



Inter-Parliamentary Union
For democracy. For everyone.

World e-Parliament Report 2016



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Foreword

The world needs parliaments if it is to achieve the goals set out in the 2030 Agenda for Sustainable Development. Only parliament has the legitimacy to allocate resources in the national budget, create the necessary legal framework and hold government to account for progress towards those goals.

Parliament derives its legitimacy from its core function as the people's representative. Strong, democratic parliaments are therefore responsive to changes in society. Parliaments need to be able to make good use of the information and communication technologies (ICT) tools that are shaping the world of work, modifying interpersonal communication and stimulating political mobilization. For parliament, ICT is a core enabler of greater openness, accessibility and accountability, as well as a key channel for communicating with citizens.

The World e-Parliament Report 2016 shows that parliamentary ICT systems are increasingly publishing data in formats that civil society can reuse and bring to a wider audience. They are making it easier for citizens to participate in political life by signing a petition online or raising issues that are followed up on during parliamentary hearings. They are making it possible for everyone to see what their representatives have said in parliament and how they have voted. In themselves, these are valuable public goods. More than that, by stimulating citizen participation in the work of parliament, effective parliamentary ICT systems help parliaments deliver better budgets, better laws and more responsive government.

Many parliaments have adopted a strategic approach to ICT, building solid technical infrastructure and nurturing highly skilled staff, better equipping them to meet the challenges of rapid technological and social change.

However, the gap between parliaments is great. That there is a strong correlation between income level and the level of technology use in parliament, as in society at large, while unsurprising, cannot be considered an acceptable state of affairs in a world committed to "leave no-one behind". The time has come for the international community to invest more in parliaments, so that parliaments can play their full role in the 2030 Agenda for Sustainable Development.

Parliaments are political institutions. So while part of that investment may be in technical infrastructure, the greatest effort has to be in building parliament's own capacity to take a strategic approach to ICT, facilitating inter-parliamentary cooperation and supporting a culture of openness and accountability. Just as society is changing, parliaments are changing as they open up to greater citizen engagement.

IPU is committed to supporting the development of strong, democratic parliaments, and investment in ICT tools to help them increase public participation is becoming more important than ever before.



Martin Chungong
IPU Secretary General

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Executive summary

The World e-Parliament Report 2016, the fourth report in a series that began in 2008, documents how parliaments are using information and communication technologies (ICT) to support their internal and external functions and processes. It delves into the planning and staffing processes, attempting to understand motivations, barriers and opportunities. The report follows a pattern that will be familiar to readers of earlier editions, yet it also introduces themes that, while previously glimpsed, are rapidly emerging and, for many parliaments and parliamentarians, new. The most obvious of these is open data, which is data (and other information) that can be freely used, reused and redistributed by others, subject only to attribution¹. Open data heralds a potentially seismic shift in the relationship between parliament and citizens. No longer is the citizen solely a recipient of broadcast information, whether from parliament, members or the media. Today many are able to participate because of access to the information, documents and data that parliaments generate. This is recognized in the addition of a second section to the report that, for the first time, will look at the work of parliamentary monitoring organizations (PMOs), as data brokers, intermediaries and interpreters.

This report is intended to be read as a stand-alone document but can be seen as a continuation of the series that began when the Global Centre for ICT in Parliament published the first World e-Parliament Report, in 2008, and continued with the 2010 and 2012 reports. It contains an analysis and discussion of the survey of parliaments, which drew responses from 114 parliamentary chambers in 88 countries, and the PMO survey of 33 organizations from 31 countries.

The findings show how digital and social technologies have led to and supported deep changes in the operational environment and cultural landscape of parliaments. They show that the digital parliament is now a living entity, directly linked to those it serves in ways that were hard to imagine in the first World e-Parliament Report, in 2008. Compared to the picture painted in that first report, parliaments are now more open and outward-facing. The internal systems within parliaments are stronger and the processes they use, while still challenged, are getting better. The digital parliament mirrors the world around it, so it is no surprise to see that social networks are now important tools, allowing citizens to connect more often and more easily with members and parliaments. Making documentation and content more available is a critical trend too, whether this is through web-based technologies or through open data. Yet many parliaments remain hampered by a lack of access to best practices and a lack of support from the international donor community in new and emerging areas of ICT, such as open data, and this problem is exacerbated for low-income countries.

The challenges parliaments face go beyond the simple adoption of technology: many are strategic and need to be addressed at a systemic level, requiring political as well as institutional commitment. This research highlights that too few parliaments are fully implementing end-to-end strategic planning processes, and when they do, too few value the counsel of their senior ICT staff in terms of the overall leadership and direction of change. The survey shows that digital processes are too often seen as a technical function, where ICT management or technical staff predominate. Yet it also shows that for ICT to be transformative for parliaments, MPs must provide political leadership in favour of greater openness and citizen participation.

This report highlights that:

- 1 ICT is a core enabler in strengthening and transforming parliaments. Parliaments should do more to engage at the highest political level with the potential for digital transformation.
- 2 To realize the real benefits of ICT, parliaments need to make a commitment to a vision and to strategic change supported at the highest levels of the institution.
- 3 Lack of funding and insufficient knowledge among staff and members remain as key challenges for parliaments to use ICT effectively.

¹ See opendatahandbook.org/guide/en/what-is-open-data

Parliaments are continuing to adopt technologies internally, including:

- 4 document management systems to support the legislative process, though often hampered by a lack of resources;
- 5 cloud-based technologies, which are starting to change the way parliaments manage documents and data;
- 6 wireless networks, now ubiquitous within parliaments;
- 7 Extensible Mark-up Language (XML) for parliamentary documents along with the adoption of open data standards.

Parliamentary libraries remain a primary source of such innovation.

The external face of parliament has changed, though the importance of existing assets such as websites and email remains strong:

- 8 In a digital world that is now decidedly multi-channel, social media has become a key strategic communication channel for parliaments. It can be difficult, however, for parliaments to know how members are using these new tools and how best to support them.
- 9 Email remains a primary communication channel for members; parliamentary websites are another continuing core asset in providing information, documentation and data.
- 10 A small but growing number of parliaments are evaluating their web assets.
- 11 The importance of open data for parliaments will continue to grow, but there is evidence that parliaments are struggling to make such data available and accessible for citizens.

Parliaments need to reach out more effectively to citizens and others:

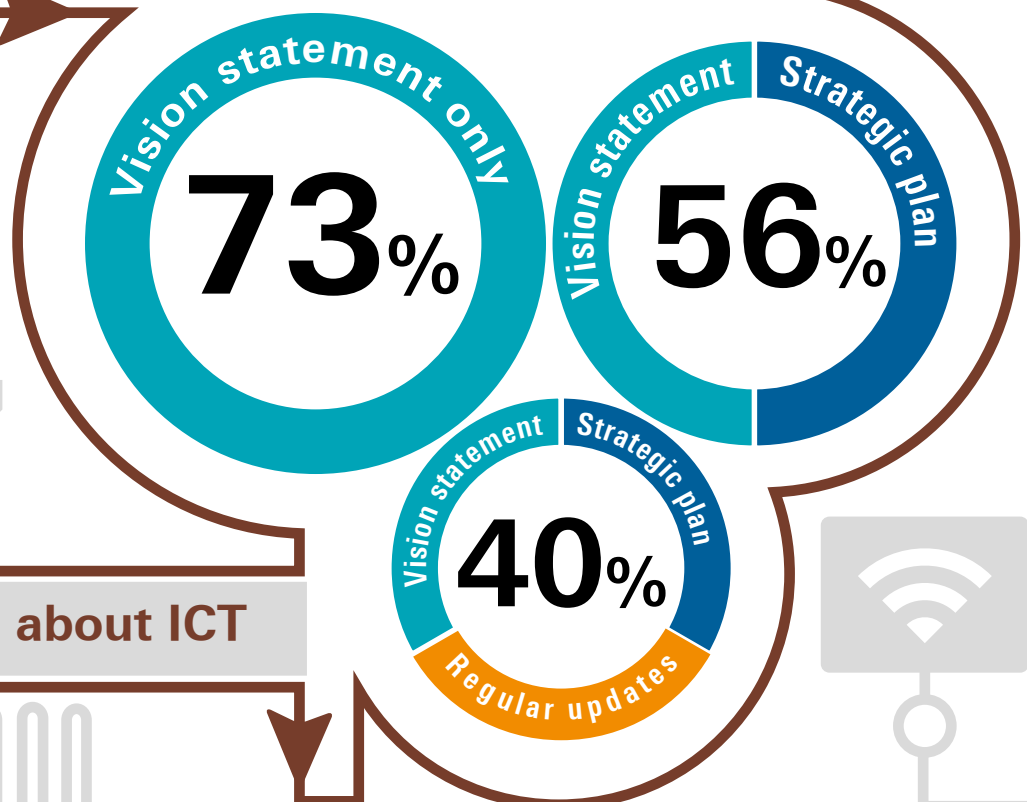
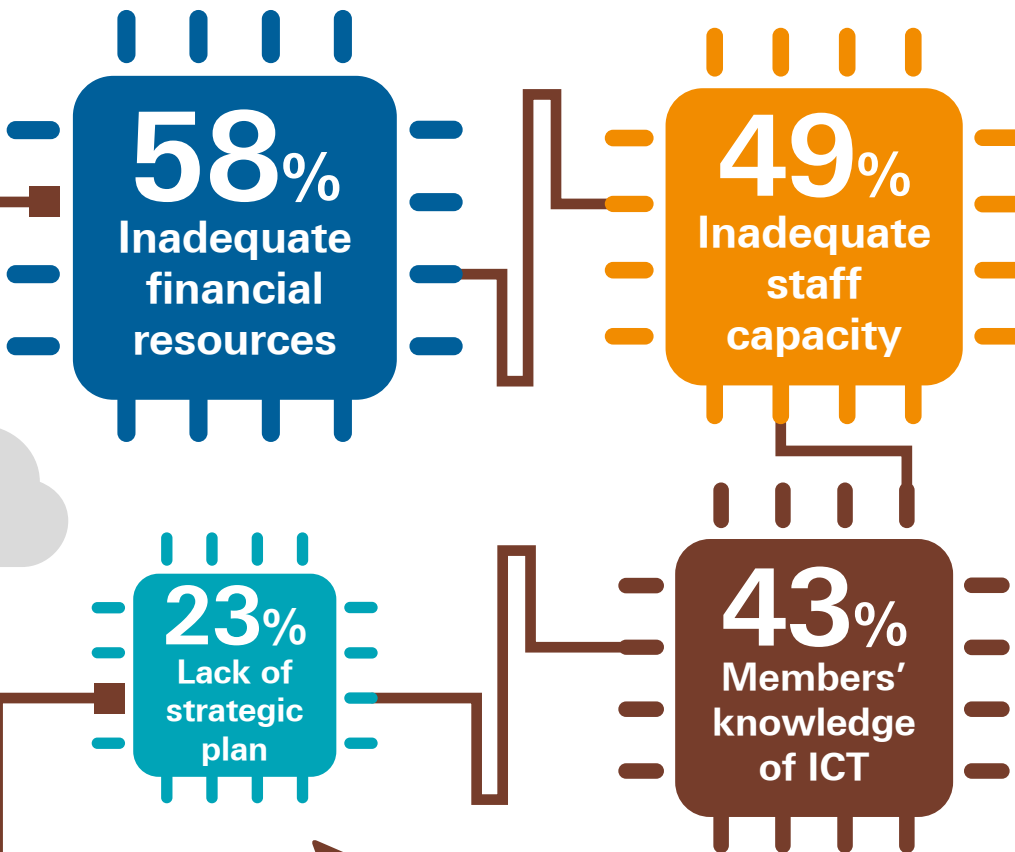
- 12 They have not been very innovative in finding ways to engage citizens directly in the legislative process, though an increasing number are now experimenting with different forms of citizen participation in parliamentary work.
- 13 They are currently unable to offer sufficient inter-parliamentary support to their peers in the areas of open data, application development, social media, or engagement and outreach generally.

These final points highlight the potential value of new intermediaries, including PMOs, that can take the information and data parliaments create, whether formally or informally, and make sense of it for ordinary citizens. PMOs can also train and educate the public to engage more effectively with parliament. PMOs dedicated to stronger democracy and greater parliamentary openness, transparency and accountability, are allies of parliament. As parliaments start recognizing the importance of open data themselves they also realize that it is not enough simply to publish and that:

- 14 PMOs can be active and effective partners for parliaments, reaching audiences that parliament cannot and adding value to the democratic process in unique ways. Parliaments should embrace this.

Strategic barriers to ICT development in parliament

Biggest challenges cited by parliaments



Strategic thinking about ICT

Inter-parliamentary support

Parliaments that would like support Parliaments that receive support



Financial resources

Budget of parliament

ICT budget around **4%**



ICT staff



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Towards greater openness in parliament

