

Chapter 7

Human Resources and Technical Infrastructure

INTRODUCTION

The essential technical foundation for e-parliament is an adequate infrastructure. This includes sophisticated and flexible hardware, software, and communication services. Since the 2010 Report, there have been several advances in technology that have significant potential benefits for parliaments. These include new user-friendly mobile devices and applications, the deployment of faster wireless communication systems, and the evolution of cloud computing¹. These developments offer parliaments new and often more affordable options than have been available in the past. For example, through cloud technology, parliaments can now consider maintaining an e-mail system or provide extensive amounts of storage for digital documents at relatively low cost and without having to build and support the servers, operating systems, and application software themselves.

Many of the traditional components of a basic infrastructure, however, are still needed. Local area networks (LANs) are essential to support the work of parliaments, which involves multiple stakeholders and activities, including members, staff, committees, the plenary sessions, and the various offices. Building and maintaining a wired network is a labor intensive effort, yet it is one of the most important basic technologies for a public institution. Wireless capacity provides additional advantages for mobility and access, and the increasingly widespread use of smart phones and tablet have made this even more important. There is still, however, a fundamental need for a wired system to ensure adequate bandwidth and security.

Access to the Internet is also a critical issue for parliaments, both for the legislature's internal operations and for communication with citizens. Fortunately, there is growing connectivity worldwide, and many developing countries are gaining better access to the network. The challenge is now to provide the legislature with the sufficient bandwidth to support the many types of information that are becoming accessible.

Increasing opportunities for external communication – whether wired or wireless – expand the need for better security, the assurance of member confidentiality, and adequate defenses against hacking and cybercrime. While some parliaments have long recognized the vital nature of this requirement, others have been slower to take appropriate measures. This is a challenge that parliaments acting on their own can solve only in part. It calls for coordinated and collaborative efforts with other public institutions within the country and with other organizations on a world-wide basis. Nevertheless, recognition of the problem followed by the establishment of good policies and sound practices must begin at home with the parliament itself.

¹ Cloud computing is a technology model that allows organizations to run and deliver IT systems and services over a network, avoiding the need for physically hosting servers and equipment, as well as installing software locally.

The most important element of the technical infrastructure, however, is the staff. Personal computers (PCs), networks, and applications can all be acquired, but they must be installed and supported by people who have expert technical knowledge and an understanding of legislative bodies. They can be either internal employees or external contractors hired to fill gaps in capacity and knowledge, or a combination of these resources. For a parliament to take maximum advantage of technology, it is essential that those who allocate resources within the legislature understand the critical importance of a capable and well trained staff.

SUMMARY OF FINDINGS FROM THE 2007/2009 SURVEYS

Findings from the Global Survey of ICT in Parliaments 2009 regarding the technical infrastructure of parliaments suggested that there had been some advances, but also a number of continuing challenges. For example, there was an increase in the number of parliaments that reported that they lack reliable electrical power. This is an obstacle as fundamental and as serious as the digital divide. Moreover, the use of open source software among parliaments was still at a relatively low level and tended to be concentrated in a few areas, such as server operating systems.

Given the importance of websites for providing transparency and accessibility to the parliament, it was a positive finding that the management and support of the website was the function supported by almost 90 per cent of the parliaments. As noted in Chapter 4, however, it was a concern that very few of the functions that relate to legislation had been implemented by over half of all parliaments. Only the applications related to administrative functions - such as financial management - and plenary support - such as systems for reporting speeches and debates - had a combined average of more than 60 per cent of parliaments.

Data from the 2009 survey suggested that parliaments were relying more on internal staff than on contractors. Most parliaments used their own staff rather than contractors to manage ICT functions and for functions that are closer to the user, such as PC installation, maintenance, and user support. Two areas in which contractors were reported play a relatively larger role were application development and training.

Almost 90 per cent of parliaments either had training/orientation programmes or were planning or considering them. Of note was an increase in both internal and contract staff for training. More than 80 per cent of parliaments provided training for in-house ICT staff, a decisive increase from 2007. The average percentage of staff who received training each year among all parliaments was close to 50 per cent, a figure comparable to the findings of 2007. And among the top training priorities for the most parliaments were systems administration, website management, and security. A large percentage of parliaments were also providing ICT training or orientation courses for members, or were planning or considering providing them. Even more provided training to non-ICT staff.

The overall sense from the 2009 findings was that many parliaments were making progress in implementing a capable technical infrastructure and in training both ICT and non-ICT staff, as well as offering orientation sessions for members. However, in addition to the serious problems faced by those that do not have reliable electrical power, areas of concern continue to be the relatively low level of use of open source software, the lack of connectivity of all members and committees to intranets, and the lag in development of applications that support legislative activities.

FINDINGS FROM THE 2012 SURVEY

The Global Survey of ICT in Parliaments 2012 focused on four key requirements for building a robust and responsive infrastructure for a legislature: 1) basic technologies and services, such as the acquisition and management of PCs, networks, and software; 2) systems that provide support for the most essential functions of a parliament, such as managing documents; 3) levels of service and staff support; and, 4) training for technical staff, members, and other users. It is worth recalling that Chapter 4 in this Report addressed the findings from the 2012 survey related to technical services for members and for plenary sessions and committee work. Therefore, it is important to consider Chapter 4 and 7 as complementary from the perspective of basic technology and services.

