and to browse, explore and interact with data. Users can access a database anonymously; for example the Australian Bureau of Statistics provides census data on-line.

Stage 3 — A big jump from 2, at which an agency allows users access as in stages 1 and 2 and also permits them to enter secure information and engage in transactions with the agency. The agency has resolved the authentication issue, knows who the user is and can provide user-targeted information.

Stage 4 — Close to 3, at which, in addition to the level of access permitted in stage 3, the agency, with the user's prior approval, shares with other government agencies information provided by the user. Authentication has been resolved and the agency is sharing user information with other agencies, for example, change of address information. The Business Entry Point will be an example.

The ANAO's report on its survey of Australian government agencies was tabled in Parliament in November 1999, and it will be available on ANAO's Web site at **http://www.anao.gov.au**

In the US, the General Accounting Office (GAO) has long taken a strong interest in information technology in general but has not conducted a particular study of electronic service delivery or strategies for Web site development. In Germany central agencies' monitoring roles have not extended to electronic service delivery. The German Audit Office used to be influential in this area; in the 1980s the Federal Commissioner did a study of IT and until two years ago, if a budget claim included an IT proposal, it had to be accompanied by a special recommendation from the Audit Office, but that is no longer the case.

appendix i

study methodology

i.1 The rapid pace of change of Internet developments, their wide impacts on government information and communications technology and the novelty of the organisational issues raised, all presented some difficult challenges. Our approach relied on information gathered from a number of different methods and sources, which were carefully cross-checked using a 'triangulation' method.

Surveys

i.2 We undertook an 'unobtrusive measures' and non-reactive census of all central government Web sites near the start of the study, in November and December 1998. This element encompassed all central government ministerial and non-ministerial departments, Next Steps agencies, and those non-departmental public bodies with executive responsibilities. We assembled the census list from Cabinet Office and other Civil Service and parliamentary sources, and cross-checked our listing with expert interviewees. The complete set of bodies covered is detailed in Figure 39. Because government on the Web policy for Scotland, Wales and Northern Ireland bodies will be determined under devolution arrangements by the Scottish Parliament, the Welsh National Assembly and the Northern Ireland Assembly we focused only on UK-wide agencies and on agencies for England. The patterns of Scottish, Welsh and Northern Irish administration are significantly different from those at the UK or England levels, and the scale of agencies there is much smaller. So this limitation also made the population for the study a more coherent group. We defined a coding frame to be used by graduate researchers, each of whom visited the sites being surveyed using the same equipment and the same browser (Netscape version 3) located in an LSE computer classroom. Researchers were carefully briefed on procedures, trained on a pilot set of agency sites, supervised when undertaking their work, and had a percentage of their results cross-checked by other researchers or the main study team. The coding frame focused so far as possible on using objective criteria to assess sites, and we avoided trying to make subjective any judgements or evaluations. The coding frame and the basic data for the census outcomes are in available on the Web for free download at: **http://www.governmentontheweb.org**.

i.3 In May 1999 we mailed a reactive survey to all departmental permanent secretaries and agency chief executives, seeking their views on government on the Web issues. Key results are described above in Part 1, and the full questionnaire and basic data responses is available on the Web for free download at: **http://www.governmentontheweb.org**. The overall response rate to the survey was 70 per cent, a high level given the demands on the time of these very busy officials. We are very grateful to all those who responded for their help. The survey was again designed as a census, using the listing in Figure 39 below. A star (*) following a department or agency name indicates that a response was provided. We have compared carefully the characteristics of the population and of the 70 per cent returns, and they are closely matched.

i.4 One of the pages in the chief executives' survey asked them to nominate an official in their information technology or new media divisions to whom we could send a more detailed follow-up survey by e-mail for completion on the Web. These more specific survey forms and the basic data responses are available on the Web for free download at: **http://www.governmentontheweb.org**. The e-mail forms were despatched in late June 1999 and a 60 per cent response was received (from among agencies responding to the chief executives' survey) by the cut-off date in August. Some agencies returned two separate responses, but most pooled their returns.

i.5 The study design relied on investigating government on the Web issues in depth in two departments, one dealing primarily with ordinary citizens and one with business. Together with colleagues in the National Audit Office and in discussion with a number of departments we selected the Department of Social Security and the Department of Trade and Industry for the main case studies. A number of criteria needed to be reconciled here, including securing a fair distribution of the wider load across departments. We also undertook in-depth work with the Central Information and Technology Unit of the Cabinet Office. We are very grateful to a great many staff in all the departments and their agencies who generously provided their time for interviews, supplied a wide range of data, minutes and documentation, and in some cases allowed us to sit in on relevant meetings. A full list of organisations where we conducted interviews is given in Figure 40. In addition we undertook a wider programme of interviews with agencies outside our case study departments and with some private sector contractors to government on more general government on the Web issues, and sat in on meetings of the Government Internet Forum. Overall we completed 61 interviews with government officials in the UK. In addition a large number of phone and e-mail interviews were undertaken (not listed).

Studies of comparator organisations

i.6 At the beginning of our study we undertook a programme of visits to and interviews with a set of large private sector companies, described in detail in Comparator A. The aim here was to identify elements of good practice which might be applicable in the public sector, and to determine the main trends and most common problems involved in introducing Web-based technologies into large organisations. We are very grateful to all those involved for their help and co-operation. The interviews and data gathered proved very valuable in pointing to issues for government agencies to tackle over the next few years.

i.7 Throughout the study period we undertook research on patterns of development of government on the Web in three overseas countries, and towards the end of the study period visited each of them and conducted interviews with key staffs. The countries chosen were the United States, Australia and Germany, and full details of the study results are provided in Comparator B.

39 ORGANISATIONS COVERED IN THE CENSUS OF CENTRAL GOVERNMENT WEB SITES AND THE SURVEYS OF CHIEF EXECUTIVES AND IT MANAGERS