Increase in transparency

89%

publish more information and documents on **website**

Parliaments with systems for managing the text of bills

49%

System in place

39%

Planning or considering

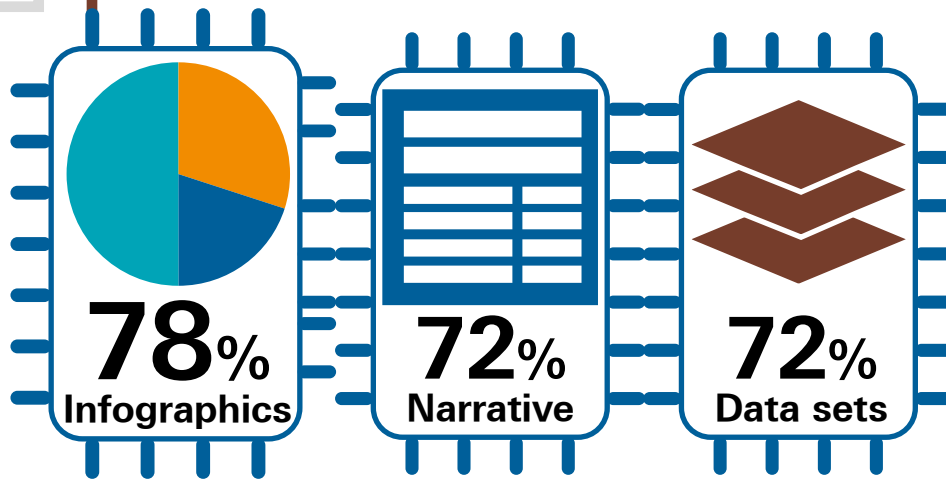
High income: 70%

low income: 6%

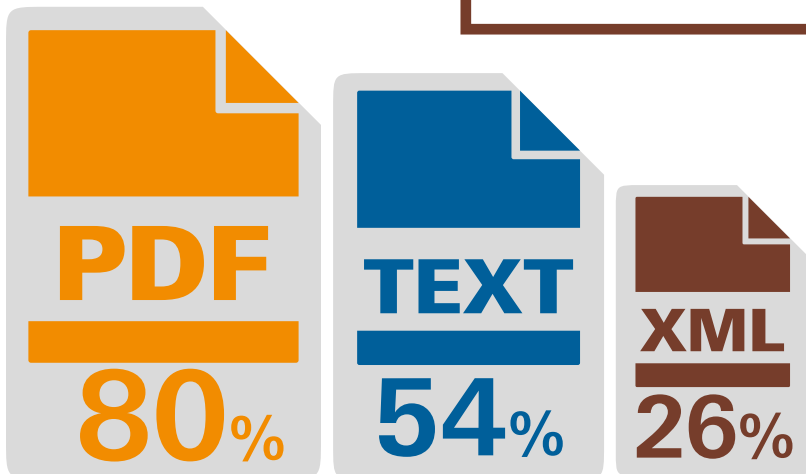
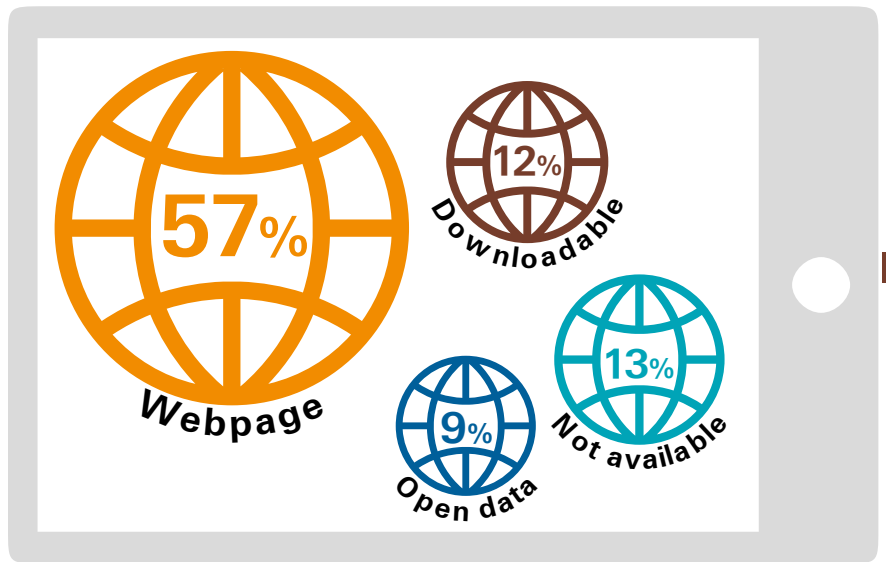
PMOs* help to open parliamentary data

% PMOs that provide

*Parliamentary Monitoring Organizations



Publication of plenary voting record



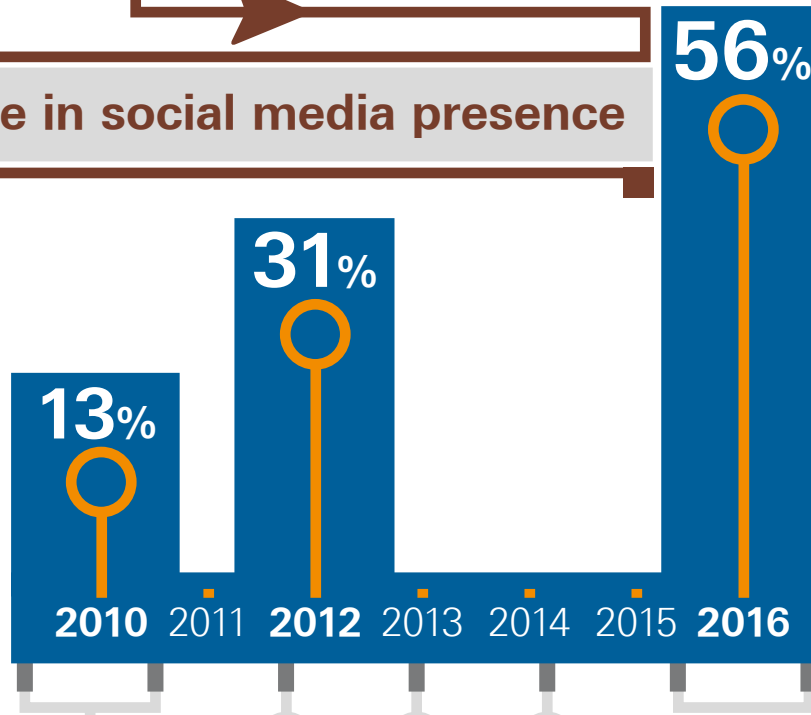
How parliaments publish documents



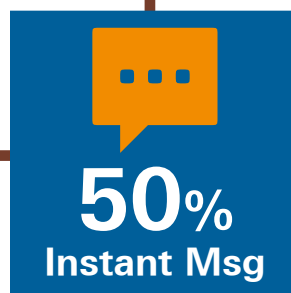
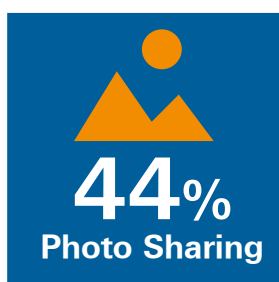
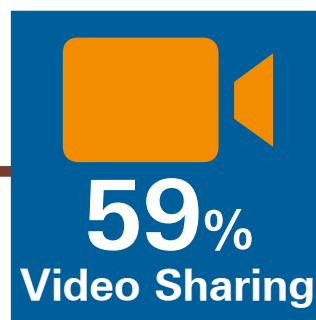
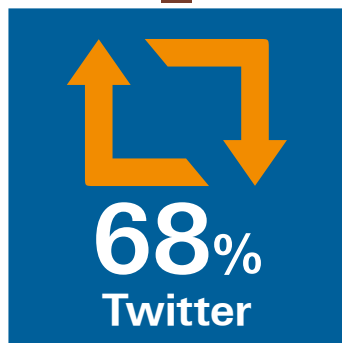
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Growing influence of social media in parliaments

Rise in social media presence



Most popular platforms



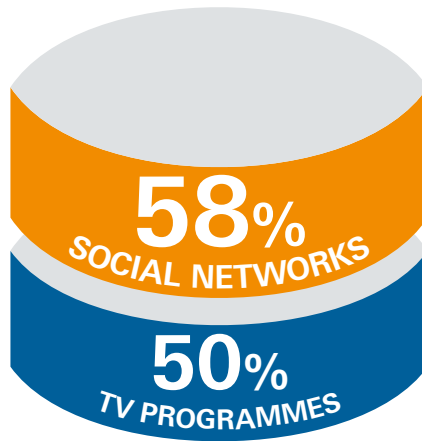
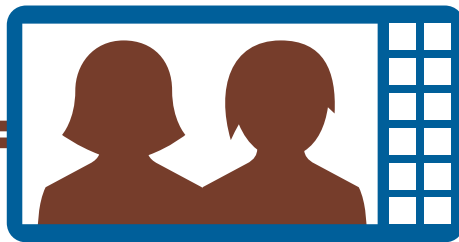
Why parliaments use social media

Inform about policy and legislation
74%



41%

of parliaments use social media to dialogue with young people



Social networks surpass TV

Explain what parliament does
64%

26%
Include citizens in decision-making

13%
Improve policy and legislation



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Introduction

The World e-Parliament Report 2016, the fourth report in a series that began in 2008, documents how parliaments are using information and communication technologies (ICT) to support their internal and external functions and processes, delving also into the planning and staffing processes and related motivations, barriers and opportunities. This year's report follows a pattern that will be familiar to readers of earlier editions produced by the Global Centre for ICT in Parliament. But it also introduces themes that, while previously glimpsed, are rapidly emerging and, for many parliaments and parliamentarians, new. Most obvious among these is the advent of open data, heralding a potentially seismic shift in how parliaments relate to their citizens. No longer passive recipients of information broadcast by parliaments, their members or the media, citizens today can be active participants by drawing from the information, documents and data parliaments generate. The digital parliament is now a living entity, directly linked to those it serves in ways that, even in the first World e-Parliament Report, were hard to imagine.

ICT has become embedded in many aspects of our lives. Unsurprisingly, this is also the case for parliaments, their members and the publics they serve. References to the rapid adoption of technology have become so commonplace that it can be easy to underestimate the transformative impact of new digital tools on the processes of legislation, representation and the scrutiny and monitoring of those who represent us. Technology does not exist in a vacuum. The advent of the Internet and social networks has occurred in parallel with changing social attitudes that demand far more involvement, transparency and accountability. Yet access to technology is not equally distributed, either globally or within countries, and many parliaments need to widen public access if they are to use digital tools effectively. This report addresses the use of technology in parliaments, but it is important to understand more broadly the critical relationship between social changes and the barriers to using, applying and gaining access to new technologies.

Such digital transformation has created an opportunity for a new kind of actor in parliamentary affairs: the parliamentary monitoring organization (PMO). Not entirely new, PMOs have become increasingly prominent and important with the advent of the Internet and open data. As awareness of and demand for parliamentary openness and transparency have increased, PMOs have taken on the roles of data broker, intermediary and interpreter of what goes on in parliament. In recognition of the emerging importance of both transparency and the role being played by PMOs, the scope of this year's report has been expanded to include a second survey of such organizations. It will also highlight how parliaments have been working with intermediaries to improve and remove barriers to citizen engagement.

This report, prepared for use as a stand-alone document, also represents the latest in a series begun in 2008 and continued in 2010 and 2012. This year's report is shorter and contains less technical background information than earlier versions, but this is intentional: to provide a simpler general overview of an ever deeper and more complex subject.

The first World e-Parliament Report, published in 2008, was a pioneering attempt to identify and describe the efforts being made by parliaments to utilize ICT in order to strengthen democracy and democratic institutions. The research was undertaken with the aim of not simply understanding what was happening but advancing the state of knowledge among parliaments and promoting international debate and cooperation. That 2008 report established for the first time an authoritative baseline and narrative for parliaments' use of digital tools and technologies. This has enabled them to measure and evaluate their own use of ICT against an international set of data, identifying strengths and opportunities for improvement.

The 2008 report was based on a survey in 2007 and followed up by a second survey in 2009. The second report, in 2010, mirrored the 2008 edition, allowing the parliamentary community to map growth and changes in the use of ICT. It also allowed parliaments to identify emerging trends in a sector that has seen rapid change and increasing significance in recent years. As the series became established, its data and analysis helped parliaments evidence and explore ways to contend with the challenges and complexities of new technology in a parliamentary setting. Material and direction for these reports came from presentations and participations at the World e-Parliament Conferences in 2007 (Geneva) and 2009 (Brussels).

The survey for the third report in this series, in 2012, was revised to provide more up-to-date data and also to highlight emerging trends. The social media were by then emerging as an opportunity for parliaments, and the adoption of non-proprietary open data and open-source systems was in its earliest stages. That third edition drew also from the World e-Parliament Conference 2010 (Midrand, South Africa) and from various other forums and meetings on issues related to the topic (e.g. technical assistance projects in Africa and the Caribbean and various conferences, including one held in Chile in 2011). A key focus for the 2012 report was to identify new and emerging technologies and ways parliaments could harness them for the benefit of the institution and the wider public.

Structure of this report

This introduction, after outlining the report's structure, describes the key findings and highlights from previous World e-Parliament Reports, published by the Global Centre for ICT in Parliament in 2008, 2010 and 2012, and the survey processes and participants for this year's report.

The subsequent seven sections follow the structure of the survey, dealing with the parliaments participating in this research; the data obtained on oversight and management of ICT within the responding parliaments; infrastructure, services, applications and related training; the systems and standards being used for legislative documents and related information; the use of digital technology and services within the respondents' library and research services; parliaments online (an in-depth discussion on parliamentary websites);

an enhanced section analysing how parliaments engage and communicate with citizens and work with external partners to support openness and transparency; and an analysis of inter-parliamentary cooperation.

The report then moves on to the findings of the parliamentary survey (with an analysis of digital maturity amongst parliaments) and the PMO survey. It concludes with a discussion on trends and emerging technologies along with recommendations to support the enhanced and effective use of ICT within parliaments.

Key findings from previous reports

This report is being issued in a context of rapid change in parliamentary ICT, as first documented by a survey of parliaments published in the 2008 report, with significant and evolving updates in 2010 and 2012. Those earlier reports identify a range of challenges and opportunities for the use of ICT in parliaments. They paint a picture of unrealized potential owing to limits in funding, knowledge and attitudes toward innovation. A narrative that runs across all the earlier reports is that parliaments are information-intensive environments but also places where formal procedures are important. It is therefore unsurprising to see parliamentary libraries singled out as places of innovation and leadership in managing and publishing information, documentation and data. Significant discrepancies between high- and low-income countries, identified from the start in the 2008 report, have remained a recurrent theme throughout the series. That first report highlighted the importance of ICT as a way to close the gap between parliaments and citizens, but at that early stage there was little basis for elaboration, beyond static publishing and some very limited examples of attempts at interactivity. Many parliaments lacked a systemic view of ICT at that time. The report concluded that there was “a significant gap between what is possible with ICT and what has actually been accomplished by parliaments so far”. For many parliaments, this report captured the early stages of a significant wave of technology that will come to be seen as both disruptive and transformative over the next eight years. The 2008 report also underscored the benefits of collaboration and the sharing of good practices to support the effective use of ICT within and beyond parliaments.

The second report, in 2010, identified the pillars upon which e-parliament should be built: “active engagement, a clear vision, strategic planning, broad-based management and adequate resources”. It went on to identify weaknesses in those areas: 40 per cent of parliaments lacked any strategic planning process, and only 43 per cent had a vision statement in place. It stressed the importance of adopting standards to guide digital document management systems but then reported a lack of progress in that direction since 2008: less than half of the parliaments were using such systems in 2010 and only one quarter used XML for any of their parliamentary documentation. Barriers clearly remained.

By the time of the 2012 report, many of the challenges to the effective use of ICT noted in previous reports remained as daunting as ever. Limited but important progress was

reported, however, in the introduction of e-parliament. According to the data, more political leaders were engaged in setting ICT goals and objectives for their institutions; mobile devices and applications were starting to be adopted more rapidly than expected; the use of XML to manage legislative documentation had increased notably; more parliaments had systems for managing plenary and committee documents; and both the willingness and propensity of parliaments to share information and collaborate on improvements to technology had risen substantially. Considerable progress had been made, for example, towards establishing an international parliamentary and legislative XML standard, considered a key milestone in a parliament’s digital maturity because it allows data to be exchanged across internal systems and published more readily. Such examples cannot be accepted uncritically, however: it is important to question whether progress in creating standards has led to their actual adoption by parliaments, and whether the complexity of such new standards (and the concomitant cost of adopting them) has proven to be a barrier in some cases.

A particular highlight of the 2012 report was that, despite the challenges faced, parliaments in the lowest-income countries were starting to close the technology gap. The use of XML, on the other hand, still tended to correlate closely with a country’s income level. This is true both for the technology adoption gap between citizens and parliaments and for the lack of knowledge and awareness around what parliaments do and how they work.