General Services

Basic technical support

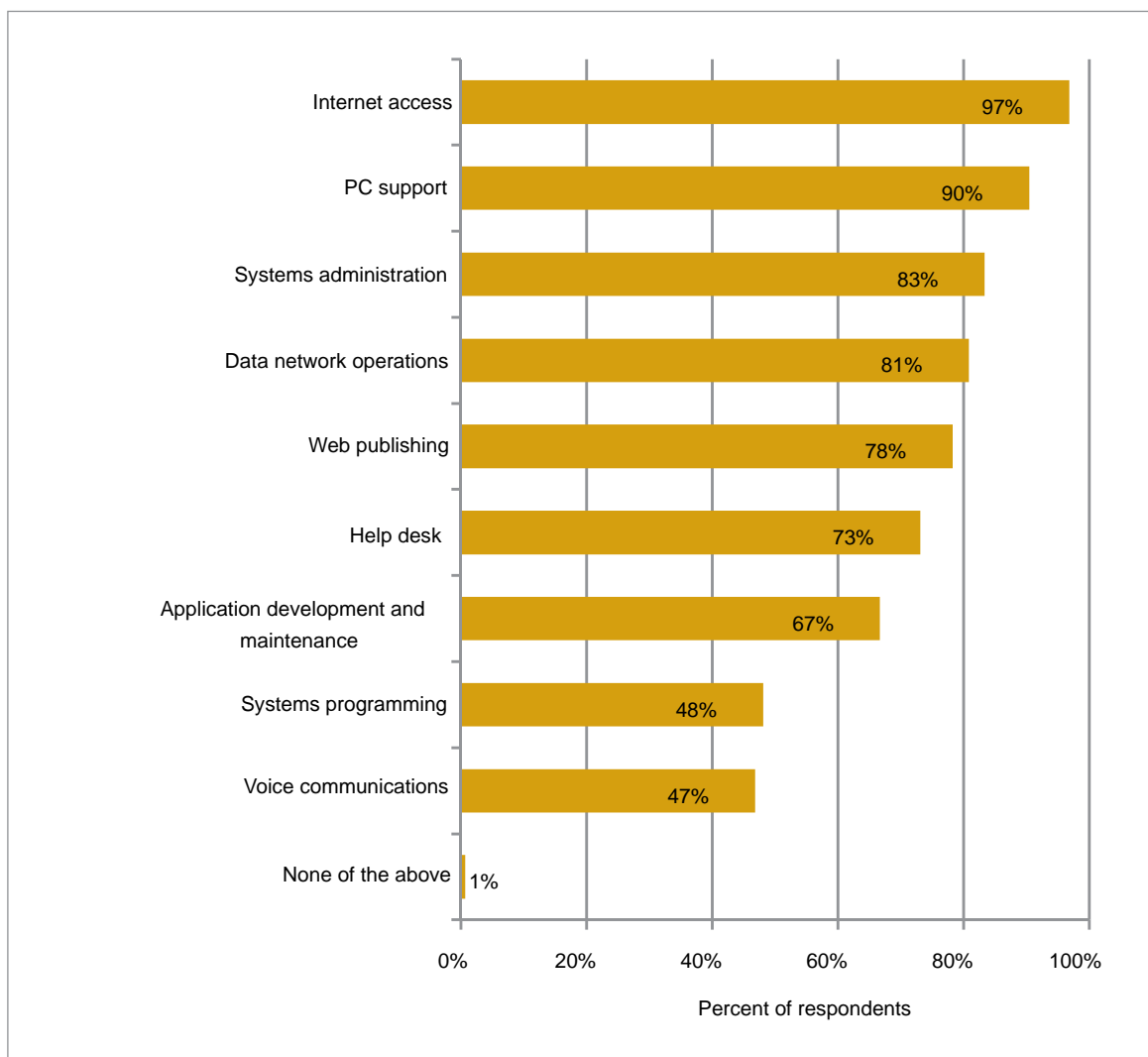
Reliable electrical power is one of the most fundamental requirements for any public institution using technology. Therefore, it is a concern that in response to the question “Does the parliament have reliable electrical power 24 hours per day?” approximately the same percentage of parliaments replied *no* in 2012 as did in 2009 (2012=14 per cent; 2009=16 per cent)². Whatever the causes may be – continued weakening economic conditions, technical limitations or poor management of critical resources – the fact is that this is a significant problem for one in every six parliaments.

As shown in Figure 7.1, however, most parliaments reported that they are able to provide basic ICT services, such as PC support, systems administration, web publishing, and network operations. These results are similar to those from the 2009 survey, although there were some declines in PC support (2012=90 per cent; 2009=97 per cent), web publishing (2012=78 per cent; 2009=86 per cent), and Help desk (2012=73 per cent; 2009=81 per cent)³. Despite these decreases, the overall percentages remained high in 2012. Of the nine services listed, four are provided by over 80 per cent of parliaments and two more by almost three quarters.

² Source: Survey 2012, Section 2, Question 14; Survey 2009, Section 2, Question 13.

³ See *World e-Parliament Report 2010*, p. 119, Figure 7.1.

Figure 7.1: General ICT services available in the parliament

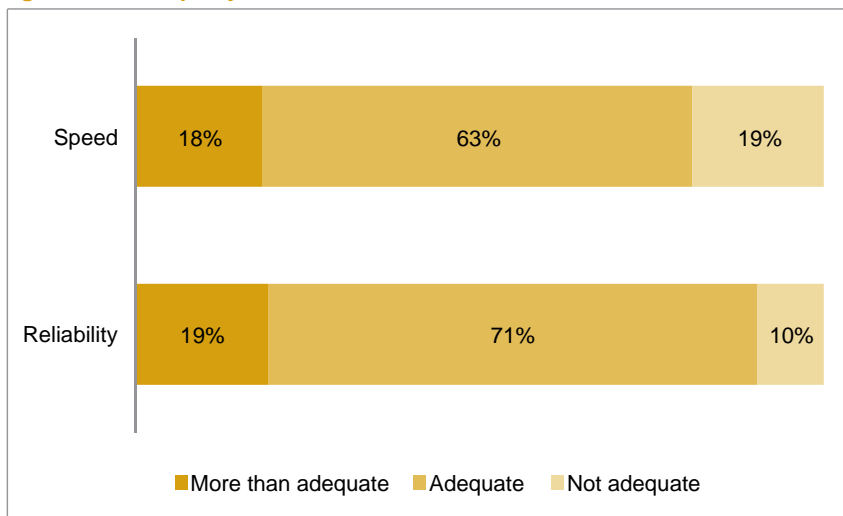


(Source: Survey 2012, Section 2, Question 1; 156 respondents)