ORGANISATION	TYPE OF BODY	CES	IMS
Ministry of Agriculture Fisheries and Food	Ministerial Department	1	1
Central Science Laboratory	Executive Agency	1	1
Centre for Environment, Fisheries & Aqua. Science	Executive Agency	1	1
Intervention Board	Executive Agency	1	0
Meat Hygiene Service	Executive Agency	1	1
Pesticides Safety Directorate	Executive Agency	1	1
Veterinary Laboratories Agency	Executive Agency	1	1
Veterinary Medicines Directorate	Executive Agency	1	1
Agricultural Wages Board for England & Wales	Executive Body	1	0
Apple and Pear Research Council	Executive Body	1	0
British Potato Council	Executive Body	1	0
Food from Britain	Executive Body	1	0
Home-Grown Cereals Authority	Executive Body	1	1
Horticultural Development Council	Executive Body	1	1
Horticultural Research International	Executive Body	1	1
Meat and Livestock Commission	Executive Body	0	0
Meat Hygiene Appeals Tribunal	Executive Body	1	0
Milk Development Council	Executive Body	1	1
Royal Botanic Gardens, Kew	Executive Body	1	1
Sea Fish Industry Authority	Executive Body	1	1
UK Register of Organic Food Standards	Executive Body	0	0
Waste Standards Board of the Vintners' Company	Executive Body	0	0
Covent Garden Market Authority	Public Corporation	1	0
Cabinet Office	Ministerial Department	1	1
CCTA	Executive Agency	1	1
Central Office of Information	Executive Agency	1	1
Civil Service College	Executive Agency	1	0
Government Car and Dispatch Agency	Executive Agency	1	0
Buying Agency	Executive Agency	0	0
Property Advisers to the Civil Estate	Executive Agency	1	0
British Government Panel on Sustainable Devt.	Executive Body	0	0
Civil Service Appeal Board	Executive Body	1	0
Political Honours Scrutiny Committee	Executive Body	0	0
Committee on Standards in Public Life	Executive Body	1	0
Department of Culture Media and Sport	Ministerial Department	0	0
Royal Parks Agency	Executive Agency	0	0
Arts Council of England	Executive Body	0	0
British Film Institute	Executive Body	1	0
British Library	Executive Body	1	0

Organisation	Type of Body	CES	IMS
British Museum	Executive Body	1	1
British Tourist Authority	Executive Body	1	1
Broadcasting Standards Committee	Executive Body	1	0
English Sports Council	Executive Body	1	0
English Tourist Board	Executive Body	0	0
Football Licensing Authority	Executive Body	1	1
GB Sports Council	Executive Body	0	0
Geffrye Museum	Executive Body	1	1
Horniman Museum	Executive Body	1	0
Imperial War Museum	Executive Body	1	1
Millennium Commission	Executive Body	1	1
Museum of London	Executive Body	0	0
Museums and Galleries Commission	Executive Body	0	0
National Film and Television School	Executive Body	0	0
National Gallery	Executive Body	1	1
National Heritage Memorial Fund	Executive Body	1	1
Natural History Museum	Executive Body	1	0
National Lottery Charities Board	Executive Body	1	0
National Maritime Museum	Executive Body	1	1
National Museum of Science and Industry	Executive Body	0	0
National Portrait Gallery	Executive Body	1	1
Registrar of Public Lending Right	Executive Body	1	0
Royal Armouries	Executive Body	1	0
Royal Commission on Historical Manuscripts	Executive Body	1	1
Royal Commission on Hist. Monuments of England	Executive Body	0	0
Sir John Soane's Museum	Executive Body	1	0
Tate Gallery	Executive Body	1	1
English Heritage	Executive Body	0	0
UK Sports Council	Executive Body	1	1
Victoria and Albert Museum	Executive Body	0	0
Wallace Collection	Executive Body	1	0
Historic Royal Palaces	Executive Body	0	0
Radio Authority	Public Corporation	1	0
ITC	Public Corporation	1	1
BBC	Public Corporation	1	0
Channel 4 Television Corp.	Public Corporation	1	0
Ministry of Defence	Ministerial Department	1	1
Armed Forces Personnel Admin. Agency	Executive Agency	1	0
Army Base Repair Organisation	Executive Agency	1	0
Army Personnel Centre	Executive Agency	1	0
Army Technical Support Agency	Executive Agency	1	0
Army Training and Recruiting Agency	Executive Agency	1	1
Defence Analytical Services Agency	Executive Agency	1	1
Defence Bills Agency	Executive Agency	1	0
Defence Clothing and Textiles Agency	Executive Agency	1	0
Defence Codification Agency	Executive Agency	0	0
Defence Communication Services Agency	Executive Agency	1	1
Defence Dental Agency	Executive Agency	1	0
Defence Estates Organisation	Executive Agency	1	0
Defence Evaluation and Research Agency	Executive Agency	1	1
Defence Intelligence and Security Centre	Executive Agency	1	0
Defence Medical Training Organisation	Executive Agency	1	0
Defence Postal and Courier Services Agency	Executive Agency	1	0
Defence Secondary Care Agency	Executive Agency	1	0
Defence Transport and Movements Executive	Executive Agency	1	0
Defence Vetting Agency	Executive Agency	1	0
Disposal Sales Agency	Executive Agency	1	0
Duke of York's Royal Military School	Executive Agency	1	0
Joint Air Reconnaissance Intelligence Centre	Executive Agency	1	0
Logistic Information Systems Agency	Executive Agency	1	0
Meteorological Office	Executive Agency	1	0
Medical Supplies Agency	Executive Agency	1	0
Military Survey	Executive Agency	1	1
Ministry of Defence Police	Executive Agency	1	0
Hydrographic Office	Executive Agency	0	0

Organisation	Type of Body	CES	IMS
Naval Aircraft Repair Organisation	Executive Agency	0	0
Naval Bases and Supply Agency	Executive Agency	0	0
Naval Manning Agency	Executive Agency	0	0
Naval Recruiting and Training Agency	Executive Agency	1	0
Pay and Personnel Agency	Executive Agency	0	0
Queen Victoria School	Executive Agency	0	0
RAF Logistics Support Services	Executive Agency	0	0
RAF Maintenance Group Defence Agency	Executive Agency	0	0
RAF Personnel Management Agency	Executive Agency	1	0
RAF Signals Engineering Establishment	Executive Agency	0	0
RAF Training Group Defence Agency	Executive Agency	1	0
Service Children's Education	Executive Agency	1	0
Ships Support Agency	Executive Agency	1	1
Specialist Procurement Services	Executive Agency	1	0
Defence Aviation Repair Agency	Executive Agency	1	0
Defence Storage and Distribution	Executive Agency	1	0
Procurement Executive	Executive Agency	0	0
Defence Transport & Movements Organisation	Executive Agency	1	0
Defence Housing Executive	Executive Agency	1	0
Fleet Air Arm Museum	Executive Body	1	0
National Army Museum	Executive Body	1	1
Oil and Pipelines Agency	Executive Body	1	0
Royal Air Force Museum	Executive Body	0	0
Royal Marines Museum	Executive Body	0	0
Royal Naval Museum	Executive Body	1	0
Royal Navy Submarine Museum	Executive Body	1	0
Department of the Environment	Ministerial Department	1	1
Transport and the Regions	Ministerial Department	1	1
Forestry Commission	Non-ministerial Department	1	1
Driving Standards Agency	Executive Agency	1	1
Driver and Vehicle Licensing Agency	Executive Agency	1	1
Highways Agency	Executive Agency	1	0
Maritime and Coastguard Agency	Executive Agency	1	0
Ordnance Survey	Executive Agency	1	1
Planning Inspectorate	Executive Agency	1	0
Queen Elizabeth Conference Centre	Executive Agency	1	0
Vehicle Certification Agency	Executive Agency	1	0
Vehicle Inspectorate	Executive Agency	1	1
Rent Office Service	Executive Agency	1	0
Forestry Commission Research Agency	Executive Agency	1	1
Audit Commission	Executive Body	1	1
Countryside Commission	Executive Body	1	1
English Partnerships	Executive Body	0	0
Environment Agency	Executive Body	1	0
General Lighthouse Authorities	Executive Body	1	0
Health and Safety Commission	Executive Body	1	0
Health and Safety Executive	Executive Body	1	1
Housing Corporation	Executive Body	0	0
Joint Nature Conservation Committee	Executive Body	1	1
London Pensions Fund Authority	Executive Body	1	1
London Regional Passengers' Committee	Executive Body	1	0
English Nature	Executive Body	1	0
National Forest Company	Executive Body	0	0
Natural Environment Research Council	Executive Body	0	0
Traffic Director for London	Executive Body	1	1
United Kingdom Eco-labelling Board	Executive Body	0	0
British Waterways Board	Nationalised Industry	1	0
Civil Aviation Authority	Nationalised Industry	1	0
London Regional Transport	Nationalised Industry	0	0
Govt. Office for the North East	Government Office for Regions	1	1
Govt. Office for the North West	Government Office for Regions	1	1