Parliaments reported that the most important improvements in their work made possible by ICT were the ability to publish more information and documents online, increase their capacity to disseminate information and documents, and deliver information and documents to members in a timely way. These three enhancements help members and parliaments be more open and transparent to citizens. Other positive findings can be found in the area of basic ICT services, such as personal computer support, systems administration, web publishing and network operations.

The biggest communication challenge identified by most parliaments was not a lack of access to technology but a lack of knowledge. A primary obstacle identified by over half of the parliaments was a limited understanding of the legislative process among citizens. Just under half cited a lack of experience with technology among members. Most parliaments identified two particularly difficult challenges: inadequate financial resources and a lack of qualified staff. Financial constraints were reported by parliaments at all income levels. Significantly, a lack of qualified staff was considered the biggest challenge, even among parliaments at the highest income levels.

As noted in the report, transforming legislatures into modern institutions capable of using technology effectively requires a strong commitment to transparency, accountability and accessibility. By 2012, almost all parliaments had Internet access and most had wireless access. But what was really conducive to transparency were the soft-skills and cultural transformation then being observed among political leaders and members, consistent with their responsibilities as peoples’ representatives and with the values of citizens living in an information society. As the report observes,

“promoting genuine dialogue with citizens and not just one-way communication goes hand-in-hand with greater transparency”, a point that will not be lost in this latest report.

Research design

The research for this report was based on two surveys, one for parliaments and another for PMOs.

Survey of parliaments

This report will make comparisons with data and trends recorded by earlier reports in the series to give the reader a sense of how various factors have changed over the years. It is important to remember, however, that both the survey questions and parliamentary data collection methods have changed over time, and that the latter differ from one country to the next. In addition, the surveys supporting the first three reports were carried out every second year (in 2007, 2009 and 2011), but more than four years have elapsed since the last report, in 2012. For this reason, the comparisons provided, with a view to informing readers and illuminating usage trends and patterns, must always be considered indicative, and caution needs to be exercised when comparing survey data across this and previous surveys.

This year’s survey questions were largely derived from the survey used for the 2012 World e-Parliament Report. The broad structure has remained the same, but it was decided to simplify and reduce the number of questions. Additionally, in the four years that have elapsed since the last report the nature of ICT has changed, not only in parliaments but more significantly in the public’s increasing expectation of instant access to data, text, video and audio. Some new questions have therefore been added and some previous ones restructured to probe this dynamic and fast-changing landscape. A third variable has been the change of survey tool that has meant that questions have in a number of cases been structured in different ways to previous surveys.

Structured in eight sections, the survey’s 103 questions ranged from open-text to multiple choice, with a number of matrix questions and a related range of sub-questions. Where questions were carried forward from the 2012 survey the wording was retained as closely as possible, though revised in some instances for clarification or simplification. Some of the

Table 1 Number of questions in 2016 parliamentary survey by section

About the parliament	5
Oversight and management of ICT	14
Infrastructure, services, applications, and training	25
Systems and standards for creating legislative documents and information	11
Library and research services	13
Parliamentary websites	17
Communication between citizens and parliament	13
Inter-parliamentary cooperation	5
TOTAL	103

questions have been updated and others expanded to reflect new or emerging technologies. The new questions tend to reflect the emergence or growth of tools or technologies since the last survey. Questions about the social media, for example, are more in-depth, and new questions have been added about open data and partnerships with civil society organizations.

Survey recruitment and sample

The data for the parliamentary survey was collected between November 2015 and January 2016. The survey was distributed to all national parliaments (subnational, regional and transnational parliaments were excluded), seeking a separate response from each parliamentary chamber. It was designed primarily as an online survey, to be completed directly via the Internet, but was also available as a downloadable document in Microsoft Word format. Copies could be requested via email. Survey versions in all formats were available in English, French and Spanish. Manually completed forms were returned to the project team and entered into the online tool. Participation was encouraged through IPU’s usual channels, by contacting senior ICT personnel in the parliaments and by following up so as to maximize the sample size.

Responses were received from 114 parliamentary chambers in 88 countries. Given that the population concerned (parliaments) is small, the sample is considered representative rather than statistically significant, so the results cannot be extrapolated to speak for all parliaments. For example, the survey shows that 100 per cent of respondents to the survey have a website, but it cannot be inferred from this that all parliaments have a website. Nor can the significance or purpose of such an asset be inferred from its mere existence. Qualitative data has been subjected to thematic analysis to identify patterns (themes), organized to give meaning to the topic.

Survey of parliamentary monitoring organizations

The PMO survey is the first of its kind in this series. A PMO is broadly defined as a nongovernmental organization (NGO) formed of and by citizens who are independent of parliament, government and business with the aims of raising public awareness and understanding of the work of parliament and increasing citizens’ engagement with parliament. In this role, citizen-based groups have increasingly become active not simply in monitoring what parliaments do and measuring their performance, which is often their primary role, but in utilizing the opportunities presented by digital tools and open data to increase the availability of parliamentary data and share it with citizens. In effect they are becoming brokers and connectors, increasing access to parliamentary information and data and, in some cases, providing tools to support civil society actors in the process of understanding, analysing and using this data. It is a positive sign that parliaments are increasingly working with PMOs to release and increase the value and utility of open data. Projects such as OpeningParliament.org, the Declaration of Parliamentary Openness² and the Legislative Openness Working Group, part of the Open Government Partnership (OGP),³ have further supported this

² See openingparliament.org

³ See opengovpartnership.org/groups/legislative

Table 2 Number of questions in 2016 PMO survey by section

Top-level organizational information	4
PMO activity and data	15
Organizational demographics	5
TOTAL	24

collaboration, as has the work of organizations such as the United Nations and IPU.

The PMO survey was considerably shorter than the one for parliaments. Designed in collaboration with the National Democratic Institute (NDI),⁴ it consisted of 24 questions, 15 of which related to PMO activities to engage with or monitor parliamentary function and activities.

Survey recruitment and sample

As with the parliamentary survey, the sample for the PMO survey should not be seen as statistically significant. Rather, it provides an indication of activities in this sector. The survey was carried out online between February and March 2016 and was available in English, French and Spanish. Survey participation was encouraged through the use of email lists for PMO network specialists, the social media and an article published on the NDI Opening Parliament Blog.⁵ It was also promoted by NDI through its own networks.

The analysis of the PMO survey covers 33 responses from individual organizations in 31 countries. Some responses were excluded from the analysis because they were incomplete, duplicated existing responses or were otherwise incompatible.

⁴ See ndi.org

⁵ See blog.openingparliament.org/post/138950549038/understanding-the-impact-of-pmos-for-the-2016

About the parliaments participating in this research

The parliamentary survey was completed by a diverse range of parliaments around the globe. As shown in Figure 1, 41 per cent of the 114 respondents were unicameral (single-chamber) parliaments. Globally, 60 per cent of parliaments are unicameral.⁶ The remainder were bicameral parliaments (32 per cent of the responses came from lower houses and 25 per cent from upper houses). One response came from Myanmar’s *Pyidaungsu Hluttaw* or Union Assembly, which is a third chamber composed of both lower and upper house members. Some of the responses from bicameral parliaments came as joint submissions from both chambers (e.g. because they have shared management and services). Such submissions have been separated into two entries, one for each chamber.

As shown in Figure 2 the sample takes into account the size of responding parliamentary chambers, which is broadly reflective of the typical parliament but with slight over-representation of the 200- to 399-member brackets and a more noticeable underrepresentation of small parliaments (those with fewer than 50 members).

Figure 1 Respondents by type of chamber (n=114)

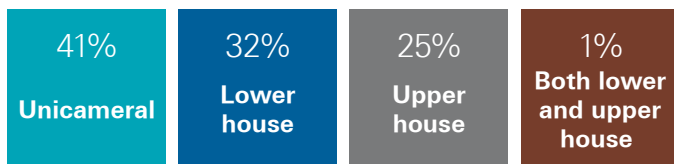
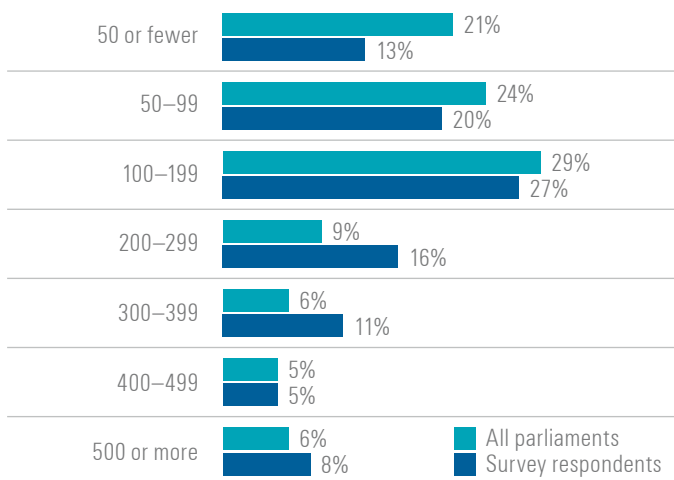


Figure 2 Relative size of parliamentary chambers by number of members (n=114)



6 See www.ipu.org/parline

Geographically, as shown in Figure 3, the respondents were predominantly European (39%) and African (22%). Only 9 per cent were Latin American, but they account for 40 per cent of that region’s countries. The Caribbean and the Pacific regions, where small or very small parliaments predominate, appear underrepresented in the sample (3 per cent and 2 per cent, respectively).

The parliaments that took part in the survey correspond to the full range of income bands as defined by the World Bank⁷, though as Figure 4 shows 45 per cent of respondents came from high-income countries. The World Bank places only 32 per cent of countries in this higher category. Lower-middle income countries are slightly under-represented (16 per cent of respondents versus 26 per cent in the World Bank rankings), whereas low income and higher-middle income are close to their respective representation in the World Bank rankings. This does suggest that the data, and therefore the findings, are likely to be skewed slightly in favour of higher-income countries (again, the survey response relating to parliamentary Internet access referred to above is a good case in point).

Figure 3 Breakdown of respondents by region (n=114)

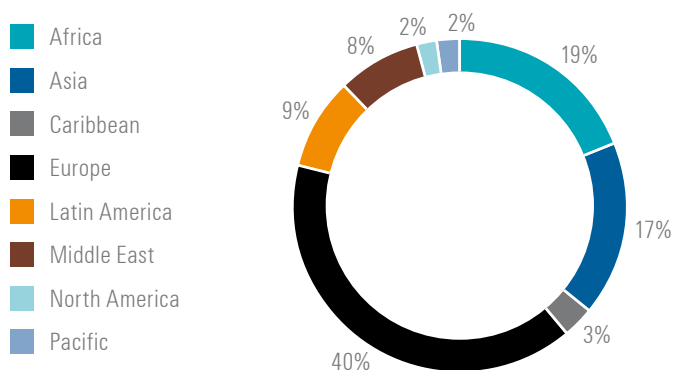
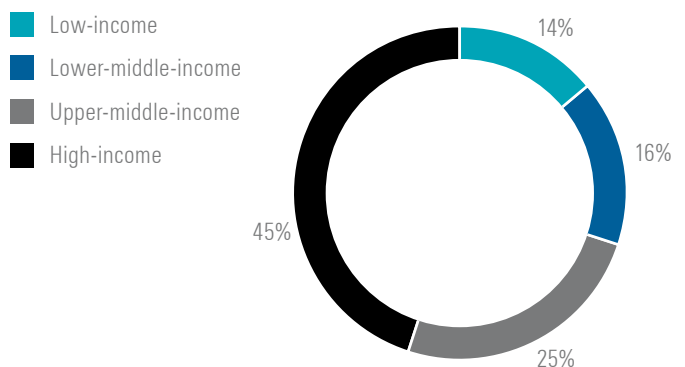


Figure 4 Breakdown of respondents by income (World Bank) (n=114)



7 See data.worldbank.org/country

Oversight and management of ICT

Parliaments are driven by the needs and experiences of their members. As digital tools and data have become more open and more widely available they have evolved from internal management tools or services into mechanisms that support the democratic process itself. This makes it increasingly important to attend to the level of MP engagement with digital technology. The survey findings on this point are mixed, suggesting that such engagement has not noticeably increased since 2012.

The level of engagement does not appear to vary dramatically across different income levels. However, the data shows that the level of political engagement with ICT in the parliaments of high-income countries trails off noticeably and that parliaments in low-income countries are over-represented in terms of respondents with no political engagement at all. This is significant because, for ICT to be transformative for parliaments, MPs need to provide political leadership in favour of greater openness and citizen participation.

The vast majority of ICT spending within parliaments (91%) is determined from the parliament's own budget. Despite this, a quarter (24%) report that the ICT budget is itself ultimately

derived from donor agencies, with 11 per cent coming from the government's budget. Ninety-one per cent of parliaments determine their ICT budgets on an annual basis, agreed at the start of the budgetary year. Only 36 per cent of parliaments require all individual ICT projects to be separately approved.

Most of the responding parliaments spent less than 10 per cent of their total budgets on ICT. Only 7 per cent of the respondents (compared with 8 per cent in 2012) reported spending more.

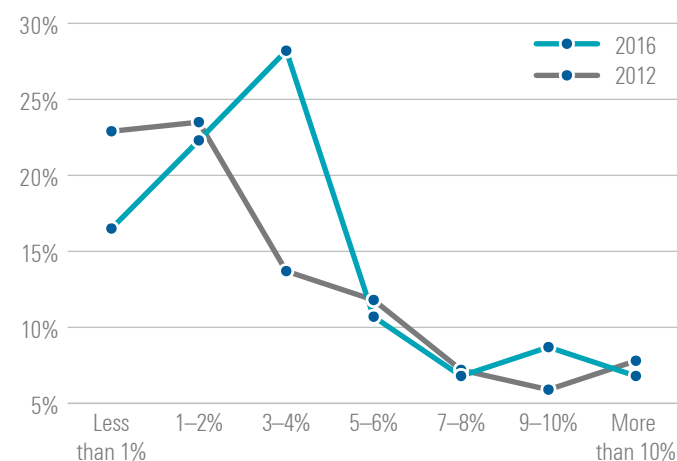
Table 3 Political engagement with oversight and management of ICT (n=107)

	2016	2012
Very highly engaged	5%	7%
Highly engaged	26%	31%
Somewhat engaged	44%	42%
Engaged very little	15%	16%
Not engaged at all	9%	4%

Figure 5 Engagement of political leadership in ICT process by income level (n=111)



Figure 6 ICT budget as percentage of total budget (n=103)



In terms of ICT oversight, the authorities involved and the format of decision-making bodies will impact on how ICT is planned, implemented and followed up. As shown in Table 4, the majority of parliaments (85%) reported that their senior ICT person (chief information officer or director of IT or ICT) is involved in determining the parliament's ICT objectives. This suggests most parliaments see this as a largely technical function, to be performed predominantly by ICT management or technical staff. The objectives so determined, however, usually require a high level of sign-off from parliamentary management: 74 per cent of the respondents reported this happening at the level of secretary general. Almost half (46%) require sign-off from the senior ICT management person and 39 per cent from the president or speaker of the parliament.