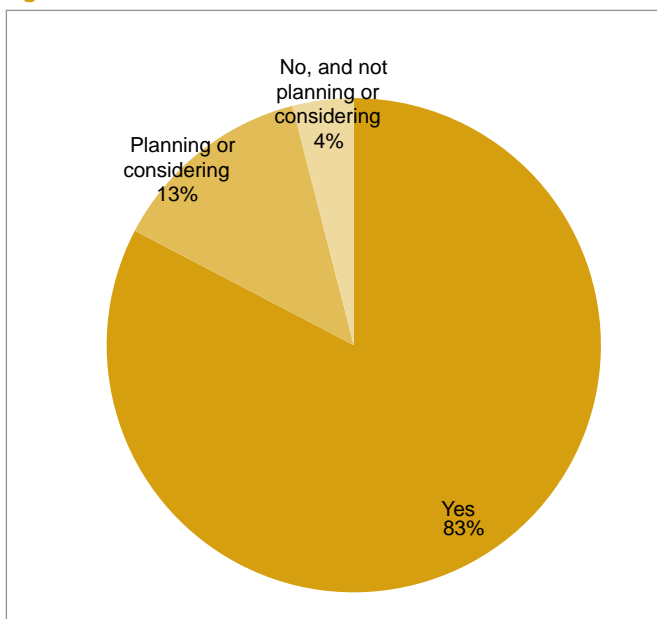
Connectivity

Access to the Internet also continues to be high –almost 100 per cent in both 2009 and 2012. As shown in Figure 7.2 most parliaments rated connectivity to the Internet adequate or better in terms of speed (81 per cent) and reliability (90 per cent) in 2012. As expected, speed and reliability are related to income. Of those in the low income group, 35 per cent reported that reliability was not adequate, and 45 per cent reported that speed was not adequate. Most parliaments also have wireless access to the Internet or are considering acquiring it (see Figure 7.3). Internal connectivity through a local area network (LAN), however, still lags for members (see Chapter 4) although 70 per cent of parliaments reported that all offices are connected⁴.

⁴ Source: Survey 2012, Section 2, Question 5.

Figure 7.2: Adequacy of Internet connection

(Source: Survey 2012, Section 2, Question 8; 152 respondents)

Figure 7.3: Wireless access to Internet

(Source: Survey 2012, Section 2, Question 9; 150 respondents)

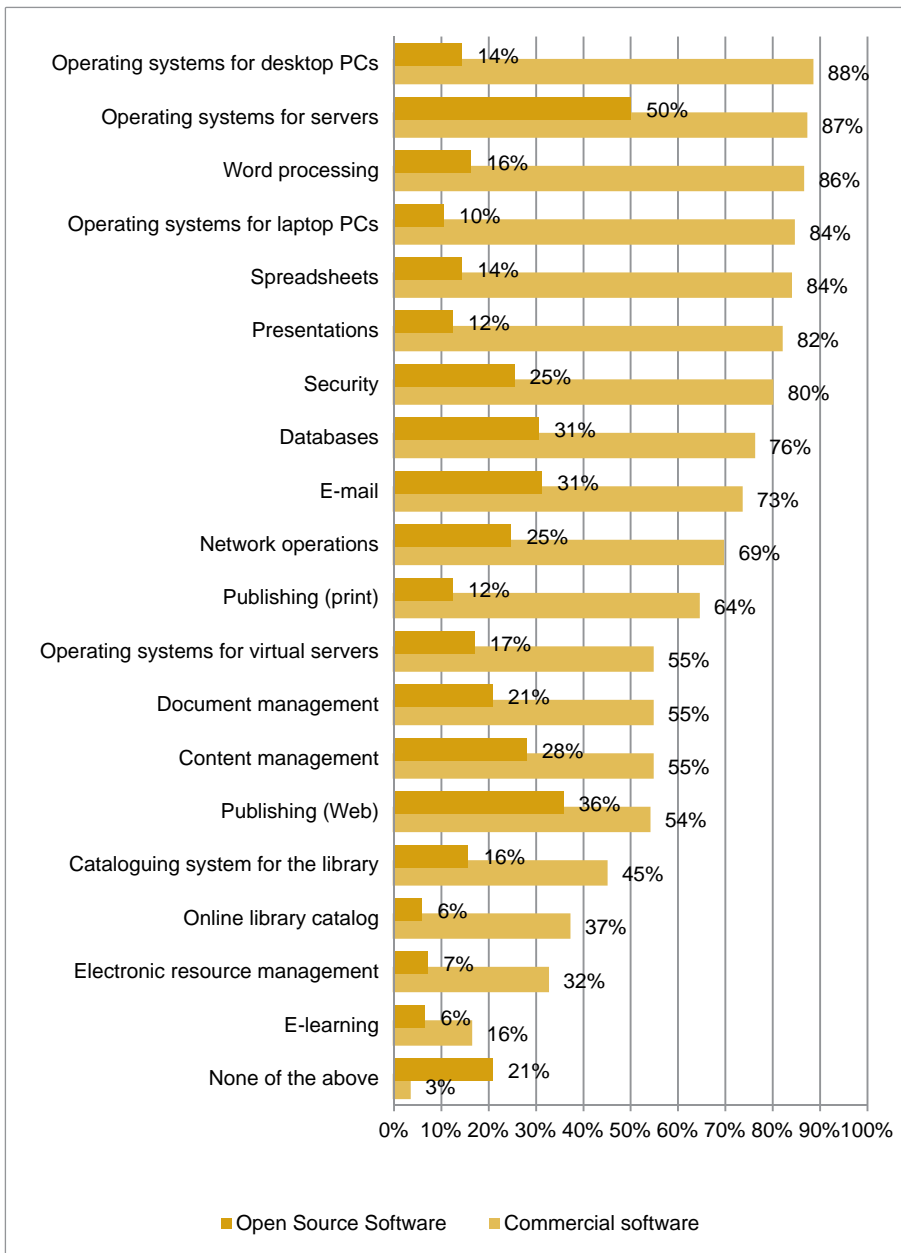
Open source software

Box 7.1

Parliament has automated most of its business operations and the majority of them are supported by commercial applications (proprietary software). However, there is a big shift to open applications due to cost reduction and flexibility of the software in terms of applications customization.