Organisation	Type of Body	CES	IMS
Govt. Office for Yorks & Humber	Government Office for Regions	1	1
Govt. Office for the West Midlands	Government Office for Regions	0	0
Govt. Office for the East Midlands	Government Office for Regions	1	0
Govt. Office for Eastern Region	Government Office for Regions	1	1
Govt. Office for the South West	Government Office for Regions	1	0
Govt. Office for the South East	Government Office for Regions	1	1
Govt. Office for London	Government Office for Regions	1	0
Department for Education and Employment	Ministerial Department	0	0
Office for Standards in Education	Non-ministerial Department	1	1
Employment Service	Executive Agency	1	0
Centre for Information on Language Teaching & Research	Executive Body	0	0
Construction Industry Training Board	Executive Body	1	0
Education Assets Board	Executive Body	1	0
Engineering Construction Industry Training Board	Executive Body	1	1
Equal Opportunities Commission	Executive Body	1	0
Further Education Funding Council for England	Executive Body	1	1
Higher Education Funding Council for England	Executive Body	0	0
Investors in People UK	Executive Body	0	0
BECTA	Executive Body	1	0
Qualifications and Curriculum Authority	Executive Body	1	1
Remploy Limited	Executive Body	1	1
Student Loans Company	Executive Body	1	0
Teacher Training Agency	Executive Body	1	1
Foreign and Commonwealth Office	Ministerial Department	1	1
Wilton Park	Executive Agency	0	0
Britain-Russia Centre	Executive Body	1	0
British Association for Central and Eastern Europe	Executive Body	0	0
British Council	Executive Body	1	0
Commonwealth Institute	Executive Body	1	1
Marshall Aid Commemoration Commission	Executive Body	1	0
The Great Britain-China Centre	Executive Body	1	0
Westminster Foundation for Democracy	Executive Body	0	0
Department of Health	Ministerial Department	1	1
Medical Devices Agency	Executive Agency	1	1
Medicines Control Agency	Executive Agency	1	0
NHS Estates	Executive Agency	0	0
NHS Pensions Agency	Executive Agency	1	1
Central Council for Education & Training in Social Work	Executive Body	1	1
Dental Practice Board	Executive Body	1	1
Eng. Nat. Board for Nursing, Midwifery & Health Visiting	Executive Body	1	1
Health Education Authority	Executive Body	1	1
Human Fertilisation and Embryology Authority	Executive Body	1	1
Medical Practices Committee	Executive Body	0	0
Mental Health Act Commission	Executive Body	1	0
Microbiological Research Authority	Executive Body	0	0
National Biological Standards Board	Executive Body	1	0
National Blood Authority	Executive Body	1	1
National Health Service Litigation Agency	Executive Body	1	0
National Health Service Supplies Authority	Executive Body	0	0
National Radiological Protection Board	Executive Body	1	0
Prescription Pricing Authority	Executive Body	1	0
Public Health Laboratory Service Board	Executive Body	1	1
United Kingdom Transplant Support	Executive Body	1	0

Organisation	Type of Body	CES	IMS
Home Office	Ministerial Department	1	1
Fire Service College	Executive Agency	1	1
Forensic Science Service	Executive Agency	1	1
HM Prison Service	Executive Agency	1	0
UK Passport Agency	Executive Agency	1	1
Probation Service	Executive Agency	1	0
Alcohol Education and Research Council	Executive Body	1	1
Commission for Racial Equality	Executive Body	0	0
Community Development Foundation	Executive Body	1	0
Criminal Cases Review Commission	Executive Body	1	0
Criminal Injuries Compensation Appeals Panel	Executive Body	1	0
Criminal Injuries Compensation Authority	Executive Body	1	0
Criminal Injuries Compensation Board	Executive Body	0	0
Gaming Board for Great Britain	Executive Body	1	1
Horserace Betting Levy Board	Executive Body	1	1
Horserace Totalisator Board	Executive Body	1	0
Office of the Data Protection Registrar	Executive Body	1	0
Parole Board	Executive Body	1	0
Police Compensation Authority	Executive Body	1	0
Department for International Development	Ministerial Department	0	0
Commonwealth Scholarship Commission	Executive Body	1	1
Commonwealth Development Corp.	Public Corporation	1	0
Law Officer's Department	Ministerial Department	1	0
Serious Fraud Office	Non-ministerial Department	1	1
Crown Prosecution Service	Executive Agency	1	0
Government Property Lawyers	Executive Agency	0	0
Treasury Solicitor's Department	Executive Agency	0	0
Lord Advocate's Department	Ministerial Department	0	0
Lord Chancellor's Department	Ministerial Department	1	0
Court Service	Executive Agency	1	0
Land Registry	Executive Agency	0	0
Public Record Office	Executive Agency	1	1
Public Trust Office	Executive Agency	1	1
Legal Aid Board	Executive Body	0	0
Civil Justice Council	Executive Body	1	0
Civil Procedure Rule Committee	Executive Body	0	0
Privy Council Office	Ministerial Department	1	0
Department of Social Security	Ministerial Department	1	1
Benefits Agency	Executive Agency	1	1
Child Support Agency	Executive Agency	1	0
Contributions Agency	Executive Agency	1	0
Information Technology Services Agency	Executive Agency	1	1
War Pensions Agency	Executive Agency	1	1
Occupational Pensions Regulatory Authority	Executive Body	1	1
Pensions Compensation Board	Executive Body	1	0
Department of Trade and Industry	Ministerial Department	0	1
Office of Electricity Regulation	Non-ministerial Department	0	0
Office of Fair Trading	Non-ministerial Department	1	1
Office of Gas Supply	Non-ministerial Department	1	0
Office of Passenger Rail Franchising	Non-ministerial Department	1	1
Office of Telecommunications	Non-ministerial Department	1	1
Office of the National Lottery	Non-ministerial Department	1	0