It is interesting to note that few parliaments reported the involvement of library and research staff in objective and plan development (7%) and approval of objectives (6%). A larger percentage (16%) reported their participation in oversight. The use of external contractors to define and develop objectives and plans was reported by 16 per cent of the responding parliaments, and their participation in oversight was reported by a similar number (17%). More often than not, as reported by 60 per cent of the respondents, the oversight role rests with the parliament's senior ICT person.

Very few parliaments reported involving the public in any part of this process, least of all in objective and plan

Table 4 Responsibility and oversight for ICT objectives (n=111)

	Develops objectives and plans	Approves objectives	Participates oversight
President/Speaker of parliament or chamber	15%	39%	24%
Parliamentary committee	7%	20%	21%
Members	4%	7%	21%
Secretary general	30%	74%	45%
Chief information office, director of ICT or equivalent	85%	46%	60%
Senior ICT leadership	47%	20%	37%
Special group or committee	26%	17%	24%
Internal ICT experts	50%	9%	25%
Library/research staff	7%	6%	16%
Contractors (external)	16%	4%	17%
Members of the public	1%	3%	6%

development (1%). Six per cent reported public participation in ICT oversight.

In terms of the ICT strategic planning process, 73 per cent of responding parliaments have a vision in place for their overall strategic direction (see Table 5), two-thirds have a strategic plan (67%), and 56 per cent have both. Out of the parliaments with a vision statement for ICT, 77 per cent also have a strategic plan for it; the remaining 23 per cent said they intended to develop one in the future. Overall, 46 per cent of the parliaments (or 40 per cent of those parliaments with both a vision and a strategic plan) say they have a process in place for regularly updating their strategic plans.

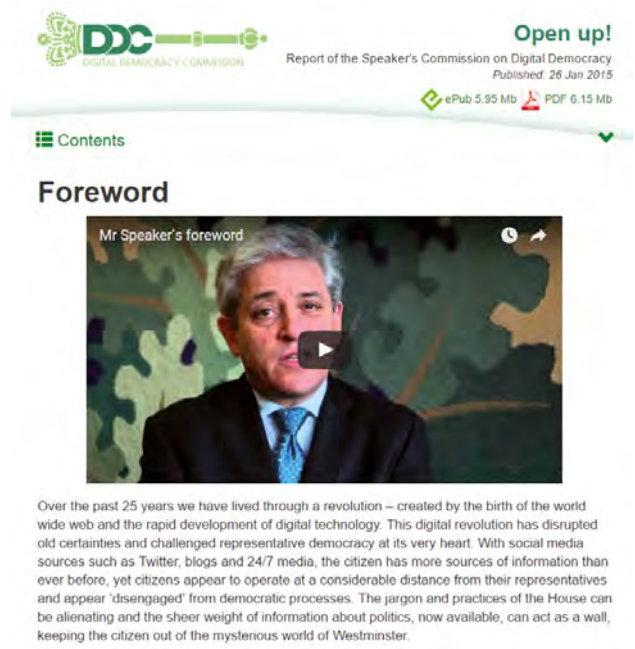
Previous reports had suggested that where ICT strategic planning was taking place it was being done well, but the 2012 report highlighted the relative paucity of vision statements (only 40 per cent at the time) as a cause for concern. As now being reported these statistics have improved, but the low percentages for strategic planning and updating processes remain a concern: overall, 60 per cent of parliaments do not have a process in place to manage and update their ICT strategy against a vision statement, and 20 per cent of those with strategic plans (14 per cent of all parliaments) have no vision in place to drive them. And as shown in Table 6, only about a third of parliaments have strategic plans or visions *and* involve their most senior ICT staff members, such as the director of ICT, in managing them.

Figure 7 Front page of the interactive report from the Speaker’s Commission on Digital Democracy (UK Parliament)

Set up by the Speaker of the UK House of Commons in 2014, the Commission on Digital Democracy⁸ investigated the opportunities digital technology could bring to parliamentary democracy in the UK. The findings have supported the House of Commons in advancing its adoption of digital methods for parliamentary work and engagement with the public.

The Commission held more than 100 informal meetings and over 20 roundtable discussions across the UK. It spoke to a wide range of people from the tech industry, young people, voluntary organizations, adults with learning difficulties, academics, people with visual and hearing impediments, civil servants, marketing and public relations experts, as well as experts from other parliaments. It received thousands of tweets and more than 150 longer written submissions.

This is a powerful example of a parliament reaching out beyond its internal and familiar external networks to deeply explore what the digital parliament could look like, at a strategic as well as an operational level. Key to the Commission’s success were its high profile within Parliament (chaired by the Speaker), its mix of internal and external expertise (including MPs), its broad scope and range of activities and its access to key decision makers within parliament, to ensure its recommendations could be acted upon.



8 See digitaldemocracy.parliament.uk

Table 5 Formal vision and strategic planning processes (n=112)

Has a vision statement	73%
Has a vision statement and strategic plan	56%
Has a vision statement, strategic plan and a process to regularly update them	40%
Has a vision statement and intends to create a strategic plan	13%

Table 6 Influence of senior ICT staff versus strategic planning (n=112)

Director of ICT is member of senior management team (SMT)	50%
Member of SMT plus vision in place	29%
Member of SMT plus strategic plan	33%

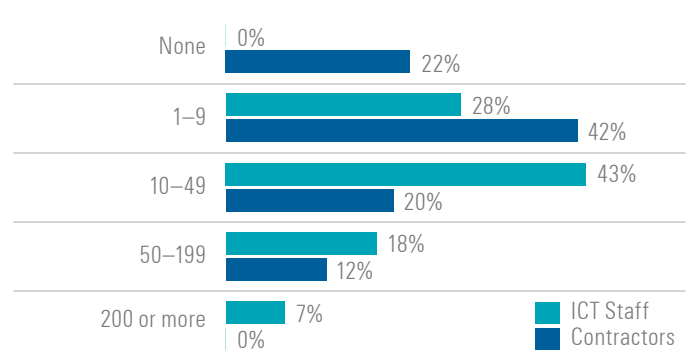
These figures show that while decisions regarding the strategic direction of ICT are overwhelmingly left in the hands of senior ICT staff, only 50 per cent of the responding parliaments include such staff in their senior management teams. This omission could limit their ability to harness the strategic advantages of ICT and other digital tools, since, as the literature on this issue suggests, the inclusion of senior ICT staff in top-level management increases both functional and knowledge diversity.⁹

Supporting ICT access and usage within parliament

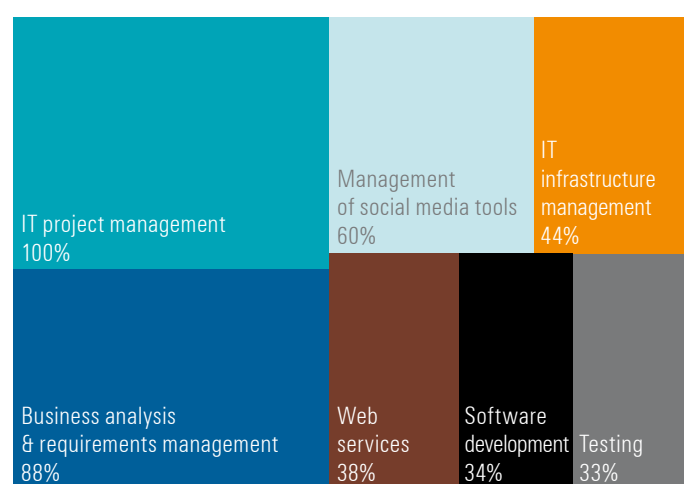
In the bicameral parliaments each chamber tends to manage its own ICT services (39%) marginally more than share that function (35%). Less than one quarter of the bicameral parliaments (23%) have individual ICT functions but also collaborate in certain areas. This factor will have an impact on ICT planning and operations.

The importance of ICT to the core functions of parliaments is clearly reflected by the survey findings, in that the vast majority of parliamentarians (91%) and parliamentary staff (94%) were reported to have access to their internal parliamentary networks. An average of five full-time equivalent (FTE) staff were reported as being dedicated to ICT, but such staffing naturally varies according to a parliament's size: 29 per cent of the responding parliaments dedicate fewer than 10, and only 7 per cent more than 200 (the largest dedicates 600). It is particularly challenging for small parliaments to keep up with the increasing complexity of ICT: 12 such parliaments employ three or fewer ICT staff and one relies solely on contract staff. As shown in Figure 8, contractors play an important role in supporting the ICT function of most chambers around the world (although close to a quarter appear not to use them).

Breaking this down further, an analysis of key ICT functions reveals a preference for internal staff over external contractors. As shown in Table 7, the only area where

Figure 8 ICT staffing levels by type of employment (n=112)**Table 7 Internal versus external current staffing for key ICT functions (n=112)**

	Internal	External
IT project management	95%	16%
Business analysis & requirements management	92%	27%
Testing	91%	34%
Software development	53%	79%
IT infrastructure management	92%	36%
Web services	80%	49%
Management of social media tools	80%	16%

Figure 9 Parliaments that would prefer ICT roles to be staffed internally where they are not currently (n=112)

external contractors outnumber internal staff is in software development: 79 per cent of the responding parliaments reported using contractors, with only 53 per cent employing staff, to cover that function. Moreover, 30 per cent of the parliaments reported as being completely reliant on contractors for software development would prefer to have at least some internal capability in that area. With respect to the management of social media tools, for which 16 per

⁹ Hu, Q., Yayla, A. A., & Lei, Y. (2014). *Does inclusion of CIO in top management team impact firm performance? Evidence from a long-term event analysis*. <http://doi.org/10.1109/HICSS.2014.537>

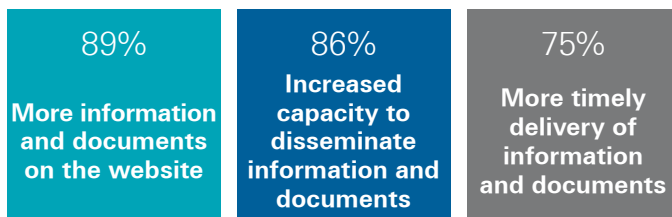
cent of the respondents rely entirely on contractors, 60 per cent of those respondents would prefer to have internal staff perform that function. Discussions at previous e-parliament conferences have addressed the issue of internal versus external resourcing. It has been suggested that roles such as project management and business analysis cannot be easily transferred from other sectors and are best resourced internally, since there is a steep learning curve in terms of how a parliament works. As underscored by the Australian House of Representatives, a key enabler of strategic planning is the “presence of a pool of trained IT staff that understand the parliamentary culture and processes and are able to respond to the needs of the parliament”.¹⁰ It has been suggested that the resource pool qualified to do that is limited and that the necessary knowledge takes time to acquire.

Project management, business analysis and infrastructure management, including management and operations, are internally staffed in over 90 per cent of the responding parliaments. Again, this can be a challenge for small or poorly funded parliaments, and, as shown in Figure 9, there is strong desire among parliaments to staff these roles internally going forward.

How ICT is improving parliaments

The 2012 World e-Parliament Report identified an increase in the breadth of ICT tools, services and platforms that were seen as impacting on parliaments, and this trend continues to be seen in the 2016 data. Over the past four years ICT has been seen to most significantly benefit the dissemination of information, both internally (to members and staff) and beyond (to the public). This is also a continuation of trends identified in 2012. ICT was reported as beneficial to internal dissemination by 86 per cent of the responding parliaments, and to the public availability and accessibility of information and documents by 89 per cent.

Figure 10 Top three improvements made (n=108)



Fifty-five per cent of the responding parliaments report that ICT has improved their capacity to disseminate information to citizens and 48 per cent that it has significantly improved their interaction with citizens. It is perhaps disappointing on the other hand that only a third of all the respondents, and only 25 per cent of those in low-income countries, report that ICT has significantly improved their communication with young people. More encouragingly, 54 per cent report that they expect this to improve in the next two years, as do 63 per cent of parliaments with regard to their interaction with citizens.

Open data, too, appears to be on the ascendancy, which is to be expected. It was considered an important improvement for 46 per cent of the responding parliaments, a figure that did not vary significantly based on national income: it was true for 44 per cent of parliaments in low-income countries and 49 per cent in high-income ones. On the other hand, 60 per cent of the respondents predict that open data will lead to important improvements over the next two years, but here the variation according to income is more significant: the figure falls to only 38 per cent in the case of low-income countries while rising to 69 per cent in upper-middle-income and 64 per cent in high-income countries. Caution may be advisable here as well, however, since the availability of open data does not mean it is actually being used. Anecdotal evidence suggests that parliaments cannot merely publish data and then expect the public to use it. Far from it. People are often not aware that it exists, and when they are, often lack the technical or analytical skills to investigate it further and understand it. Parliaments developing strategies for open data need to consider this and identify partners to help make the data more useful in practice.

Comparisons between the 2012 and 2016 samples are problematic, for the reasons explained above. But a comparison of like-for-like variables in the areas parliaments consider most improved reveals a significant increase in ICT’s impact in the four years since the previous survey.

The importance of these functional areas is also reflected in the technologies parliaments have introduced or used in new ways in the last four years, the top ten of which are shown below.

The greatest transformation has come in the publication of information and documents via websites, 74 per cent of the responding parliaments having adopted or improved technology in this area. At the other extreme, only 6 per cent have introduced or adopted new practices for using ICT to engage with citizens. However, 36 per cent indicate that they intend to introduce new ICT-based methods in the next two years, which suggests a shift towards greater ICT use to increase engagement with citizens and encourage greater participation in parliaments, though often through less direct means. Also encouraging is that 39 per cent of the responding parliaments have adopted open standards, such as XML, for publishing documents and data, and 48 per cent intend to do so in the next two years.