Comment by a respondent to the 2012 Survey

Figure 7.4: Use of commercial and open source software



Open source software can be of particular interest to parliaments because it can help reduce costs. Figure 7.4 shows the comparative use of commercial software and open source software by parliaments for various operations, services, and applications. The results are similar to those of 2009⁵, although the percentage that uses open source software for at least one purpose went up from 74 per cent in 2009 to 80 per cent in 2012. Uses by the largest percentage of parliaments stayed the same – operating systems for servers (50 per cent) and web publishing (36 per cent). The use of open source software did go up for some applications. Document management systems went from 10 per cent in 2009 to 21 per cent in 2012 and content management systems went from 15 per cent to 28 per cent.

(Source: Survey 2012, Section 2, Question 13; 154 respondents)

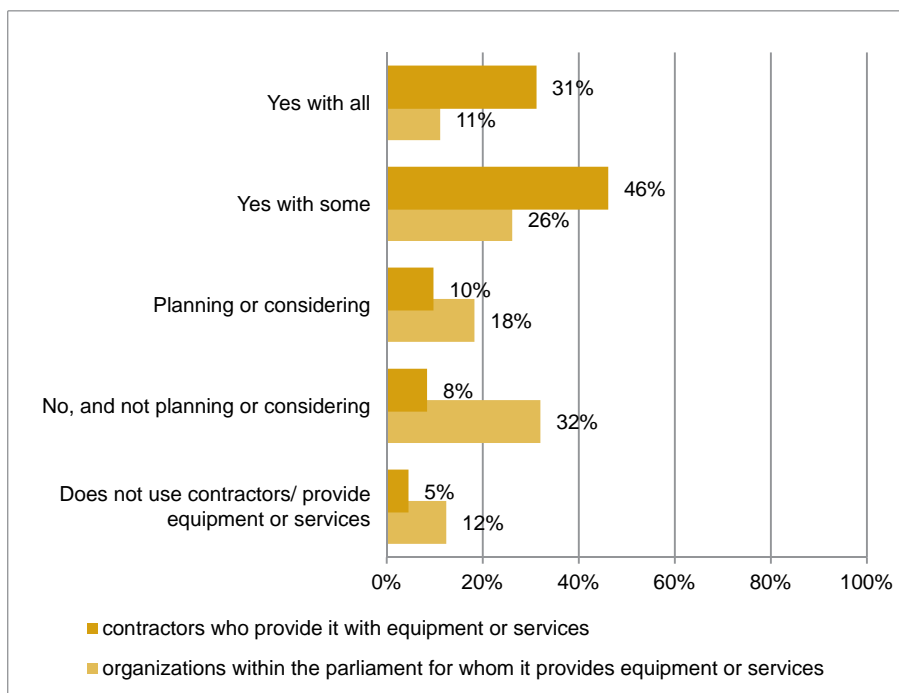
⁵ See *World e-Parliament Report 2010*, p. 121, Figure 7.4.

Service level agreements

Having agreements with external contractors on the level of service to be provided - and the means for measuring those levels - is a best practice in ICT. Figure 7.5 shows the percentage of parliaments that have service level agreements (SLAs) with external contractors and with internal clients - i.e. organizations within the parliament for whom the ICT department provides equipment or services.

As Figure 7.5 indicates, parliaments are more demanding of external contractors than they are of their own ICT departments for achieving specific levels of service. One positive finding from this survey question is that the percentage of parliaments that replied *yes with all contractors* rose from 24 per cent in 2009⁶ to 31 per cent in 2012, an increase of nearly 30 per cent. At the same time the percentage who said *yes with some contractors* declined by about 25 per cent. These trends could be a sign that this practice is improving among parliaments.

Figure 7.5: Service level agreements



(Source: Survey 2012, Section 2, Question 10 and 11; 153 respondents)