Organisation	Type of Body	CES	IMS
Office of the Rail Regulator	Non-ministerial Department	0	0
Office of Water Services	Non-ministerial Department	1	1
Companies House	Executive Agency	1	1
Employment Tribunal Service	Executive Agency	1	0
Insolvency Service	Executive Agency	0	0
National Weights and Measures Laboratory	Executive Agency	1	1
Patent Office	Executive Agency	1	0
Radiocommunications Agency	Executive Agency	1	1
Advisory, Conciliation and Arbitration Service	Executive Body	0	0
Biotech and Biological Sciences Research Council	Executive Body	1	1
British Hallmarking Council	Executive Body	1	1
Coal Authority	Executive Body	1	1
Council for the Central Laboratory of the Research Councils	Executive Body	1	1
Design Council	Executive Body	1	1
ESRC	Executive Body	1	0
EPSRC	Executive Body	1	1
Gas Consumers' Council	Executive Body	1	0
Low Pay Commission	Executive Body	1	1
Medical Research Council	Executive Body	1	1
Monopolies and Mergers Commission	Executive Body	1	0
National Consumer Council	Executive Body	0	0
National Consumers' Consultative Committee	Executive Body	1	1
National Environment Research Council	Executive Body	0	0
Particle Physics and Astronomy Research Council	Executive Body	1	1
Policyholders' Protection Board	Executive Body	0	0
Post Office Users' National Council	Executive Body	1	0
The New Millennium Experience Company	Executive Body	0	0
The Simpler Trade Procedures Board	Executive Body	1	0
United Kingdom Atomic Energy Authority	Executive Body	1	0
HM Treasury	Ministerial Department	1	1
Charity Commission	Non-ministerial Department	0	0
The Crown Estate	Non-ministerial Department	0	0
HM Customs and Excise	Non-ministerial Department	1	1
Inland Revenue	Non-ministerial Department	1	0
National Debt Office	Non-ministerial Department	1	0
Debt Management Office	Executive Agency	1	0
National Savings	Executive Agency	1	0
Office for National Statistics	Executive Agency	1	1
Royal Mint	Executive Agency	1	0
Valuation Office	Executive Agency	1	1
Scottish Office	Ministerial Department	0	0
Welsh Office	Ministerial Department	1	0
Northern Ireland Office	Ministerial Department	0	0
Financial Services Agency	Non-ministerial Department	0	0
Government Purchasing Agency	Executive Agency	0	0
Communications Electronic Group	Ministerial Department	1	0
Forest Enterprise	Executive Agency	1	1
Forest Service	Executive Agency	1	1
GCHQ	Ministerial Department	1	1
Historic Scotland	Executive Agency	1	1
Security Service	Ministerial Department	1	0

Notes: In the response received columns, CES means 'chief executives' survey' and IMS means 'IT managers' survey'.

40 LIST OF INTERVIEWEES

Public-Sector Interviews (number of interviewees)

Benefits Agency (5)
Biotechnology and Biological Sciences Research Council (2)
Cabinet Office (1)
Central Computing and Telecommunications Agency (1)
Cabinet Office: Central IT Unit (5)
Central Office for Information (1)
Child Support Agency (6)
Companies House (2)
Department for Social Security HQ (2)
Department for Social Security Internet Working Group (sat in on meeting)
Department for Trade and Industry HQ (6)
Economic and Social Research Council (2)
Engineering and Physical Science Research Council (3)
Government Internet Users' Forum (sat in on two day conferences)
Health and Safety Executive (1)
Highways Agency (1)
HM Treasury (2)
Information Technology Services Agency (7)
National Citizens Advice Bureau (2)
Natural Environment Research Council (2)
Office of Science and Technology (3)
Particle Physics and Astronomy Research Council (3)
Patent Office (2)
War Pensions Agency (2)

Total 61

Private-Sector Interviews

Barclays Retail Bank (1)
Barclays Stockbrokers (1)
British Telecom (1)
Cable and Wireless (1)
Cisco (1)
Citibank (1)
Cyberia Consultants (2)
Dell UK (2)
DHL (1)
Financial Times (2)
Glaxo-Wellcome (1)
Lloyds TSB (1)
Tesco (1)

Total 16

List of Overseas Interviews

Australian Attorney General's Office (3)
Australian CentreLink (3)
Australian Customs Service (3)
Australian FedLink (2)
Australian National Audit Office (2)
Australian National Office for the Information Economy (2)
Australian Office for Government On-Line (2)
Australian Tax Office (1)
Bundesministerium des Innern (Home Office) (1)
Bundesministerium fur Arbeit und Sozialordnung (Labour and Social Affairs) (3)
Bundesministerium fur Bildung und Forschung (Education and Research) (2)
Bundesministerium fur Familie, Senioren, Frauen und Jugendliche (Family, Senior Citizens, Women and Youth) (1)
Bundespresseamt (Kanzleramt) (Press Information Office, Chancellor's office) (3)
Department of Premier and Cabinet, Victoria, Australia (2)
Employment, Workplace Relations and Small Business Portfolio, Australia (4)
Melbourne City Council, Victoria, Australia (1)
Multimedia Victoria, Australia (3)
Staatskanzlei Nordrhein-Westfalen, Pressestelle (State Chancellery Northrhine-Westphalia) (3)
US General Accounting Office (2)
US National Partnership for Re-Inventing Government: Access America (1)
US Department of Energy (1)
(also National Partnership for Re-Inventing Government: Best Practices Council)
Victoria Justice Department, Australia (2)
Victorian Electoral Commission, Australia (1)

Total 48

A total of 125 people were interviewed in person.

appendix ii

progress in meeting the 25 per cent electronic transactions target

ii.1 This Appendix provides a more detailed analysis of the information published by CITU on its Web site in May 1999, giving a progress report on the Prime Minister's target that 25 per cent of transactions should be capable of being delivered electronically by 2002. The CITU report drew on statistics submitted by each Whitehall department about how departments and agencies anticipated that their capabilities to deliver electronic transactions would develop over the next three years, and their anticipated levels of actual electronic dealings.

ii.2 The broadest definition of electronic transactions is that adopted by CITU, and includes systematic phone dealings (for instance, via a call centre), existing 'electronic data' interchange (used between some large companies and government agencies), computer payments, kiosk or ATM transactions, and Web or e-mail connections. It also includes all payments by departments made to citizens through bank accounts, even though departments have been developing this kind of capability for many years, which hence has little to do with 'information age government'. Figure 41 shows the actual percentages of overall dealings conducted 'electronically' and departments estimate of their capability to handle dealings electronically across the two years, with departments arranged in order of the number of their total dealings projected for 2002. The top few departments here account for the vast bulk of all government transactions with citizens. Figure 42 shows the same data, but this time excluding from the "electronic" dealings total those payments made by departments through people's bank accounts. The main effect here is on the Inland Revenue, whose dealings total falls sharply but which stays top; and on the Department of Social Security, whose dealings total halves, and whose rank consequently falls from second to fifth.