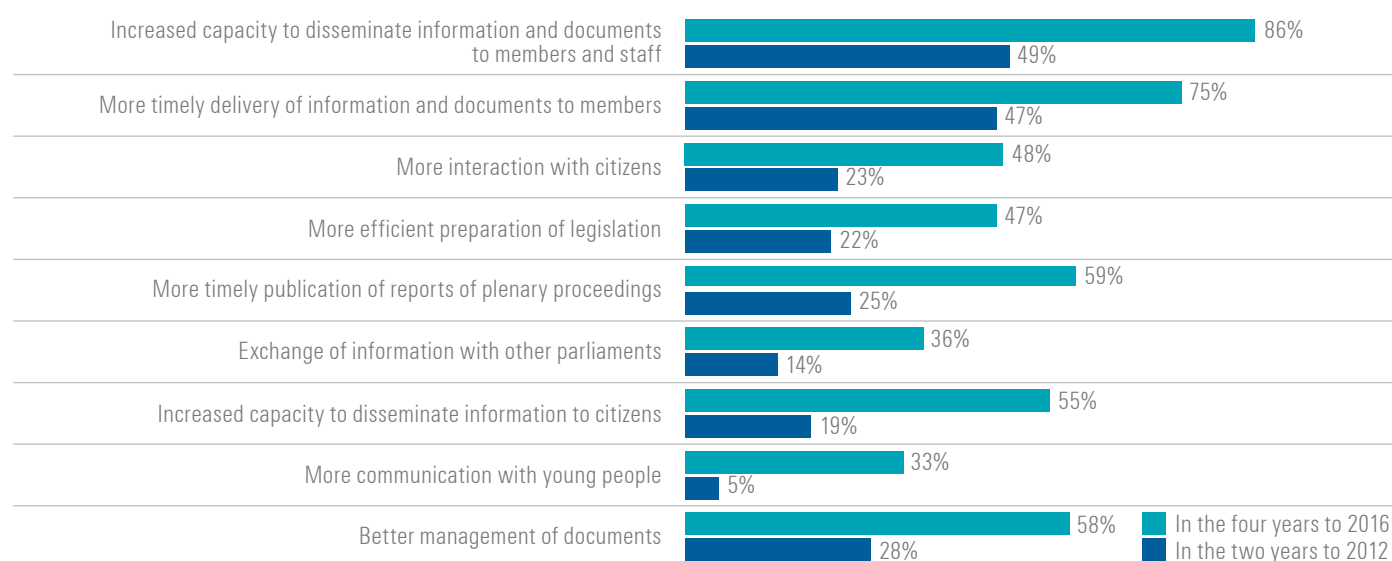
The introduction of new tools and technologies can often be hindered or delayed by challenges and barriers to adoption. Only 7 per cent of respondents, all but one from high-income countries, said they faced no challenges in using ICT effectively. Table 10 shows the biggest challenges to effective use of ICT as identified by the responding parliaments.

Only 8 per cent of parliaments identify inadequate Internet access as a challenge, but two thirds of those are in Africa, as are 83 per cent of the parliaments that identify unreliable electric power as a challenge. The top three challenges (financial resources, staff capacity and member knowledge) are issues for parliaments regardless of size or income level. As shown in Figure 12, inadequate financial resources are seen as almost as big a challenge in high-income as in low-income countries, staff capacity as a bigger challenge in high-

¹⁰ See ipu.org/PDF/publications/wepc2009-e.pdf

Table 8 Most important improvements made possible by ICT in the past four years (n=108)

	All	Low-income	Lower-middle-income	Upper-middle-income	High-income
Increased capacity to disseminate information and documents to members and staff	86%	81%	94%	72%	89%
More timely delivery of information and documents to members	75%	75%	56%	86%	68%
More interaction with citizens	48%	31%	56%	52%	47%
More efficient preparation of legislation	47%	44%	25%	55%	49%
More timely publication of reports of plenary proceedings	59%	63%	81%	59%	47%
More timely publication of reports of committee proceedings	46%	50%	50%	52%	36%
More information and documents on the website	89%	94%	69%	100%	81%
Exchange of information with other parliaments	36%	44%	25%	55%	21%
Increased capacity to disseminate information to citizens	55%	56%	63%	52%	49%
More communication with young people	33%	25%	38%	41%	28%
Better management of documents	58%	63%	56%	59%	51%
Open data	46%	44%	38%	41%	49%
Existing online documents presented in more accessible ways	69%	69%	69%	62%	68%

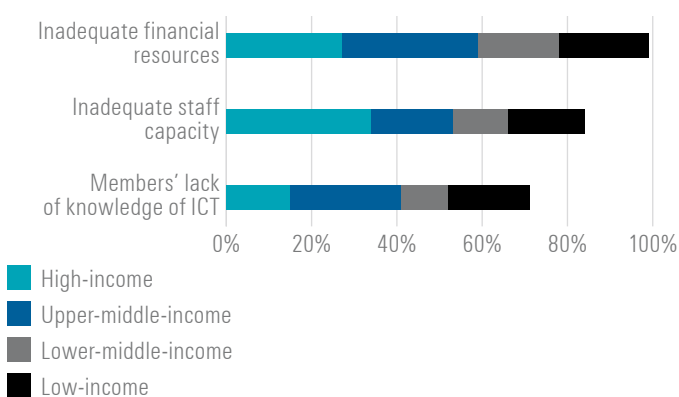
Figure 11 Indicative comparison of perceived improvements made possible by ICT (2012 and 2016)**Table 9 Technologies that have been introduced or used in new ways in the past four years (n=112)**

Systems for putting information and documents on to websites	74%
Audio and/or video capture of proceedings	70%
Social media such as Facebook and Twitter	69%
Mobile communication devices	58%
TV broadcasting of plenary sessions	53%
Document repositories	47%
Systems for ensuring the preservation of documents in digital format	46%
Open-source software	43%
Systems for creating and editing documents	42%
Mobile communication applications for members	39%

Table 10 The parliament’s biggest challenges in using ICT effectively (n=106)

Inadequate financial resources	58%
Inadequate staff capacity	49%
Members’ lack of knowledge of ICT	43%
Lack of a strategic plan for ICT	23%
Lack of engagement by the leaders of the parliament	21%
Lack of support from international donor community	15%
Involving citizens in the process of developing technology solutions	13%
Lack of access to good practices	11%
Lack of control of financial resources	10%
Insufficient ICT market and vendors in the country	9%
Access to the Internet for citizens	8%
Inadequate Internet access in the parliament	8%
Unreliable electrical power	6%

Figure 12 Top three ICT challenges by income group (n=106)



income countries and member knowledge as a bigger one in upper-middle-income countries.

The challenges identified by respondents remain consistent with previous editions of the World e-Parliament survey. In 2012, parliaments reported inadequate financial resources (59%), inadequate staff training (47%) and members’ lack of knowledge (33%) as their biggest challenges.

Summary

The 2012 report concluded that parliaments were at that time hampered by a lack of access to best practices and a lack of support from the international donor community. It

suggested that human and financial resources remained the most important challenges for legislatures seeking to use ICT effectively. The report’s authors identified possible solutions, including better training for ICT staff, more effective strategic planning, enhanced international cooperation, and the intelligent adaptation of advances in technology offering lower-cost options. Such advances might include open-source solutions, which would allow others to interrogate, add value or collaborate.

Four years later, this 2016 report identifies the same strategic barriers: inadequate funding, lack of staff capacity and lack of member knowledge. Funding in the current global economic climate remains as likely to be an issue in high-income as in low-income countries, as parliaments are directly subject to wider constraints on public spending. These are strategic, systemic challenges. Yet the focus of most parliaments, in terms of achievements over the past four years and improvements planned for the next two, is heavily geared towards the management of information and publication, the adoption of systems and tools to improve parliamentary processes and interaction with the public.

These strategic barriers are clearly holding back the operational and technical development needed to improve, limiting progress and potentially, at worst, creating a cycle of failure. These barriers need to be articulated, addressed and resolved at the strategic level, e.g. through more effective vision and strategic planning, processes could be used to unblock operational constraints.

Previous reports had suggested that where ICT strategic planning was taking place it was being done well, but the 2012 report highlighted the relative paucity of vision statements (only 40 per cent at the time) as a cause for concern. As now being reported these statistics have improved, but the low percentages for strategic planning and updating processes remain a concern: overall, 60 per cent of parliaments do not have a process in place to manage and update their ICT strategy against a vision statement, and 20 per cent of those with strategic plans (14 per cent of all parliaments) have no vision in place to drive them. And as shown in Table 6, only about a third of parliaments have strategic plans or visions *and* involve their most senior ICT staff members, such as the director of ICT, in managing them.

The increased focus on publication, dissemination and open data, in particular, are welcome and encouraging developments, but these are inherently operational matters. There is a strong inference in these findings, and in earlier reports, that parliaments focus too much on the operational side of ICT and not enough on the strategic benefits and transformational potential that ICT clearly offers. This is reflected in the limited involvement of ICT managers in the senior management teams of responding parliaments. It is also clear, and should be given strategic consideration, that open data is worthwhile only if citizens can understand and use it. It must not be assumed that citizens are aware the data exists or have the skills, knowledge and resources to use it effectively.

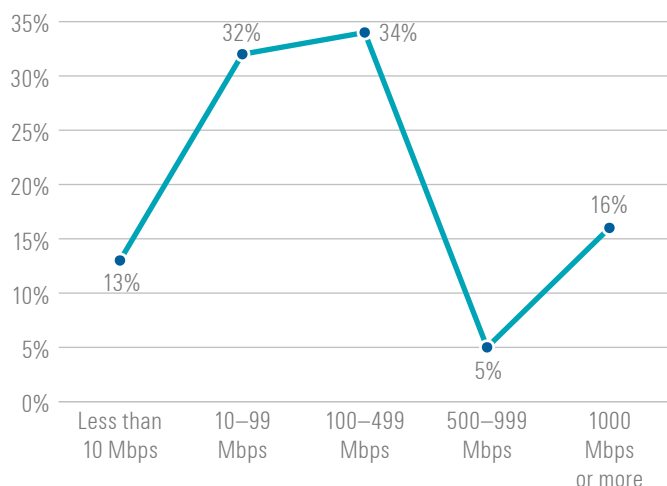
Infrastructure, services, applications and training

The second section of the survey concerns how parliaments deliver and manage day-to-day ICT operational capabilities, systems and infrastructure, as well as the soft services needed to support such efforts, provide user support, and plan and manage projects.

We often take the benefits of new digital technologies for granted, but their use in fact depends on a reliable supply of electricity. Most of the responding parliaments (90%) say they have that, but 10 per cent do not (compared with 12 per cent in 2012 and 14 per cent in 2010). Four fifths (83%) of the parliaments reporting unreliable power supplies are in Africa; the rest are in Asia and the Middle East.

It is increasingly seen as necessary to connect parliament, its members and its staff with the outside world and this is reflected in the fact that 96 per cent of the responding parliaments report having a direct Internet connection and that only 2 per cent have neither a connection nor plans to provide for one. Of those parliaments with a permanent Internet connection, 91 per cent consider its reliability at least “adequate” and of those, 33 per cent consider it “more than adequate” for their needs. This is consistent with the data reported in 2012, suggesting that bandwidth is keeping pace with increased Internet demand and use over this period. Eighty-two per cent of the respondents indicated satisfaction with connection speed; 19 per cent characterized performance as “not adequate”.

Figure 13 Parliamentary bandwidth (Mbps) (n=96)

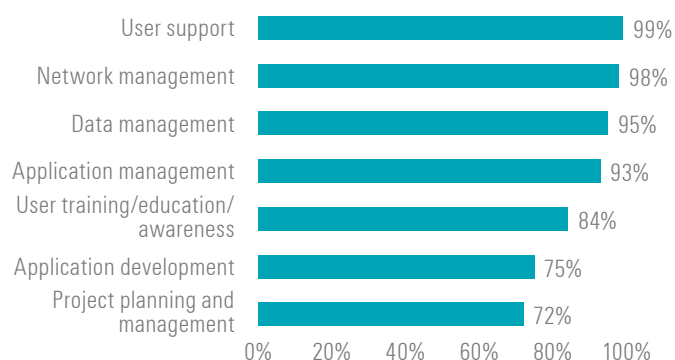


This represents a slight improvement: 81 per cent indicated satisfaction in 2012. But there has also been a significant increase in Internet speed, from a median of 12Mbps in 2012 to 100Mbps in 2016.

As shown in Figure 14, almost all parliaments have the capability to manage their ICT networks and 98 per cent provide support to their users. Project planning and management and application development are the two ICT

tasks least available internally (about three quarters of the parliaments have some internal capability in these areas). These are project-based rather than operational functions and are therefore more likely to use external and short-term resources (as reflected in the balance of full-time internal staff versus external contractors used by parliaments, as discussed earlier).

Figure 14 ICT services available in the parliament (n=112)



While 93 per cent of responding parliaments provide email services to members and staff, only 18 per cent provide website-related services, slightly less than the 20 per cent recorded in 2012. It might be expected that the parliaments providing this service would be in countries where Internet uptake is relatively lower and adoption more recent, so it is perhaps surprising that over half of these parliaments (55%) are in high-income countries, and a further 20 per cent in upper-middle-income countries. Forty per cent were from parliaments with more than 300 members. Few parliaments (14%) provide social media accounts directly to members, something parliaments might generally consider to be a personal decision for members to create or not.

Internet access within parliament was indicated as available for members by 96 per cent of the respondents (an increase from 86 per cent in 2012) and for staff by 99 per cent. Only 49 per cent of the respondents say they provide remote access to a parliamentary network or digital service for members (60 per cent for staff); around four fifths have a parliamentary intranet system (for the members of 77 per cent of the responding parliaments and for the staffs of 80 per cent).

Almost all of the responding parliaments (98%) provide office equipment for parliamentary staff, as might be expected, but only 84 per cent do so for members. Almost two thirds of the parliaments (64%) provide laptop computers for members but fewer than half offer tablets (46%) or smartphones (49%).

Figure 15 Parliaments providing ICT equipment for their members (n=112)

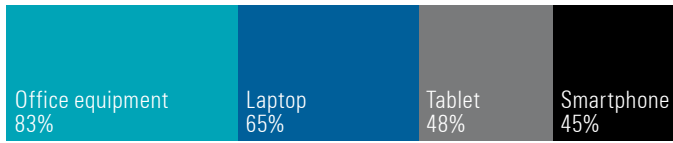
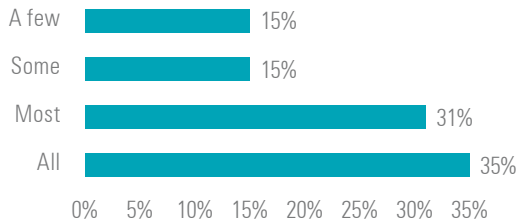


Figure 16 Members using parliamentary email (n=110)



The availability of email within parliaments may be considered ubiquitous but that does not mean members actually use a parliamentary email account. As shown in Figure 16, among the responding parliaments that provide parliamentary email service, only 35 per cent say it is used by “all” members, 31 per cent say it is used by “most” members, and 15 per cent say it is used by only “a few” members.

Of course, an official parliamentary email account is not the only way for members to communicate: they often use separate, private email accounts outside of parliament, as indicated by 91 per cent of the responding parliaments. Even in the 35 per cent of parliaments where “all” members use (or at least have – it is impossible in a survey of this nature to measure actual or effective use) a parliamentary email account, they also “all” use an external or private email address. In only 9 per cent of parliaments where “all” members have internal email do no members appear to use external email in their parliamentary business. In the 15 per cent of parliaments where only “a few” members have a parliamentary email address, two thirds (64%) report that “most” members use an external or private email address. This suggests that the overwhelming number of parliamentarians could choose to have and use an official parliamentary email address but that many still retain an alternative email address, too.