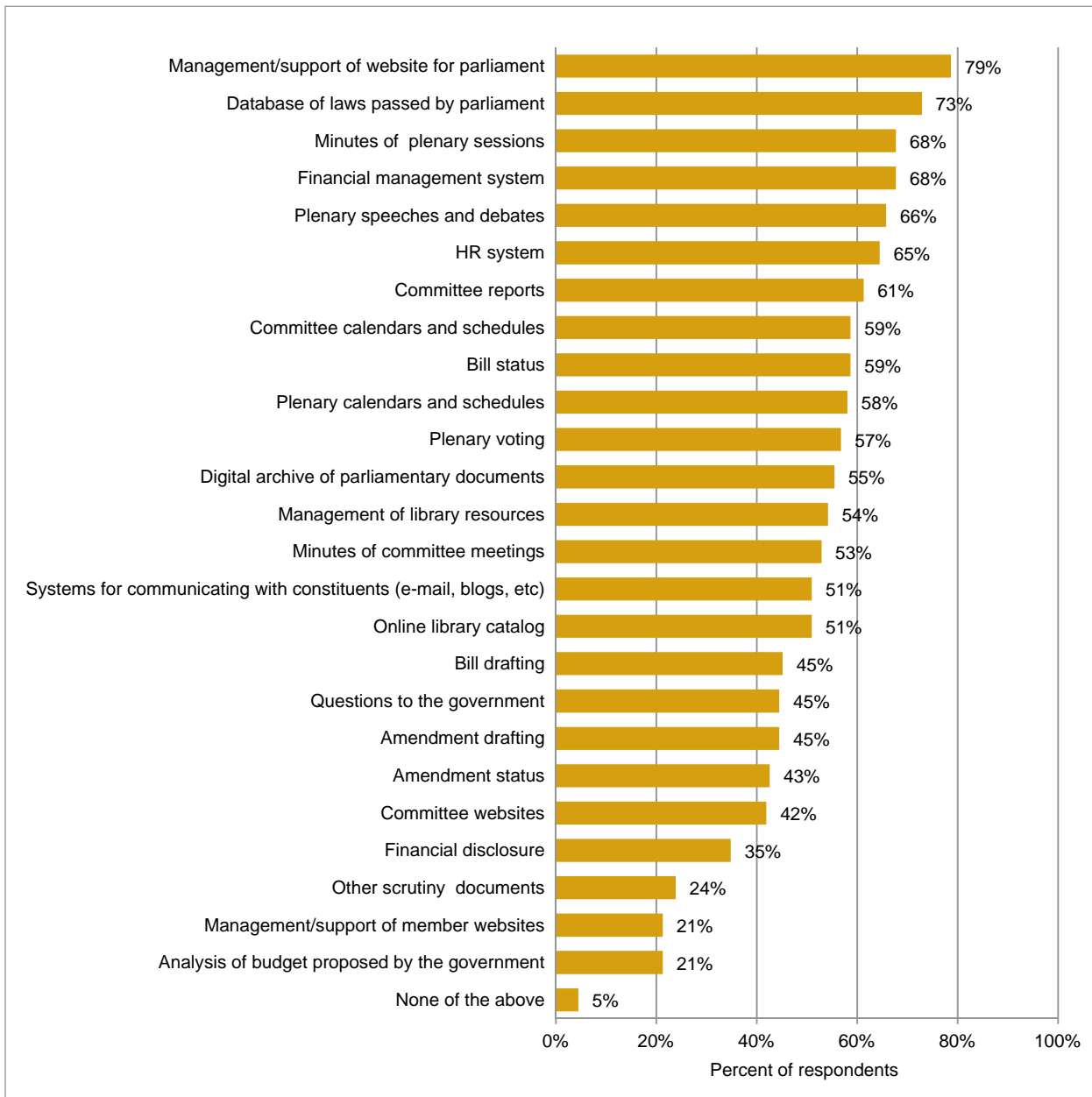
Applications for parliamentary functions

As noted in Chapter 4, one of the primary purposes of the basic tools and services is that they enable a parliament to create systems that serve its fundamental responsibilities, as well as to carry out its administrative functions more efficiently. For the aims of this discussion Figure 7.6 repeats the same results shown previously in Figure 4.4, which presented the percentages of parliaments that have implemented a system to support the activities of the legislature.

⁶ See *World e-Parliament Report 2010*, p. 127, Figure 7.13.

The average percentage of parliaments that provide supporting applications for any of these functions is 50 per cent, the same as in 2009⁷. Among the top 10 applications supported by ICT in the most parliaments, three relate to plenary sessions, two to committee activities, two to legislation, two to administrative functions, and one to communication⁸.

Figure 7.6: Parliamentary functions supported by ICT



(Source: Survey 2012, Section 2, Question 14; 155 respondents)

Financial management systems and systems for managing human resources are widely available in the public and private sectors, and have been so for quite some time. The fact that in 2012 only two thirds of parliaments have these systems may be an indication of the relatively conservative approach that many parliaments have taken in introducing ICT even for their basic administrative operations.

7 See *World e-Parliament Report 2010*, p.122, Figure 7.8.

8 The applications related to legislative, plenary, committee, and oversight activities have already been discussed in Chapter 4.

Figure 7.7 shows the result of grouping each of the functions listed in Figure 7.6 into its appropriate category (Administrative, Plenary, etc.) and gives the average percentage of parliaments having applications for each of these categories for both 2009 and 2012. For example, the category “Administration” shows the average percentage of parliaments having applications for *financial management* and for *human resources* for both 2012⁹ and 2009¹⁰. The category “Libraries” shows the average percentage of parliaments having applications for *management of library resources*, *online library catalogue*, and *digital archive*. The findings contained in Figure 7.7 suggest that there has been little progress in developing and implementing systems for the primary functions of the parliament. This is in contrast to the state of basic services such as access to the Internet and PCs for members (see Chapter 4), which are available in much higher percentages of parliaments.

Figure 7.7: Categories of applications

CATEGORY(Number of functions)	2012 AVG%	2009 AVG%
Administration (2)	66%	65%
Plenary (4)	62%	66%
Committees (4)	54%	52%
Libraries (3)	54%	54%
Legislation (5)	53%	52%
Transparency (4)	47%	47%
Oversight and scrutiny (3)	30%	29%

(Sources: Survey 2012, Section 2, Question 14; 155 respondents; *World e-Parliament Report 2010*, p. 123, Figure 7.6)

On the one hand, this disparity is understandable. It is significantly more challenging, in terms of technical and staff resources – particularly considering the different knowledge and skills level of those staff - to develop and maintain applications than to install and maintain PCs or an Internet connection. On the other hand, some of the latest developments in ICT, such as open source systems like Bungeni¹¹ that can support a number of parliamentary functions, and/or the advances in cloud computing, may make the task of building supporting applications, particularly for mobile purposes, somewhat less difficult.