ii.3 By applying the percentages for actual take-up projected by departments to their total dealings, we can also calculate the projected number of actual 'electronic' dealings which departments are forecasting for 2002. The main reasons why departments are projecting increases in actual 'electronic' dealings of more than one million dealings are also shown, and suggest that there are five key reasons why 'electronic' transactions are rising:

- Existing large-scale computerised transactions systems are being rather slowly extended, notably for PAYE in the Inland Revenue (see paragraph 1.42) and at Customs and Excise.
- Phone-based administrative systems are being developed or expanded, notably for pensions at the Department of Social Security (DSS), and for booking driving tests, obtaining driver vehicle licences and reporting injuries at agencies within the Department of Environment, Transport and the Regions (DETR) group.
- Internet-based administrative processes are being developed for existing tasks - notably for paying value-added tax at Customs and Excise, electronic self-assessment forms at Inland Revenue, the expansion of e-business at Companies House in the DTI group, Internet-based processes at the Department for Education and Employment in vacancy notification and job-filling, and new methods of programming court business and making payments at the Lord Chancellor's Department.
- Existing successful Internet-based services are expected to grow in their volume of transactions at the Foreign and Commonwealth Office and at the Meteorological Office in the Ministry of Defence group.
- Some new policy initiatives have been set up using contemporary information technologies, notably the computer-registration of cattle at the Ministry of Agriculture, Fisheries and Food, and the introduction of the Construction Industry Scheme at Inland Revenue.

	1999			2002			Increase 1999 to 2002 in		
Departmental Group	Total dealings (million)	Per cent of actual dealings electronic	Per cent capability electronic	Total dealings (million)	Per cent of actual dealings electronic	Per cent capability electronic	Total dealings (million)	Per cent of actual dealings electronic	Per cent capability electronic
Inland Revenue	258.8	18	45	280.2	22	79	21.4	4	34
DSS: Social Security	64.9	15	48	63.7	18	51	-1.2	3	3
DFEE: Education	65.2	6	18	63.3	27	45	-1.9	21	27
DETR: Environment	50.3	9	18	50.4	17	76	0.1	8	58
HM Land Registry	32.6	14	27	46.4	51	92	13.8	37	65
HM Customs and Excise	28.8	38	47	28.8	43	86	0.0	5	39
National Savings	22.1	34	50	21.8	na	na	-0.3	na	na
MAFF: Agriculture	2.0	23	36	18.6	40	99	16.6	17	63
DTI: Trade and Industry	9.2	16	23	13.5	52	84	4.2	36	61
Lord Chancellor's Department	13.1	23	30	13.0	31	51	-0.2	8	21
Northern Ireland Civil Service	7.7	10	18	8.1	55	92	0.4	45	74
FCO: Foreign and Commonwealth Office	3.6	21	46	6.6	35	44	3.0	14	-2
Ministry of Defence	5.7	73	73	5.4	95	95	-0.2	22	22
Scottish Office	3.9	40	41	5.0	83	95	1.1	43	54
Office for National Savings	3.6	20	50	3.6	25	56	0.0	5	6
Home Office	1.4	5	5	1.6	33	33	0.2	28	28
Cabinet Office	0.7	46	52	0.7	47	55	0.0	1	3
Welsh Office	0.7	41	98	0.7	50	98	0.0	9	0
DID: International Development	0.4	73	77	0.3	73	77	-0.0	0	0
HM Treasury	0.0	0	100	0.0	0	100	0.0	0	0
Department of Health	0.1	86	93	0.0	99	99	-0.1	13	6
Export Credits Guarantee Department	0.0	59	59	0.0	60	63	0.0	1	4
DCMS: Culture, Media and Sport	7.5	47	55	0.0	na	na	0.0	na	na
TOTALS	**582.3**			**631.7**			**56.9**		
Means		**31.2**	**48.2**		**45.5**	**71.4**		**10.4**	**20.0**

SOURCE: LSE CENSUS OF WEB SITES

	1999			2002			Increase 1999 to 2002 in		
Departmental Group	Total dealings (million)	Per cent of actual dealings electronic	Per cent capability electronic	Total dealings (million)	Per cent of actual dealings electronic	Per cent capability electronic	Total dealings (million)	Per cent of actual dealings electronic	Per cent capability electronic
Inland Revenue	227.7	18	42	245.2	21	80	18	3	38
DFEE: Education	65.1	6	18	63.2	27	45	-2	21	27
DETR: Environment	50.3	9	18	50.4	17	76	0	8	58
HM Land Registry	23.8	19	37	32.1	57	88	8	38	51
Department of Social Security	33.4	2	4	31.3	2	4	-2	0	0
MAFF: Agriculture	1.7	16	24	18.3	39	99	17	23	75
HM Customs and Excise	17.6	28	28	17.6	33	79	0	5	51
DTI: Trade and Industry	8.9	16	22	13.2	52	84	4	36	62
Lord Chancellor's Department	12.4	22	28	12.2	29	48	-0	7	20
National Savings	8.3	4	46	8.0	na	na	-0	na	na
Northern Ireland Civil Service	6.7	11	20	7.1	54	91	0	43	71
FCO: Foreign and Commonwealth Office	3.1	24	43	5.7	38	47	3	14	4
Scottish Office	3.4	43	44	4.8	85	95	1	42	51
Ministry of Defence	4.3	64	64	3.7	93	93	-1	29	29
Office for National Savings	3.0	22	41	3.0	28	47	0	6	6
Home Office	1.3	6	6	1.5	35	35	0	28	29
Cabinet Office	0.7	46	52	0.7	47	55	0	1	3
Welsh Office	0.5	43	98	0.5	53	98	0	10	0
DID: International Development	0.1	28	28	0.1	27	27	-0	-1	-1
HM Treasury	0.0	0	100	0.0	0	100	0	0	0
Department of Health	0.1	86	93	0.0	99	99	-0	13	6
Export Credits Guarantee Department	0.0	59	95	0.0	60	60	.0	1	-35
DCMS: Culture, Media and Sport	7.4	47	55	0.0	na	na	na	na	na
TOTALS	**479.8**			**518.5**			**46**		
Means		**20.0**	**30.1**		**37.0**	**58.8**		**12.9**	**27.9**