The survey included questions to determine why members do not use parliamentary email accounts, and the primary reason given is a preference for using an existing email account. This could be a matter either of convenience (it is simpler to administer or is already well known) or of security and control (reflected in some of the other reasons given). It is a cause for concern that almost one quarter of the responding parliaments suggested that members do not adopt parliamentary email because they are “not interested” in it. Given that “Members’ lack of knowledge of ICT” was stated as a barrier to the more effective use of technology by 43 per cent of parliaments (discussed earlier), it is evident that challenges remain in quantifying the benefits of digital tools in the representational system. Distrust of their IT department was cited as a minor concern for some members. Other reasons given for not using parliamentary email accounts

include being representatives in dual institutions (regional and national), convenience and familiarity in the constituency.

There is also some adoption lag evident in the way access is provided to shared documents within parliaments. Despite the proliferation of cloud-based storage solutions, only one in ten of the parliaments now use them. Three quarters (75%) provide access to shared documents via a drive on an internal network, and just over half (52%) do so via a web-based intranet system. Slightly fewer (47%) use an electronic document and records management system (EDRMS). Almost one in five of the parliaments (17%) do not make any shared drive capability or intranet functionality available to members or staff to share documents, meaning that files must be stored locally and shared via either email or removable storage devices.

Parliaments seem to have embraced the use of wireless networks (wi-fi): only one of the 112 parliaments responding to this question reported not having any kind of wi-fi for its members (see Table 12). This is a notable improvement relative to 2012 (when 83 per cent offered wi-fi) and 2010 (77%). In addition, 90 per cent of the responding parliaments provide wi-fi access to staff and 63 per cent make it available to the public (with an additional 4 per cent planning or intending to do so in future).

Table 11 Reasons for not using parliamentary email (n=94)

Prefer to use existing account	74%
Privacy	36%
Not interested in	22%
Other	20%
Lack of training	19%
Security	17%
Distrust of IT department	11%

Figure 17 Access to shared documents (n=112)

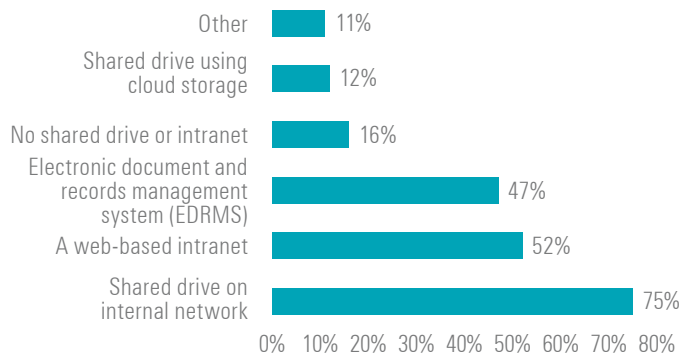


Table 12 Availability of wi-fi networks within parliament (n=112)

For members	99%
For staff	90%
For the public	63%

Supporting ICT users in parliament

The complexity and reach of ICT in parliament is significant and increasing. As digital systems and tools now underpin the core business of parliaments, it is vital that they have in place processes and procedures to manage their up-time and ensure that users are receiving an appropriate level of service. One way to do this is to enter into service level agreements (SLAs) to ensure that those providing support to end-users are contractually bound as to the scope of their role and that clear expectations about response times and remediation are available in writing. This is considered best practice for parliamentary ICT. It helps parliamentary ICT staff manage service and support, ensures that those providing this support fully understand the scope of their role and establishes clear expectations for end-users.

Ninety per cent of parliaments have written SLAs in place with at least some of their external suppliers and 58 per cent have agreements in place with all of them. This is a significant increase relative to 2012, when 77 per cent of the respondents had SLAs in place, and to earlier surveys, and it suggests a strong pattern of recognition for the importance of such agreements. In 2012, 10 per cent of the respondents had no such agreements but were planning to introduce them; that figure has now fallen to 4 per cent, and only 3 per cent have no plans to introduce them (down from 8 per cent in 2012). Five per cent of the responding parliaments do not use external contractors so the question does not apply.

Though perhaps less traditional, and still somewhat exceptional, it is also a relatively common practice for parliaments to establish SLAs for some or all of their *internal* service and support providers: 30 per cent reported doing so in the 2016 survey; 32 per cent, on the other hand, say they have no such internal agreements and no plans to introduce them.

Commercial software and services continue to dominate the ICT infrastructure within parliaments. As shown in Table 11, such software is being used by 90 per cent of the responding parliaments for their servers, by 96 per cent for their desktop PCs and by 95 per cent for their laptops. But open-source software is starting to make in-roads: 57 per cent of the respondents use some form of open-source software for servers and a third do so for network operations.

Altogether, 75 per cent of the survey respondents in 2016 (and 80 per cent in 2012) reported using some kind of open-source service or application. Yet, as shown in Table 13, commercial software tends to predominate when it comes to core 'office' functions, such as word processing (95%) and spreadsheets (90%). It is in the area of web-based tools that open source is increasingly proving a popular choice, with 29 per cent using it for web publishing and 38 per cent for content management systems.

Open-source services and applications are particularly attractive to parliaments with limited budgets, as reflected in the findings of earlier World e-Parliament Reports. It is therefore unsurprising to see a continuing trend towards their use in smaller parliaments and those in lower-income

Figure 18 Service level agreements with external and internal ICT service providers (n=105)

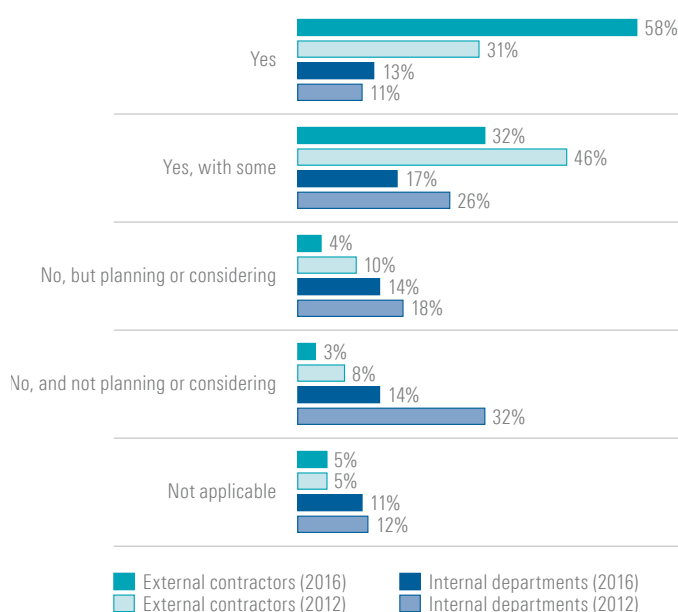


Table 13 Use of commercial and open-source services and applications (n=112)

	Commercial	Open source
Operating systems for servers	90%	57%
Operating systems for virtual servers	77%	29%
Network operations	88%	32%
Security	88%	29%
Operating systems for desktop PCs	96%	13%
Operating systems for laptop PCs	95%	8%
Content management	61%	38%
Document management	62%	21%
Databases	87%	37%
Email	77%	21%
E-learning	18%	17%
Word processing	95%	15%
Spreadsheets	90%	13%
Presentations	93%	12%
Publishing (print)	79%	7%
Publishing (web)	71%	29%
Electronic resource management	42%	13%
Online library catalogue	56%	18%

countries. That trend is bolstered by international efforts to create open-source tools for parliaments, such as the Bungeni parliamentary information system and the Akoma Ntoso set of XML standards for parliamentary documentation. The parliaments in low-income countries tend to use open-source applications or platforms across a broader range of areas than the parliaments in high-income countries.

One of the challenges with open-source applications and services can be the incorrect assumption that they entail no cost. Part of the package might indeed be cost-neutral, but parliaments must still support such products, just as they do in the case of commercial software. For small parliaments or those with limited ICT resources this can itself prove a challenge. Overall, 86 per cent of the parliaments that use open-source solutions provide their own support through internal staff, but the figure is actually higher for the parliaments in low-income countries (92%) than high-income ones (84%). The latter are more likely to outsource this service to a local but external contractor (71%) than parliaments in low-income countries (31%). This greater reliance on internal support likely reflects a lack of local support opportunities for open source applications and services. But such parliaments do not use international contractors either, as parliaments in middle-income countries are more likely to do. One in five of all the responding parliaments (18%) do not have formal support arrangements in place for the open source solutions they use.

Table 14 How parliaments support open-source services and applications (n=84)

	Internal staff	National contractor	International contractor	No formal support arrangement
Low-income	92%	31%	0%	8%
Lower-middle-income	87%	33%	7%	27%
Upper-middle-income	84%	44%	12%	20%
High-income	84%	65%	6%	16%
All	86%	48%	7%	18%

How ICT supports parliamentary functions

As shown in Table 15, less than one quarter of the responding parliaments (22%) have an IT system to support the analysis of government budgets. Four out of five (79%), on the other hand, use IT systems to record the minutes of plenary sessions. It is of course likely that some of the functions shown are not performed by some parliaments – budget analysis in the United Kingdom, for instance, which has an independent Office for Budgetary Responsibility. It is also likely that individual members will use their own IT equipment and systems in some instances, such as asking questions of government, without this being captured by the data.

Table 15 IT systems in place for parliamentary functions, activities or services (n=111)

Plenary functions	
Minutes of plenary sessions	79%
Plenary calendars and schedules	78%
Plenary speeches and debates	78%
Database of laws passed by parliament	74%
Plenary voting	67%
Bill status/tracking	64%
Amendment status/tracking	55%
Questions to the government	50%
Amendment drafting	45%
Bill drafting	42%
Other scrutiny documents	31%
Analysis of budget proposed by the government	22%
Committee functions	
Committee reports	72%
Committee calendars and schedules	70%
Minutes of committee meetings	68%
Committee websites	52%
Administration and support functions	
Management and support of website for parliament	91%
HR system	77%
Financial management system	76%
Digital archive of parliamentary documents	68%
Management of library resources	59%
Online library catalogue	57%
Systems for communicating with constituents	56%
Financial disclosure	38%
Management and support of member websites	21%

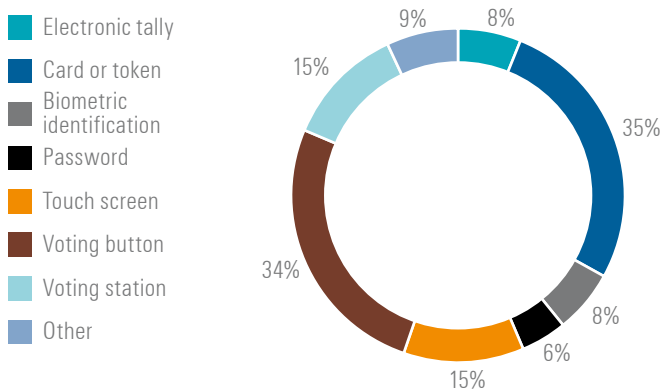
The next section examines in more detail how ICT is being used to support, enhance and enable a range of parliamentary functions.

Plenary and committee room systems

Sixty-seven per cent of the respondents reported using some form of IT system to support voting in the plenary chamber; out of the remainder that still vote manually, 72 per cent say they are considering the introduction of electronic systems going forward. The parliaments that have already gone digital employ a wide range of systems and methods for plenary voting. The most popular entail the use of a card or token for member identification (35%) or of voting buttons installed directly at members’ seats (34%). A secondary level of authentication may also be used (such as a biometric identification system, currently used by 8 per cent of the responding parliaments, including the Italian Chamber of

Deputies). Another 8 per cent employ manual systems for member voting but digital systems to tally the votes. In the United Kingdom’s House of Lords, for instance, MPs vote by walking through a lobby but clerks tally the vote using a tablet application.

Figure 19 Type of voting system used in the plenary room (excludes manual; n=112)



Both plenary chambers and committee rooms are increasingly starting to incorporate audio-visual and video systems to enhance debates and sessions, support presentations and even allow for video-conferencing. Sixty-seven per cent of the responding parliaments already use large-screen systems for text display in their plenary sessions and a further 19 per cent intend to; 44 per cent use such systems in committee rooms. Bidirectional video conferencing appears to be the large-screen technology least used in plenary chambers (by only 15 per cent of the responding parliaments) and is the only audio-visual technology used more often in committee rooms.

Table 16 How large display screens are used in plenary chambers and committees (n=100)

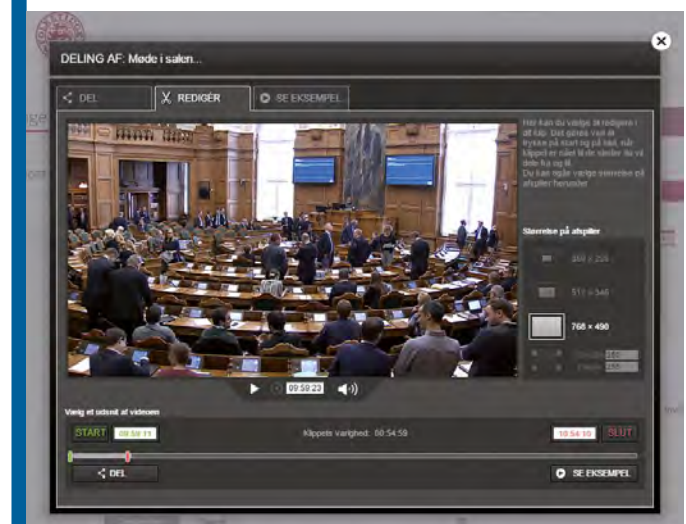
	Plenary		Committees	
	Using	Planned	Using	Planned
Display of text	67%	19%	44%	20%
Display of graphics	56%	12%	38%	17%
Still pictures	42%	10%	33%	15%
Video streaming	54%	16%	36%	19%
Video conference	15%	16%	24%	14%

Very few parliaments provide computer technology directly for members’ use in the plenary chamber. Sixteen per cent equip their chambers with desktop computers, and 23 per cent with laptops or netbook devices, for member use. A further 12 per cent are considering this latter option for the future. Fewer than a quarter of the responding parliaments (22%) provide tablet devices for member use in the plenary. Just over a quarter provide touch screen devices (26%), which may be connected to a parliamentary management system and used for activities such as voting. Twenty-four per cent of the respondents are considering this option.

In terms of recording plenary sessions, 69 per cent of the respondents already use automatic video recording software (12 per cent are considering it), and 61 per cent have the capacity to integrate such recordings with live-streaming via the Internet or to quasi-automatically upload video content to a webserver. Though concerns often arise over the misuse of such video content, parliaments are increasingly making live-streams and recordings available to the public in ways that allow them to extract parts of debates or speeches. Providing more open access to video content has been challenging for many parliaments, which are often concerned about the potential for misuse or inappropriate use. This means that parliamentary content is often licensed in a way that makes it open and accessible but that also restricts the use of or makes disclaimers for the content provided.

Parliaments in Denmark, the United Kingdom and other countries are providing tools on their websites allowing the public to save and copy video clips from plenary or committee rooms. These can be reposted to social media channels or embedded on other websites. These short segments are a powerful way to highlight specific portions of a long debate. The United States of America Congress has a similar system available internally to provide short clips to members’ offices, which in turn can repost them.