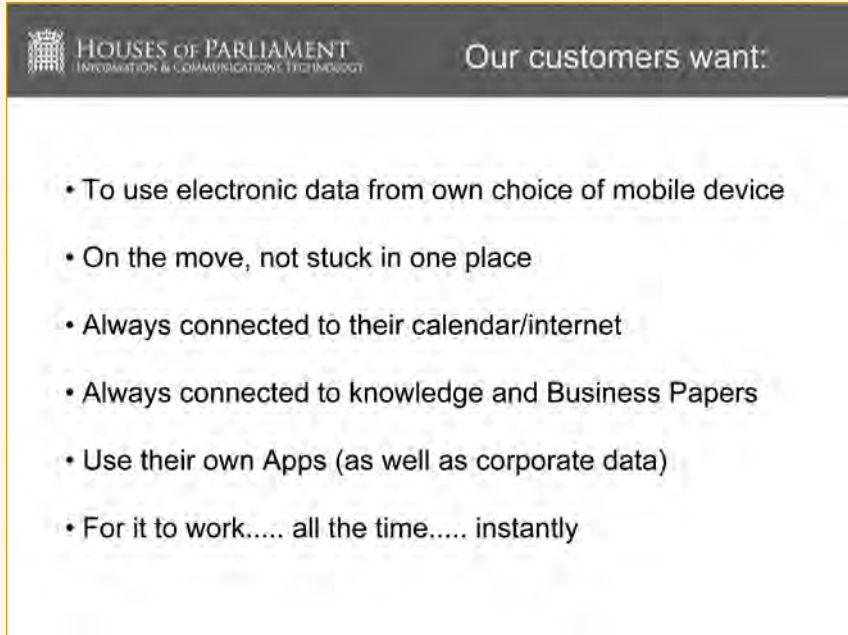
Some parliaments have begun to do this with good results. However, it is still too soon to say which of the options now becoming available will be most effective, most useful, and most affordable for parliaments. This is an area in which sharing ideas, plans, and experiences will be especially valuable¹².

9 See Figure 7.6 for percentages from 2012 survey.

10 See *World e-Parliament Report 2010*, p.122, Figure 7.5 for percentages from the 2009 survey.

11 See Box 5.8.

12 See, for example, the YouTube video “What should we do with clouds?” by Joan Miller, Director of Parliamentary ICT, UK Parliament at <http://www.youtube.com/watch?v=wHwo1BqhdCw>. Also, see the presentation by Carlos Magno Cataldi Santoro, former CIO of the Federal Senate of Brazil at http://www.ictparliament.org/sites/default/files/panel11_carlos_magno_cloud.pdf

Box 7.2


HOUSES OF PARLIAMENT
INFORMATION & COMMUNICATIONS TECHNOLOGY

Our customers want:

- To use electronic data from own choice of mobile device
- On the move, not stuck in one place
- Always connected to their calendar/internet
- Always connected to knowledge and Business Papers
- Use their own Apps (as well as corporate data)
- For it to work..... all the time..... instantly

Joan Miller, Director of Parliamentary ICT, UK Parliament. Extract from "Electronic papers in the UK Parliament", presentation at the International Meeting "Achieving Greater Transparency through the Use of Open Document Standards", Washington D.C., 27-29 February 2012. See <http://www.ictparliament.org/XMLMeeting2012>.

Staffing and training**Staffing levels**

There is no easy or simplified method for determining the optimum number of ICT staff for a parliament. The answer depends on many factors, including the number, scope, and complexity of the tasks to be carried out; the extent to which the parliament depends on other organizations, especially the government, for some or all of its ICT support; the number of users who must be supported; the availability of competent ICT contractors; the resources available to the legislature and the degree to which it has independent control of those resources.

For baseline purposes, the 2009 and 2012 surveys asked about the number of users of ICT services (both members and staff but not the public) and the number of internal and external (contracted) ICT staff the parliament employed. These numbers are intended to be descriptive of the current situation and should not be construed as prescriptive. A more detailed study of staffing will have to take into account not only the staff in a dedicated ICT unit but also staff who are employed by user departments, who may be ICT professionals hired by those departments and not by the ICT office itself.

Box 7.3

Our parliament has only one (1) Information Technology person; we do not have an IT department. So most of the ICT or anything technically related is done by this one person.

Comment by a respondent to the 2012 Survey

Figure 7.8: ICT staff, 2007:2012 comparison group

	Internal ICT staff			External ICT staff		
	2012	2009	2007	2012	2009	2007
mean	52	50	38	28	21	26
median	20	20	17	2	1	3

(Sources: Survey 2012, Section 1, Questions 15 and 16; Survey 2009, Section 1, Questions 15 and 16; Survey 2007, Section 2, Questions 12 and 14)

contractors) was 25:1 in 2012 and 22:1 in 2009¹³. These numbers are based on the average number of users and the average number of ICT staff reported by all parliaments. Findings from the 2009:2012 comparison group are similar. In this case, the ratios were 24:1 in 2012 and 23:1 in 2009.

Because averages can be skewed by those with very large and very small numbers of users or staff, the ratios using medians are also presented here for comparison purposes. Based on this metric the findings from the 2009:2012 comparison group are identical. The ratio of the median number of users to ICT staff for the comparison group was 39:1 for both years. Median can skew data differently from averages; hence both figures are presented for consideration.

Finally it is interesting to look at total ICT staff for the 2007:2012 comparison group. The 2007 survey did not ask about total users, but the numbers shown in Figure 7.8 are interesting nonetheless. Combining the number of internal and external staff suggests that the average ICT staffing levels for parliaments have increased each year from 2007 (64), through 2009 (71), to 2012 (80). Nevertheless, it is important to note that there are still many parliaments in developing countries that have a very small staff, sometimes as few as 1 or 2.