SOURCE: LSE CENSUS OF WEB SITES

Departmental Groups	1999 dealings (millions)	2002 dealings (millions)	Change in dealings (millions)	Change divided by 1999 dealings	Main reasons for changes of 1 million dealings or more
Inland Revenue	46.6	61.6	15.1	0.3	Development of Construction Industry Scheme; extension of PAYE; development of electronic self-assessment forms
HM Land Registry	4.6	23.7	19.1	4.1	Internet access to registers and searches
Department of Education and Employment	3.9	17.1	13.2	3.4	Internet-based vacancy-filling; electronic administration of job-seekers' allowance
HM Customs and Excise	10.9	12.4	1.4	0.1	Internet-based VAT declarations and payments
Department of Social Security	9.7	11.5	1.7	0.2	Phone-based pensions processing
Department of the Environment, Transport and the Regions	4.5	8.6	4.0	0.9	Phone-based DVLA licensing; phone-based driving test booking and electronic driving theory tests; phone-based notifications of incidents to HSE
MAFF: Agriculture	0.5	7.4	7.0	15.2	New computerised cattle registration scheme
Department of Trade and Industry	1.5	7.0	5.5	3.7	Internet-based and other electronic processes at Companies House and Patents Office
Ministry of Defence	4.1	5.2	1.0	0.3	Expansion of Meteorological Office Web information services
Northern Ireland Civil Service	0.8	4.5	3.7	4.8	Phone and Web-based applications for road licenses, MOT appointments; job vacancies
Scottish Office	1.5	4.1	2.6	1.7	Web-based Court programming, property reports, and issue of birth certificates
Lord Chancellor's Department	3.0	4.0	1.0	0.3	Web-based Court services changes
DCMS: Culture, Media and Sport	3.5	na	na	na	
Foreign & Commonwealth Office	0.8	2.3	1.6	2.1	Expansion of Web-based travel advice services
Office for National Statistics	0.7	0.9	0.2	0.3	
Home Office	0.1	0.5	0.4	6.4	
National Savings	0.3	na	na	na	
Welsh Office	0.3	0.3	0.1	0.2	
Cabinet Office	0.3	0.3	0.0	0.0	
DID: International Development	0.3	0.2	-0.0	-0.0	
Department of Health	0.1	na	na	na	
Export Credits Guarantee Department	0.0	0.0	0.0	0.0	
HM Treasury	0.0	0.0	0.0	-	
TOTALS	**105.2**	**171.1**	**77.5**		
Means	**4.6**	**7.5**	**3.4**	**1.9**	

Note: na here means data not available; - means inappropriate division by zero

SOURCE: LSE CENSUS OF WEB SITES

44 INDIVIDUAL CHANGES AT AGENCY LEVEL ADDING MORE THAN 0.1 MILLION NEW ELECTRONIC DEALINGS FROM 1999 TO 2002 (RANKED IN ORDER OF THE INCREASE IN ACTUAL DEALINGS, EXCLUDING PAYMENTS THROUGH THE BANKING SYSTEM).

Departmental or Agency	Programme or scheme change	1999 electronic dealings in millions (1)	2002 electronic dealings I millions (2)	Increase in electronic dealings in millions (3)	Increase divided by 1999 electronic dealings (3)/(1)
DFEE: Education	**Vacancy taking and filling**	3.5	14.4	10.9	3.2
HM Land Registry	**Pre-completion registration**	4.6	13.1	8.5	1.8
MAFF: Agriculture	**Cattle tracking system**	0.0	6.7	6.6	-
HM Land Registry	**Post-completion registration**	0.0	5.1	5.1	-
Inland Revenue	**PAYE**	5.6	10.1	4.5	0.8
Inland Revenue	**Construction Industry Scheme**	0.0	4.4	4.4	-
DTI group: Companies House	**Provision of company information**	1.3	5.2	3.9	3.0
DFEE: Employment Service	**Job-seekers allowance**	0.0	2.5	2.5	-
DETR group: DVLA	**Vehicle licensing**	1.1	3.4	2.3	2.0
Northern Ireland Civil Service	**Road license renewals**	0.0	2.2	2.2	-
Foreign Office	**Travel unit advice**	0.7	2.0	1.3	2.0
Scottish Office	**Court programming**	1.3	2.5	1.3	1.0
DETR: DSA	**Electronic driving theory tests**	1.2	2.5	1.2	1.0
Inland Revenue	**Self assessment: electronic**	0.5	1.5	1.0	2.0
Contributions Agency	**End of year returns**	29.7	30.7	1.0	0.0
DTI group: Companies House	**Company annual returns etc**	0.0	1.0	1.0	-
HM Customs and Excise	**VAT collection**	0.0	0.8	0.8	-
MOD: Meteorological Office	**Information services**	2.7	3.4	0.7	0.3
Northern Ireland Civil Service	**Appointment for MOT test**	0.0	0.7	0.7	-
LCD group: Courts Service	**Claim issue**	0.0	0.6	0.6	-
DETR group: DVLA	**Driver licensing**	0.2	0.7	0.4	1.8
Contributions Agency	**Contracting out**	0.1	0.4	0.3	3.3
Contributions Agency	**Personal pensions**	4.7	5.0	0.3	0.1
DTI group: Patent Office	**Patent renewals**	0.1	0.4	0.2	1.9
Foreign Office	**Passport changes via consular staff**	0.0	0.2	0.2	-
Office for National Statistics	**Business surveys by phone**	0.1	0.3	0.2	1.5
Scottish Office	**Property enquiries**	0.0	0.2	0.2	9.0
Northern Ireland Civil Service	**Jobs: vacancy filling**	0.2	0.3	0.1	0.8
DTI group: Companies House	**New company registration**	0.0	0.1	0.1	-
DETR group: HSE	**Statutory notifications**	0.0	0.1	0.1	21.0
LCD group: Courts Service	**Divorce proceedings**	0.0	0.1	0.1	-
LCD group: Legal Aid Board	**Legal aid administration**	1.8	1.9	0.1	0.0
DTI	**Redundancy payment schemes**	0.0	0.1	0.1	-
Home Office: Criminal Injuries	**Criminal injuries compensation**	0.0	0.1	0.1	-
LCD group: Courts Service	**Payment to jurors**	0.0	0.1	0.1	-
TOTALS		**59.5**	**122.5**	**63.0**	
Means		**1.7**	**3.5**	**1.8**	**1.6**

Note: In the last column, - indicates inappropriate division by zero.

SOURCE: LSE CENSUS OF WEB SITES

Changes in the departmental totals at the Scottish Office and in the Northern Ireland Civil Service reflect a compound effect from individual agencies within their departmental groups pursuing analogous changes to their English counterparts, sometimes more speedily and in others cases more slowly. Looking at the final column of Figure 43, in two-thirds of departmental groups there is a relatively modest change in the level of 'electronic' transactions. But in a third of cases there will be a more than 100 per cent increase in the volume of 'electronic' dealings in the period up to 2002.

ii.4 Going down below the level of departmental groups, Figure 44 shows at the agency and specific programme level all those changes which will trigger an increase in electronic dealings of more than 100,000 by 2002, this time arranged in order of the size of increase. Further analysis of these sizeable increases in Figure 45 demonstrates that they cluster heavily in functional areas related either to regulation or to taxation. In fact three quarters of all the increased dealings resulting from these sizeable changes are concerned with government taxing, licensing or regulating citizens and firms. Only a quarter of these changes at most are employing 'electronic delivery' in improving services for citizens. Put another way, the vast bulk of the new 'electronic' dealings anticipated by government arise in administrative areas which are either paid for by charges (such as licenses, tests or registrations) or are generating tax revenues. It seems that it is easier for officials to make a business case for change and to cost-justify technological innovations in areas like licencing, charged for services and tax collection than it is to begin employing new technology in areas of service provision or transfers funded from general taxation.