Figure 20 The public can select, share and download video extracts from the Danish Parliament



Video is a powerful tool for building awareness and engaging the public in the work of parliament. Verbatim records of plenary sessions are also critically important, especially for internal use. Digital tools are a vitally important part of that process: two thirds of the responding parliaments (63%) prepare transcripts directly on a computer; one third (35%) prepare them by hand and then transcribe the content to a digital format; 14 per cent use a stenographic machine to create digital transcripts; and 12 per cent use voice recognition technology. Figure 21 shows a subset of methods for capturing verbatim reports, highlighting a shift away from manual methods to the use of digital technologies to directly capture proceedings.

Figure 21 Changing patterns in capturing verbatim reports (2010–2016)

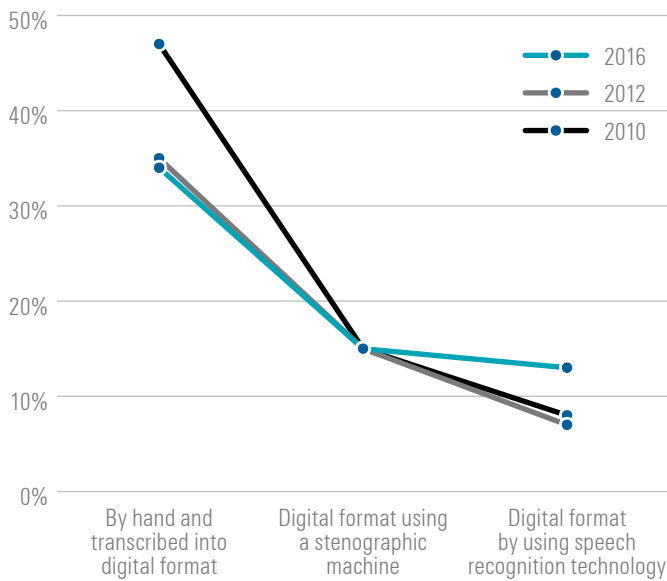
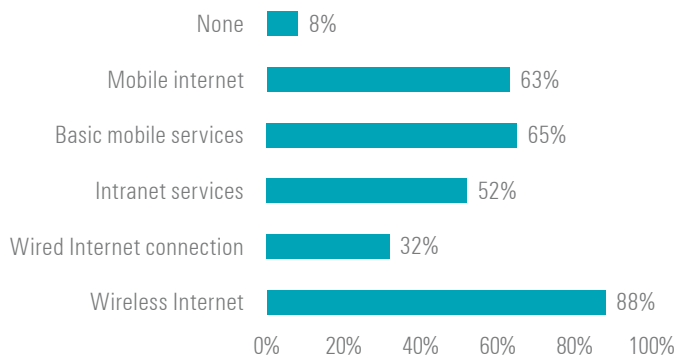


Figure 22 Connectivity available to members in the plenary room (n=112)



ICT availability and connectivity during plenary sessions have become important features for many members, who often interact with the public during debates via tools such as Facebook and Twitter. To do this they need both a device, either their own or one supplied by the parliament, and a network to connect through. Eighty-eight per cent of the responding parliaments make wi-fi available to members in the plenary room, and 32 per cent offer a wired Internet connection. Half of the parliaments (52%) provide access to the parliamentary intranet and 63 per cent report that the plenary room has advanced, data-capable mobile phone connectivity. This finding reflects the rapid increase in the adoption of mobile devices, whether these are 3G or 4G smartphones, wireless-enabled tablets or laptop computers. It shows that Internet connectivity within the plenary chamber is well established and an important resource for members.

The vast majority of parliaments now allow digital devices to be used within the chamber, even when Internet access might not be available. Ninety-three per cent allow tablets, 74 per cent allow Internet-enabled smartphones and

63 per cent permit members to take laptop computers or netbooks into the plenary room. Many parliaments have rules governing member use of such devices during plenary sessions. Typically, these relate to existing parliamentary protocol and behaviour (so, where members are not allowed to read a speech from printed copy they would not be allowed to read from tablets, either). Most commonly rules insist on devices being muted and ban voice calls within the chamber; the use of data services on the other hand is generally allowed where connection is provided or permitted. A small number of parliaments impose some form of device registration or control to ensure that only authorized devices are connected within the plenary room. The Chilean Senate has, but has never exercised, the power to block the connection of data and voice devices within the plenary room. The Lebanese Parliament subjects access to security requirements in place at the time.

ICT training for staff and members

Maintaining and developing staff skills and knowledge is a challenge for many parliaments, and half of the respondents identify inadequate staff capacity as a major issue for them. Nine out of ten of the responding parliaments provide training in the use of IT services and systems (70% provide it for members and 88% do so for staff). Survey respondents were asked to identify the top five training priorities and these are primarily in technical areas (a word of caution here: the survey is focused on digital technology in parliament).

Table 17 Top priorities for training (n=104)

Security	64%
Systems administration	54%
Application development and maintenance	46%
Data network operations	39%
Document management systems	35%
Website management	34%
Mobile devices (tablets and/or smartphones)	29%
Office automation (word processing, spreadsheets, presentations)	28%
PC support	25%
Email	23%
Help desk	19%
Systems programming	16%
Document standards	13%
Social media	13%
Internet access	13%
Webcasting (video and audio)	9%
Online tools for citizen engagement	4%
Voice communications	2%

Summary

The Internet has become a nearly ubiquitous tool in parliaments, and digital tools are increasingly cemented into their core operations and procedures. Most of the responding parliaments consider their Internet access adequate for their needs and reliable. This was also true of previous surveys, but the median speed of Internet connections has risen significantly over the years – from 12Mbps in 2012 to 100Mbps in 2016. The increasing importance of ICT is reflected, too, in the expanded use of SLAs with external suppliers and, as an emerging trend, with internal IT departments as well. It is also reflected in the reduced number of parliaments that capture the verbatim record of plenary proceedings by hand and the increasing use of new technologies, such as speech recognition, within the chamber.

While commercial software is still more widely used, three quarters of parliaments now use at least some open-source software. Yet despite the increasing application of ICT, the findings reveal persistent barriers and resistance to its use.

Electronic voting systems, or digital voting system components, have become embedded in the majority of plenary chambers, consisting mostly of card-based systems and voting buttons. This has happened for various reasons, such as to reduce corrupt voting practices, speed up the counting process, and increase transparency.

Wireless networks are commonplace within parliament. Though marginally more often provided for members, they

are increasingly being made available for staff. This makes for more flexible working options and supports a variety of digital tools, so that staff are not anchored to a wired network. There has also been an increase in the provision of wireless access for visitors to parliament. In some cases, this is managed or restricted to individually identified visitors but is more often made available to all members of the public.

Email has become ubiquitous across parliaments but is not always used consistently or effectively. Only 35 per cent of the responding parliaments report that parliamentary email accounts are used by all members; nine out of ten report members using private email in addition to or instead of their parliamentary accounts. The main barrier to using parliamentary accounts appears to be preference for an existing email account, though it is not clear why. Of far greater concern is that a lack of knowledge of ICT is seen as a barrier to effective use by 43 per cent of parliaments.

Few parliaments provide digital technology directly to members, but most are relaxing their regulations on the use of digital tools within the plenary chamber. This is now becoming not only commonplace but accepted and seen as part of the business of the chamber. While some parliaments have specific regulations about what devices can be used and when, most allow the use of tablets and smartphones, particularly in the context of standard parliamentary procedure (for example, it is clearly not acceptable to make voice calls in the chamber but the use of email or social media is mostly permitted).

Systems and standards for creating legislative documents and information

Digital systems are well-established tools for the creation, editing and archiving of documents, and the legislative environment is no exception. Digital methods and their underlying processes now allow parliaments to create systems that underpin the legislative, representative and oversight work of parliaments. This ranges from digital copies of the official parliamentary record to the complexities of shepherding legislation through parliament. It can include such things as the management of workflow, the tracking of amendments and the ability to see the impact that an amendment would have on the meaning of a bill.

Systems for managing parliamentary documentation, such as legislative text and plenary proceedings, are designed to make parliaments more efficient, improve the quality of information and better manage the increasing scale and complexity of information and documentation. Such systems are also a starting point for improving transparency since more modern document systems not only work through the full lifecycle of different parliamentary processes but can also support the publication of this information, increasingly using open standards. Parliaments that do not have such systems can be hampered in their abilities to effectively manage information and to track and make sense of such things as bill amendments and how they relate back to the original draft legislation. The modern e-parliament benefits greatly from modern documentation management systems and the workflow practices they permit.

Half of all the parliamentary respondents (49%) have a system for managing the text of bills in digital format as they move through the legislative process. Another 39 per cent are planning or considering the implementation of such systems. These figures are largely consistent with previous surveys reported in 2010 and 2012. A worrying trend in itself, especially in low-income countries, is the persistent reporting of parliaments planning or considering new systems without evidence that they ever actually adopt them.

Document management systems

Both the 2010 and 2012 surveys revealed significant disparities between parliaments in high-income and low-income countries in the adoption of document management systems for managing legislation. Only 10 per cent of the low-income parliaments responding to the 2012 survey had such systems in place; a further 75 per cent said they were planning to implement one or considering the idea. This imbalance continues in the latest data set: 70 per cent of the parliaments in high-income countries, but only 6 per cent of those in low-income countries, have such systems in place. As shown in Figure 23, there is a direct correlation between income and the availability of systems to manage legislative texts and amendments.

Figure 23 Parliaments with systems for managing the text of bills, by income groups (n=108)

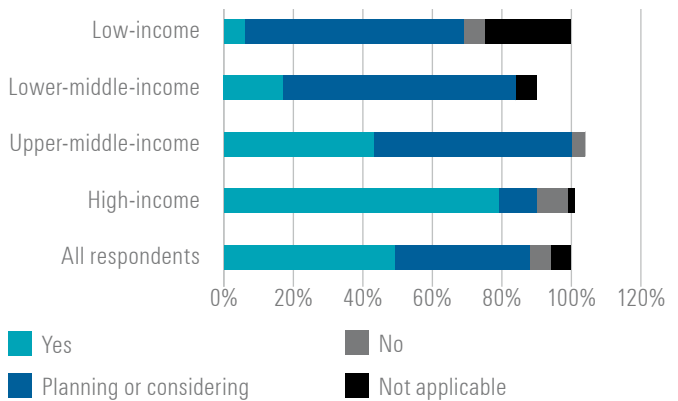
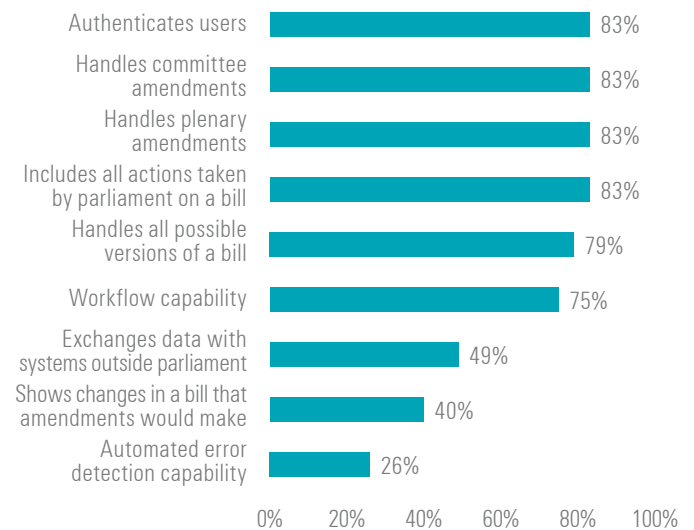


Figure 24 Features of document management systems for bills (n=57)



Where parliaments do have such systems in place, Figure 24 shows their capabilities. Most are able to authenticate users, handle committee and plenary amendments and record the actions taken by parliament (83% in each case). Seventy-nine per cent can handle all possible versions of a bill and three quarters (75%) have a workflow capability. Significantly fewer systems (49%) can exchange data with systems outside parliament (most often for legislative drafting systems used by government departments). Only 40 per cent are capable of showing the changes to a bill that an amendment creates.

Previous surveys have shown rapid and significant growth in the use of XML systems, rising from 35 per cent in 2010 to 47 per cent in 2012. In the 2016 survey, 69 per cent of the parliaments with document management systems reported having some XML capability. XML is used as a method for exchanging data with other systems, either internally

Table 18 Use of XML within document management systems (n=52)

Exchange with other systems	60%
Presentation on the web	44%
Integrate documents with another system	37%
Make documents available for downloading	33%
Preservation	29%
Improve searching	27%
Providing open access to external users	27%
Printing	23%
Provide accessibility for persons with disabilities	12%
Other (please specify)	2%
None, but planning or considering	23%
None and not considering	8%

Table 19 Committee and plenary document management systems (n=106)

	XML-based system	Non-XML-based system	Considering	No
Committee reports	13%	42%	32%	12%
Verbatim record of committee hearings	18%	43%	34%	5%
Minutes of plenary sessions	14%	43%	29%	13%
Plenary speeches and debates	24%	48%	26%	3%
Plenary votes	24%	45%	24%	8%

or externally, by 60 per cent of these parliaments and for presentation of information on websites by 44 per cent.

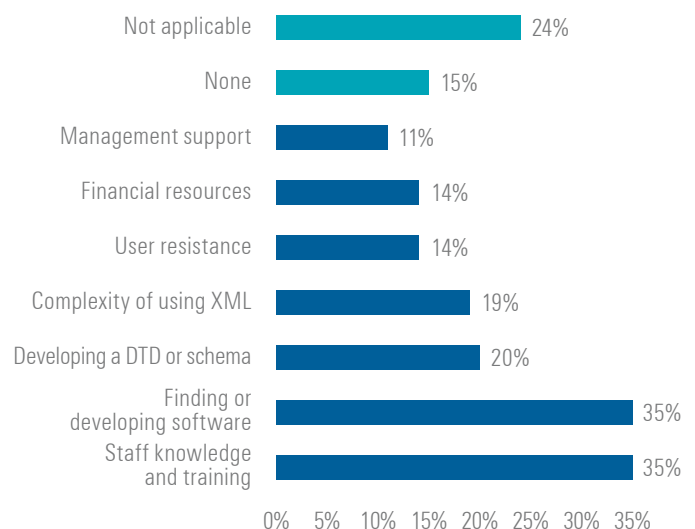
Parliaments also have an increasing range of IT systems for managing and preparing text and documentation for plenary and committee meetings. Most parliaments now have at least some kind of digital system in place for this function, but most are not yet using XML-based systems. Only a quarter of the responding parliaments have XML-based capability for plenary speeches and debates or for recording votes in the plenary (24% in each case). The figure is only 13 per cent for committee reports. As shown in Table 19, the number of parliaments using non-XML systems is consistent across function.

XML has the advantage of being accessible but requires a level of technical and analytical expertise to use effectively. Broadly speaking, the benefits arising from the adoption of XML include:

- simplifying and automating document exchange;
- better search functionality;
- ease of linking and reusing documents;

- ability to produce multiple output formats;
- ability to support multiple distribution channels;
- ease of maintaining consistency in document formatting;
- ease of preparation once set up;
- document preservation.