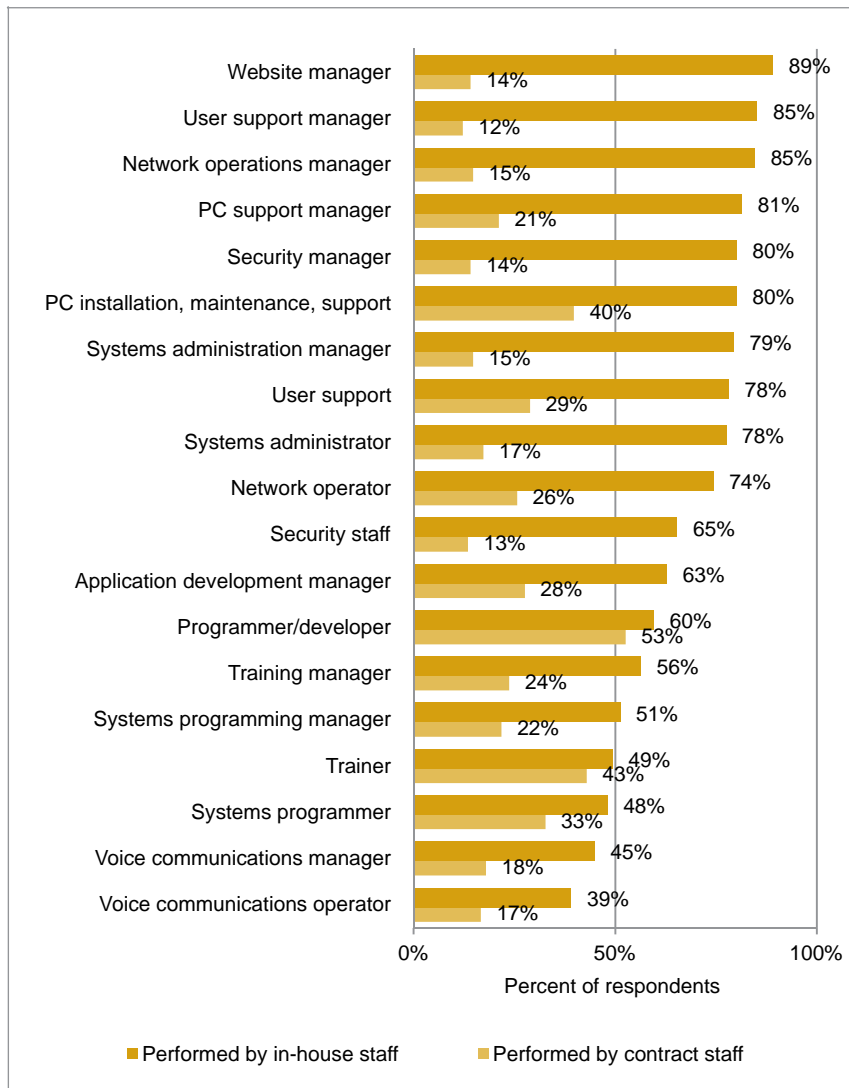
Staff functions

Parliaments continue to use both internal and external staff to perform a variety of functions (see Figure 7.9). Contractors play a relatively larger role in application development and training. Parliaments use their own staff more for managing and for direct interaction with users. Although PC installation changed slightly in 2012 - more use contractors, fewer use internal staff - the split is still large (2012=80 per cent:40 per cent; 2009=90 per cent:38 per cent)¹⁴.

¹³ Survey 2012, Section 1, Questions 14-16; Survey 2009, Section Questions 14-16.

¹⁴ See *World e-Parliament Report 2010*, p. 127, Figure 7.14.

Figure 7.9: Functions performed by internal ICT staff and contractors



(Source: Survey 2012, Section 2, Question 26; 156 respondents)

Training

Training for ICT staff is a high priority. In today’s rapidly advancing technical world, training is never finished and the knowledge level of parliamentary ICT staff needs to be as current as possible if they are to be effective in their roles. The good news in this area is that in 2012 75 per cent of parliaments reported that they do provide training for in-house ICT staff through either internal or outside services¹⁵. This is down somewhat from the 2009 figure (84 per cent)¹⁶, but the 2007:2012 comparison groups indicates that the multi-year trend is still quite positive and training remains a high priority (see Figure 7.10).

¹⁵ Survey 2012, Section 2, Question 27.