45 **THE DISTRIBUTION SIZEABLE INCREASES IN ELECTRONIC DEALINGS ACROSS FUNCTIONAL AREAS IN CENTRAL GOVERNMENT**

Functional Areas	Increase in electronic dealings millions	Share of all increased electronic dealings (%)	Number of sizeable increases	Share of number of sizeable increases (%)
Property regulation	13.8	18	3	9
Employment services	13.6	18	4	11
Taxation	12.3	16	6	17
Transport regulation	6.8	9	5	14
Agricultural Revenue	6.6	9	1	3
Business regulation and services	6.5	8	7	20
Legal services and courts	2.3	3	6	17
Other Services	2.2	3	3	9
Total sizeable increases	**63.0**	**81**	**35**	**100**
Other multiple small increases	**14.5**	**19**		**14.5**
Total increase in electronic dealings	**77.5**	**100**		**77.5**

SOURCE: LSE CENSUS OF WEB SITES

glossary

Bandwidth: now refers to the capacity for information to be transmitted via the Internet, which affects the speed of transmission, measured in terms of bits per second.

'Bare bones' costs: The most immediate costs of running a Web site or intranet. Elements included are: the capital costs of new servers and dedicated equipment; the costs of ISP services; payments to contractors for design or other Web-specific services; and the running costs of staff working directly on maintaining or developing Web sites or intranets. However, the more general costs of preparing or providing the content material for a Web site or intranet are not included.

Branding: The development of a strong commercial identity which conveys a strongly positive image of a product or service to customers.

Brochureware: Hypertext versions of previously published information. Often quite literally HTML or PDF versions of agency brochures.

Browser: Software which allows the user to read hypertext files. The browser communicates with a given Web site's server and displays documents to the user.

Call-centre: A group of staff trained and equipped specifically to field telephone calls efficiently and to answer routine queries with the aid of databases giving details of products, services and customers. More specialised enquiries are routed to skilled employees outside the centre. Innovations in call centres include CTI: Computer-Telephony Integration, a call management technique in which a telephone passes information to a computer which allows the operator to better respond to the caller's problem.

Channel: A means of communication between an organisation and its customers or users.

Channel equity problem: An inequality which can arise when more information or more up-to-date information is provided on one means of communication with customers or users than on another. People accessing information via the better channel are advantaged over other users accessing the less complete or less up-to-date channel.

Channel rivalry: A situation where an organisation provides a new means or channel of communication which erodes the cost effectiveness of an existing channel. The problem is most acute where the new channel cannot immediately provide a full replacement for the earlier channel. For instance, a manufacturing company which sold its products directly to customers over the Web at cheaper prices might find that retailers are less willing to stock and market its products because they cannot compete on price.

Click-throughs: A visitor is said to have 'clicked-through' a Web site when she opens a banner advertisement there which transfers her to the advertiser's site. Advertisers pay the owners of the site which hosts their banner ad by the number of click-throughs recorded.

Content-providers: Individuals or sections within an organisation which contribute materials (in the form of HTML pages, forms, documents, graphics files or PDF files) to the organisation's Web site or intranet, but which do not have overall control of the specification or design of the site or intranet.

Dealing: A connected set of transactions between citizens or firms and a government agency. Getting something done.

Digital signature: Coded information added to a message to uniquely identify the sender and authenticate who the message is from.

Directory service: A guide showing how to contact individuals or sections within an organisation via e-mail or the Web.

Displacement effect: A shift in the means that people use to contact an organisation which occurs when a new form of contact route becomes available. Positive displacement effects occur when people switch from an expensive contact route (such as visiting the organisation's offices or phoning in enquiries) to a cheaper or more cost-effective route (such as accessing the organisation's Web site).

Drivers: Changes in tastes, trends, economic variables and single or repeated events which all act as stimuli inducing a system or organisation to develop in a particular direction.

E-commerce: Selling products or services to customers using the Internet as the main means for communication and accomplishing transactions.

E-mail: A service that enables people to exchange documents or messages in electronic form. E-mail systems now mainly

operate via the Internet. However, earlier forms of e-mail operated on separate computer networks without Web access, and these versions only allowed users to send mail to other users of the same system - for instance, within a single organisation.

E-mail address: The unique, private Internet or network address to which e-mail is sent. It takes the form: user@host.

Electronic Data Interchange (EDI): The transfer of structured data, by agreed message standards from computer to computer by electronic means.

Electronic Document Management (EDM): A system adopted by organisations for storing all their information and documents in a secure electronic form, using a developed electronic indexing and filing system which is easily searchable. EDM does away with paper filing registries and facilitates the widest access to documents and information across an organisation.

Electronic forms: Forms available on a Web site or intranet, which a user can complete on the screen and then either print off and post back, or submit on-line.

Electronic payments: Transfers of money made electronically from an organisation's bank account directly to an individual user's bank account - for example some automated benefit payments from the Department of Social Security.

Electronic signature: Coded or encrypted information which authenticates a document or form as coming from a particular individual or PC.

Electronic transactions: In ordinary language, dealings between people and organisations (such as finding out a piece of information, filling out a form, or making a payment) that take place using the Internet and the Web. Within British government circles alone, 'electronic' transactions are also more broadly defined so as to include in addition to Web dealings, systematic phone dealings by citizens, electronic data interchange, electronic payments, use of electronic 'kiosks' and a number of other means of contact.

Encryption: A mechanism for coding or 'scrambling' electronic documents or messages, to enable them to travel between networks securely without risk of them being read by third parties.

External Web site: A collection of Web pages stored on a single server and published on the Internet by a single organisation or individual. The pages can be accessed by outside users without any special authorisation.

Extranet: A system for regular communication between an organisation and its main suppliers or implementation partners. Typically extranets are closed private computer networks that function at least partially over the public connections of the Internet, using encryption to ensure privacy. They are designed to give authorised outsiders access to an organisation's Intranet from outside its network by direct telephone dial-up from a PC or by coming in from the Web through a firewall.

Firewall: A network security system used to restrict external traffic to an organisation's internal system. Firewalls filter out computer viruses and disruptive or unwanted communications.

Fix: An ad hoc means of making computer or IT systems work in a short-term way, until a more permanent solution can be devised.

Frames Design: A method of implementing a Web site in which parts of an initial screen remain visible: when the user clicks on to subsequent screens a ‘frame’ from the home page is still displayed, with the new material showing within it.