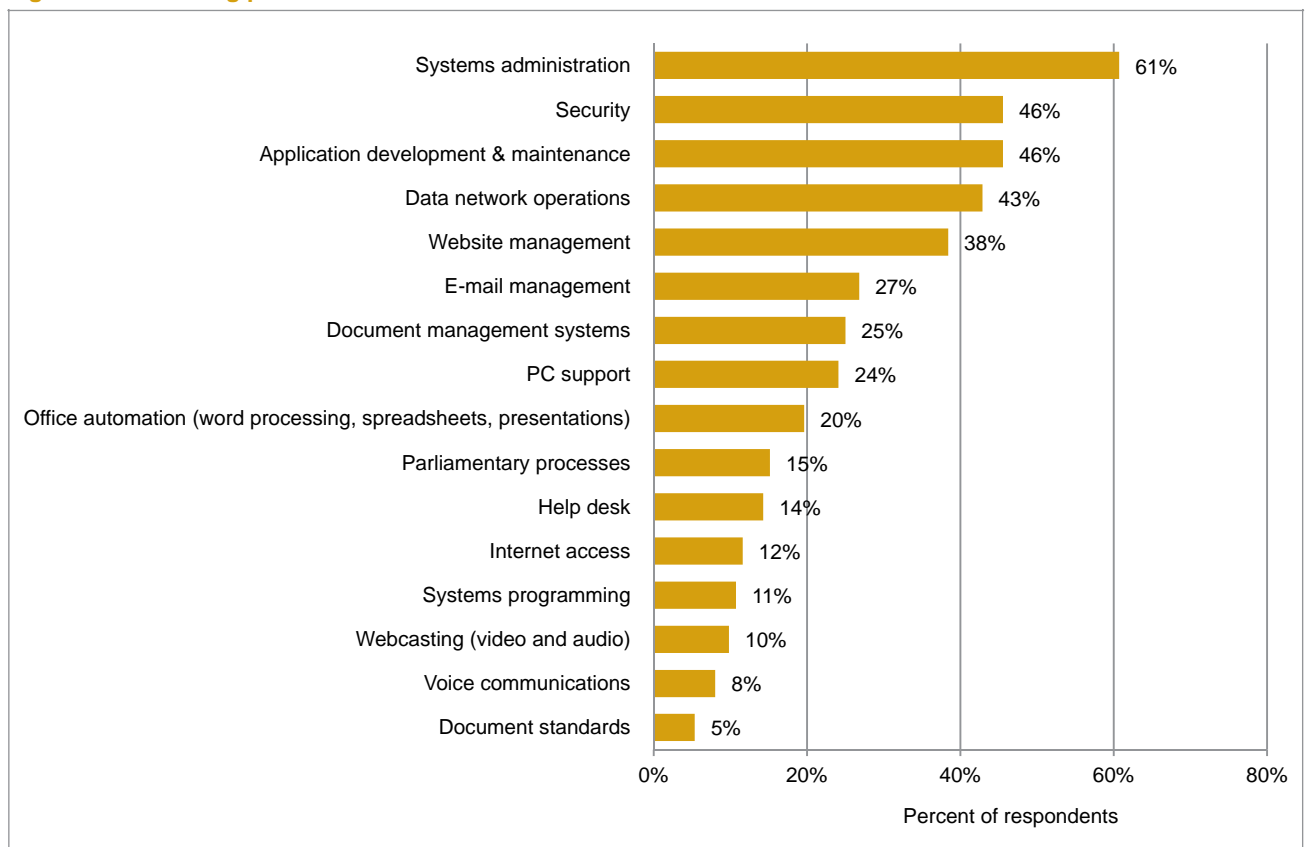
¹⁶ See *World e-Parliament Report 2010*, p. 128.

Figure 7.10: Training provided for ICT staff, by year

	2012		2009		2007	
Yes	58	79%	60	82%	47	64%
No	15	21%	13	18%	26	36%
Total	73	100%	73	100%	73	100%

(Percentages are for 2007:2012 comparison group)

The percentage of in-house ICT staff that received training in the last year remained nearly the same for both 2009 (average=46 per cent)¹⁷ and 2012 (average=44 per cent)¹⁸. Figure 7.11 shows results from the question that asked parliaments to identify their top five training priorities. These results indicate some shifts from the previous survey. In 2012 *security* was ranked in the top five by more parliaments (46 per cent) than in 2009 (38 per cent) and *office automation* went down (2012=20 per cent; 2009=33 per cent). Training in *webcasting* went up although to only 10 per cent in 2012 from 2 per cent in 2009¹⁹.

Figure 7.11: Training priorities

(Source: Survey 2012, Section 2, Question 29; 112 respondents)

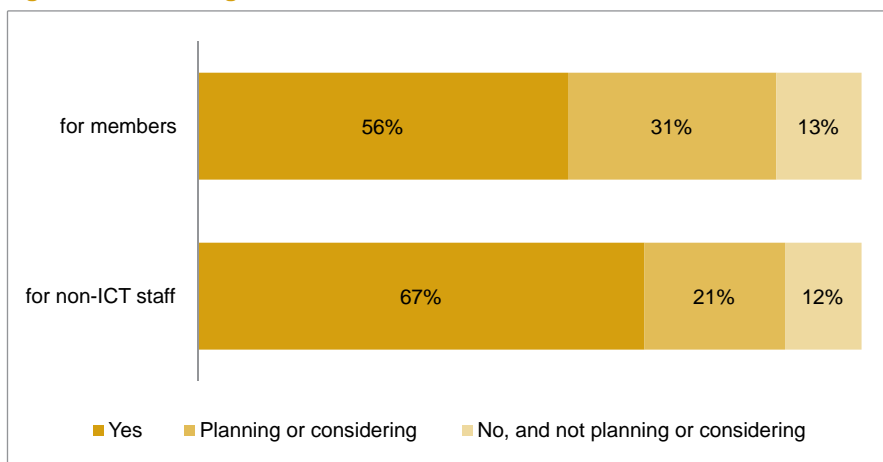
17 Survey 2009, Section 2, Question 28 as reported in *World e-Parliament Report 2010*, p.128.

18 Survey 2012, Section 2, Question 28.

19 See *World e-Parliament Report 2010*, p.128, Figure 7.15.

Figure 7.12 shows the percentage of parliaments that provide training or orientation session for members and for non-ICT staff. The percentages are slightly lower than in 2009 (members=61 per cent; non-ICT staff=71 per cent). However, the combined percentages for parliaments that replied *yes* or *planning or considering* were still quite high. In 2012 they were 87 per cent for members and 88 per cent for non-ICT staff. In 2009 they were also 87 per cent for members and 89 per cent for non-ICT staff. These results suggest that most parliaments do recognize the importance of training for members and for all parliamentary staff.

Figure 7.12: Training/orientation for members and non-ICT staff



(Source: Survey 2012, Section 2, Questions 30-31; 156 respondents)

Box 7.4

Good Practices - Training:

1. Parliament is an ICDL certified institution;
2. Develop an end-user training plan and programme for members and staff for the year;
3. Communicate training programme effectively;
4. Have internal training capacity.

Lessons Learnt - Training:

Availability of staff remains a challenge.

Comment by a respondent to the 2012 Survey

Box 7.5

The Parliament does not provide training to its staff members and this is a problem since this affects the use and the provision of information to the parliamentarians.

Comment by a respondent to the 2012 Survey