Government Secure Intranet (GSI): A secure intranet linking together government departments and other public agencies, which also provides controlled access to the Internet, inaugurated in February 1998. GSI offers inter-agency e-mail without need for encryption for material up to and including 'Restricted' status, e-mail to the Internet, browser facilities, file transfer and directory services. To gain access to GSI an agency must first be accredited, so as to maintain the system's overall level of security.

Graphical user interface (GUI): An on-screen display on a PC which lets people use a mouse or pointer to click on icons which represent commands, windows, files, applications and pull-down menus, rather than requiring users to remember and type in text commands. An example is the Windows operating system.

Hit: A single request from a PC with a browser to an organisation's Web server for an element of a Web page. Because one page may contain several elements (such as text, frames, and graphics files), the relevant server will often register multiple hits in response to single click or page request. Recording the number of hits has historically been a common way of measuring traffic on Web sites, but it is not now a very useful measure. One reason is that hits may increase just because page designs involve more discrete elements.

Home page: The first page of an organisation's Web site which users see, and the central page for directing people to different parts of the site.

HTML: HyperText Markup Language, the main language used to create Web documents.

Hypertext links: The 'clickable' links that connect pages on the Web to each other.

Information and communication technologies (ICT): The application of computer science to ways of organising and storing information and facilitating its transfer amongst users.

Interaction: A two-way exchange of information or transaction.

Interactivity: The extent to which someone can provide information to an organisation's Web site, as well as receiving information from it.

Internet service provider (ISP): A company which provides connections to the Internet and other related services to customers, either for a regular fee or as a free service financed by advertising or a small additional phone cost.

Internet: A worldwide collection of computer networks sharing common standards and protocols of communication, in particular a common addressing scheme. The World Wide Web is now the main Internet application, but there are other facilities on it too, such as file transfer facilities and user groups not operating via the Web.

Intranets: A network linking computers within a given organisation which is closed to outsiders. Its structure and user interface are based on those of the Internet.

Java: A programming language which operates across many different computers and systems (designed by Sun Microsystems).

Knowledge-management: techniques for maximising the ability of people within an organisation to find the critical information they need for intelligent decision-making in the most speedy, reliable and cost-effective ways. In the current period most knowledge-management focuses on providing improved ICTs and better training for staff.

Legacy systems: Existing mainframes and networks, and the software based on them, which were developed within an organisation before the use of Web-based technologies became widespread.

Link: An graphic or piece of text on a Web page which refers to another Web page on another Web site. When the link is 'clicked', that page will be retrieved and displayed

Local Area Network (LAN): A private network located in a geographically small area such as a university campus or a complex of office buildings. LANs typically provide a low-cost medium with high bandwidth or capacity to handle communications, to which many users can be connected.

'Look and feel': The general appearance of an organisation's Web site or intranet. A standard 'look and feel' helps users to be aware of which site they are in and gives them assurance that its features will work in a standardised way.

Mirror: A mirrored Web site has had its structure and content duplicated onto another server. This is typically done to provide backup for the main site, or to ease traffic on the main site's servers. Organisations also often mirror their external Web site to their intranet, so that even staff who do not have full Internet access can see the site.

Non-reactive measures: Any method for researching social behaviour which uses objective means of recording what people do, where those being studied are unaware of the research and so do not change their behaviour. This approach contrasts with surveys, where respondents to a questionnaire may always alter what they say to give what they think is a 'better' answer or to say what they think interviewers want to hear.

Page accesses: A page access (or 'page impression') occurs when a user's browser shows her a complete page from a Web site. Page accesses provide a better measure of site traffic than recording hits, but are less useful than data on user sessions.

PDF: A format of document that allows a file to be downloaded from the Web, using Adobe's popular Acrobat viewer, which can also be downloaded free.

Point of service standards: The way in which customers are treated at the time when they are served, usually the concluding stage of a transaction.

Portal: Any well-used gateway to the Internet, especially those sites designed to serve as a 'front door' and thus the first page that users see when accessing the Web. Portals typically provide large catalogues of other sites, powerful search engines for locating information, and e-mail facilities or other attractive Web services.

Protocol: A convention controlling the format of inputs and outputs between two network devices, allowing them to talk to each other.

Search engine: A database of Web page extracts that can be queried to find references to a person, subject or topic across the World Wide Web as a whole. Many Web sites and intranets provide similar but smaller search facilities for finding material on their site alone.

Server: A computer or network of computers that makes services available on a network (for example, access to a Web site).

TCP/IP: An acronym for Transmission Control Protocol/Internet Protocol. It is a protocol for file transfer which is designed to allow users to send large files without fear

of corruption over perhaps unreliable networks. It is a foundation of the World Wide Web.

Transactions: A transaction with an agency is an interaction with it. This interaction could be the receipt or dissemination of information, the completion or submission of a form or more complicated sets of dealings.

Transparency: The extent to which an organisation's Web site gives users who access it an insight into how the organisation is structured - for example by providing an organisation chart or a directory of e-mail addresses for sections or individual staff members.

'True' Intranet: A network open only to users connected to a Local Area Network.

Under-Web: Informal networks made up of e-mail groups, or rings of people communicating information about Web or intranet pages which are not registered with search engines and hence not accessible by other users.

URL: Universal Resource Locator. A unique identifier of a page which is the standard address of files on the Web (for example: http://www.open.gov.uk). The components of an URL are: protocol // domain:port / path / filename.

User session: A single visit by a user to a particular Web site, which may be a repeat visit or a first-time visit. This measure provides the most useful and reliable way of gauging the volume of traffic to a site.

Version control problem: A mismatch which occurs when more than one version of a document is in circulation simultaneously. The problem can arise when a new version of a document is made available while an old version has not been withdrawn, or if different versions of the same material are published in printed form and on an organisation's Web site or intranet.

Virtual extranet: A de facto network consisting of a secure part of an organisation's Web site plus outside authorised users who can visit it using secure password access.

Visit: Any occasion when a person clicks through to a given Web site or intranet. 'Unique visits' refer to distinct persons coming to the site: here first-time users are recorded while repeat users (those returning to the site for a second or subsequent time) are not.

The Web: the World Wide Web, see below.

Web-enabling: The adaptation of existing ICTs so that at some stage Web-based technologies are employed - for example, creating a channel of communication with users or accessing information held on legacy systems using a browser.

Web page: A single document on the Word Wide Web.

Web site: A collection of Web pages located on a common server and published on the Internet by a single organisation or individual. The pages can be accessed by outside users without any special authorisation.

White mail: Conventional surface or air mail. Sometimes informally referred to in pejorative terms as 'snail mail' because it is thought less speedy than e-mail.

World Wide Web: The complete ensemble of graphics and text documents published on Web sites and inter connected via the Internet through clickable 'hypertext' links.

Zero-touch process: An administrative operation capable of being performed without a human operator's involvement, by means of automatic systems and checks

Zip file: A file in compressed format, commonly used to transmit large files.