The adoption of XML has noticeably increased and its many benefits are well documented, particularly for the purposes of increasing parliamentary openness and exchanging documents or data. The adoption of XML is not without its challenges for parliaments, however. More than one third of the respondents (35%) have experienced difficulty in finding or developing software for authoring and editing XML and the same percentage lack the staff knowledge and training needed for its adoption. One in five parliaments report difficulties in developing the technical architecture for XML (such as the Document Type Definition (DTD) or schema) or gaining uptake for XML, owing to its complexity. Only 15 per cent reported experiencing no problems in using XML as a standard for parliamentary documentation.

Figure 25 Challenges in using XML for document management systems (n=96)**Table 20 Challenges in using XML for low- and high-income countries (n=63)**

	Low-income	High-income
Difficulty in developing a DTD or schema	25%	19%
Difficulty in finding or developing software	19%	43%
Lack of staff knowledge and training	50%	23%
Lack of financial resources	38%	4%
Lack of management support	31%	6%
Complexity of using XML	19%	21%
User resistance	31%	17%

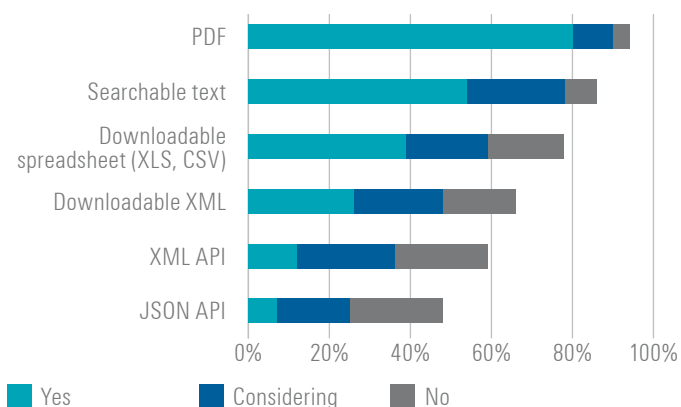
XML has clear benefits as a way to share data between systems and increase the accessibility of parliamentary data, both within and beyond parliament. Its use by parliaments has been heavily promoted. On a more cautious note, the data shows that XML is complex and challenging for parliaments to adopt. It requires new systems to be purchased, customized or developed to work with it. And such strategic changes require senior-level commitment. As shown in Table 20, these issues have created consistently higher barriers to using XML for parliaments in low-income than in high-income countries.

Making parliamentary documentation available to the public

The focus above has been on internal systems to manage the preparation and workflow of parliamentary documentation. There has been significant growth in the use of standards and processes that make documentation (and data) more easily shareable and publishable, and this is important to the internal operation of parliament. It is also creating significant opportunities to share more and more detailed documentation and data with those outside of parliament. This is a much more recent trend for parliaments, so much so that previous World e-Parliaments barely touch on it. The 2012 report noted the value of citizen-facing XML and gave some examples of where open-data initiatives were being piloted or considered. Four years on, it is perhaps too early to say that open data is “business as usual” for parliaments but it is certainly clear that publishing information so that it is accessible to those beyond parliament is increasingly happening in digital, and specifically machine-readable, ways. This shift creates technical challenges in terms of ensuring that the document is well structured and can be made sense of by an application or in another system. At the same time, it can shift the focus away from producing downloadable and human readable reports to technically managing linked datasets.

The Portable Document Format (PDF), a long-established way of publishing documentation, allows the format and structure of a document’s content to be fixed to ensure presentation and readability. It is therefore unsurprising that 80 per cent of respondents use PDFs to publish documents outside of parliament.

Figure 26 How documentation is made available to people outside parliament (n=106)



About the different document formats

- PDF** This is a proprietary document intended to predefine (and lock in) the formatting. It is designed to be read by people but is difficult, and in some cases impossible, for computers to read.
- XLS or CSV** A Microsoft Excel format spreadsheet (XLS) or an open-format spreadsheet format that uses comma-separated values (CSV).
- XML** Extensible Mark-up Language (XML) is a way to define rules for encoding documents in a format that can be rendered for people to read (for example, in a web browser) or can be machine-readable (that is, used by other software and applications). The aim of XML is to make information reusable and to ensure that the process of describing it is simple and does not require any prior knowledge (it is self-contained).
- XML API** An application program interface (API) is a set of protocols, software routines and tools that allow software-based applications to access, interrogate and extract data from a live data source. This means that tools can be built to access a single data source, ensuring that it is always the most up-to-date version.
- JSON API** Another way to access data or documents in a programmatic way. Whereas XML is a mark-up describing the data, JSON tools are designed around an object model.

Publishing documents in a fixed-format, such as PDF, means they are more directly accessible to people and provides a way to guarantee presentation for an audience. This makes them suitable for reports. However, PDFs are not easily (if at all) machine-readable, so software finds the structure of the PDF difficult to work with. This makes PDFs a poor tool for sharing large amounts of structured data, particularly data that someone might want to analyse or reuse.

Because PDFs are not the ideal way to share structured data, parliaments are now increasingly making their documentation available in a range of other formats, primarily as a spreadsheet (39%), most often in a comma-separated value (CSV) format or as XML (26%). Again, it is clear that parliaments in low-income countries are at a disadvantage. As systems become more complex and more expensive to implement and maintain, technological advances tend to benefit high-income parliaments disproportionately. None of the responding parliaments in low- or lower-middle-income countries reported using an API to publish data, and yet one in five (21%) of those in high-income countries did. Parliaments in low-income countries are overly reliant on closed-format documents,

such as PDFs, which makes it more difficult to reuse the information and data they produce, potentially hampering opportunities for openness and transparency. It is still a positive finding, however, that many parliaments are choosing to publish documents and the technical barriers to creating reusable data must be considered here too, as much as the need to support parliaments seeking to provide open data but constrained by limitations as to knowledge, technology and resources. The survey suggests that lower-middle-income countries are the least likely to use open publishing technologies.

Table 21 How documents are made available, by national income segment (n=106)

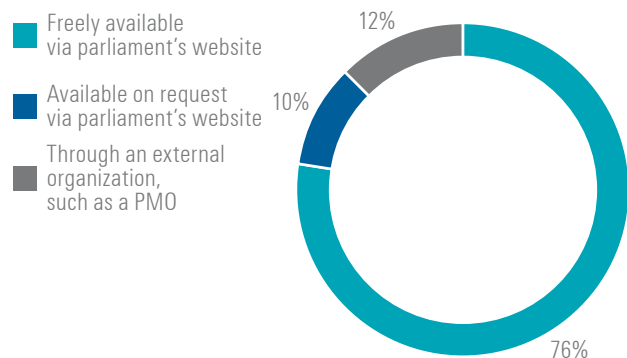
	High-income	Upper-middle-income	Lower-middle-income	Low-income
Searchable	72%	41%	28%	38%
Spreadsheet	47%	21%	28%	50%
PDF	83%	69%	61%	94%
Download XML	38%	14%	11%	25%
XML API	19%	14%	0%	0%
JSON API	15%	0%	0%	0%

Documents are also instances in time, published and therefore closed and non-updating (or updateable). Making documentation available directly from a parliamentary or third-party server through an application program interface (API) is a further step forward. An API permits another piece of software or application to actively access and query data in a live setting. The advantage of this method is that it allows third parties, such as PMOs and other civil society groups, to produce Internet-based applications to process, analyse and present parliamentary documentation in ways that are much easier to use and more accessible to the public. Twelve per cent of the responding parliaments reported making an API available using XML and a further 7 per cent did so using JSON, the two primary ways of sharing open data.

Some examples of how third-party organizations are using open-published parliamentary data are discussed in the section of this report on parliamentary monitoring organizations.

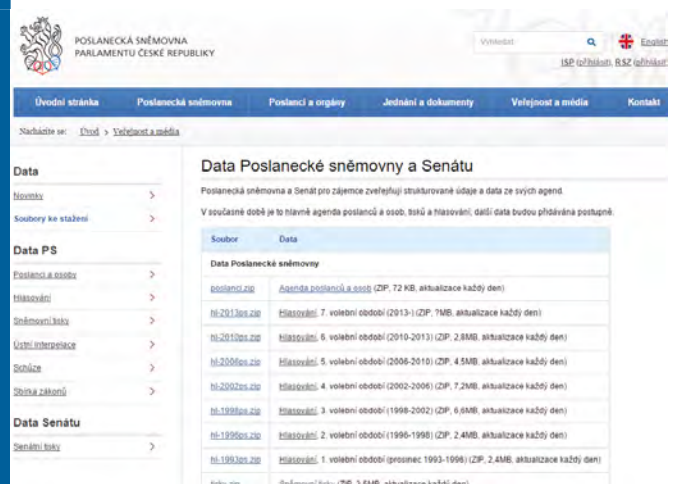
When parliaments do make data available in an open-data format, it is most often done via publicly accessible channels on the parliament's own website. This is the case for 77 per cent of those parliaments offering open data; another 12 per cent make open data available "on request" via their own website. Eleven per cent of parliaments provide or support access to open parliamentary data via a third-party organization. This might be the media, a PMO or other civil society organization (as happens in Serbia) or, as in the case of the New Zealand Parliament, via the government's open data repository (data.govt.nz).

Figure 27 How open data can be accessed when available (n=105)



The Czech parliament has been publishing data based on parliamentary documents and transactions since 2014.¹¹ With the support of local PMOs it has been able to expand the scope of this activity and can now publish datasets that cover plenary voting, information about MPs and data on individual bill proposals. The latter includes information on how bills move through the legislative process, which is seen as a valuable way to identify and measure different approaches to law-making that may not be explicitly clear from parliamentary procedure. Since the open data portal has been live, the Senate has started to release detailed data on sessions, including agendas. This data repository provides a live and dynamic view of what is happening in the parliament today but can also support an archival system for parliamentary records dating back as far as the 1920s.

Figure 28 Open data repository of the Czech Parliament



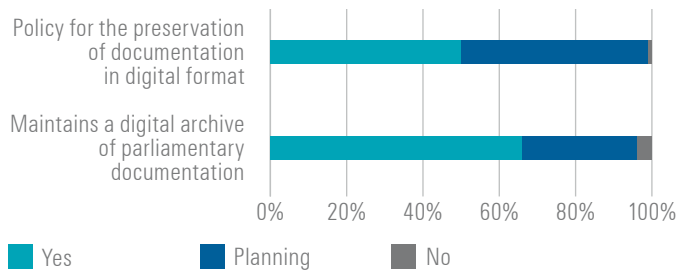
The data is not live but is published frequently and can be accessed and reused without the need to resort to developing applications, which makes it more accessible to the public, working equally well in Excel as in a custom application. The downside, or trade-off, with this approach is that it limits some of the opportunities to link data and perform more complex analysis.

11 See psp.cz/en/sqw/hp.sqw?k=1300

Archiving and preservation

Two thirds of the parliaments (66%) maintain a digital archive for parliamentary documentation. Yet only half (50%) have a policy in place to manage and control the preservation of digital documents. Another 49 per cent are considering or planning such a policy.

Figure 29 Preservation and maintenance of parliamentary digital archives (n=106)



The oldest item in the United Kingdom Parliamentary archive dates back to 1497, but only 4 per cent of the parliaments have digital archives for legislative texts going back more than 200 years. While the age of parliaments (and of their countries) varies significantly, 44 per cent can go back more than 100 years, and another third (33%) can go back between 11 and 25 years. As shown in Table 22, 24 per cent of the responding parliaments have digital archive systems for their plenary proceedings going back 10 years, while 11 per cent have digital records going back more than 200 years.

The United Kingdom Parliament offers an online archive of the parliamentary record (Hansard) dating back to 1803. Records up to 2004 are available to the public as XML-format documents.¹² There is also an experimental version of an online search tool available to access these. This demonstrates a key point for the digital archives of parliamentary documentation: while they are useful to parliamentary staff and members they primarily serve an audience beyond parliament. Given their relevance and importance for historical transparency, it is encouraging to see that the number of parliaments with at least a current digital archive has risen from only 55 per cent in 2012 to 66 per cent in 2016.

The New Zealand Parliamentary Counsel Office has published a digitized set of all legislation enacted between 1841 and 2007, with individual acts available in PDF format¹³. Canada has digitally scanned copies of parliamentary documentation dating back to 1867; Luxembourg has scanned documentation dating back to 1945. A number of

parliaments, including Guyana, India, Kenya and Republic of Korea, are in the process of creating a digital archive.

The Netherlands has an online archive of all parliamentary records between 1814–1995.¹⁴ This is a joint initiative between the States General, which incorporates both houses of parliament, and the National Library of the Netherlands. When searching this website, the document is initially shown as a scanned picture but users can choose to toggle the display into a text format. Visitors can search for terms in the scanned documents which are then highlighted on the page.

Figure 30 Rich searching of the Dutch Parliamentary archive

Tweede Kamer der Staten-Generaal 2

Zitting 1979–1980 Aanhangsel van de Handelingen

Vragen gesteld door leden van de Kamer, met de daarop door de Regering gegeven antwoorden

1583

Vragen van het lid **Duinker** (P.v.d.A.) over verrigting van de uitkering van huursubsidie aan huurders van de gemeente Noord-Koggenland. (Ingezonden 18 juli 1980).

1. Is het waar, dat huurders in de gemeente Noord-Koggenland, die het huursubsidie rechtstreeks ontvangen, nog altijd op het subsidie over het tijdvak 1979/1980 wachten omdat de departementale computer er nog niet in is geslaagd de gemeentecode na de gemeentelijke samenvoeging te verwerken?

2. Zo ja, op welke termijn verwacht u een oplossing en wat wordt ondernomen om in de toekomst verträgen van deze aard te voorkomen?

Antwoord

Antwoord van Staatssecretaris **Broeks** (Wet- en huishouding en Ruimtelijke Ordening). (Ontvangen 6 augustus 1980)

1. Grenswijzigingen die het gevolg zijn van opheffing, samenvoeging of nieuwvorming van gemeenten vragen van het geautomatiseerde informatie-systeem individuele huursubsidie de nodige aanpassingen. Bij de uitwerking van deze wijzigingen in het geautomatiseerde systeem voor het tijdvak 1979–1980 is de codering van de nieuw gevormde gemeente Noord-Koggenland op een enkel onderdeel verkeerd verwerkt. Dit had tot gevolg dat aanvragen van huurders in de gemeente Noord-Koggenland, die hun huursubsidie rechtstreeks ontvangen, nog niet opgenomen waren in het geautomatiseerde systeem dat door de computer van het Rijks Computercentrum wordt uitgevoerd.

Summary

The use of ICT for parliamentary and legislative documents is a story of inadequate resources stifling adoption internally but of a blossoming in the open publication of such documents. Half of the responding parliaments have implemented systems for managing legislative texts in digital format, about the same as recorded by previous surveys, suggesting that progress in this area may be stalling. A significant disparity observed in both 2010 and 2012 between high- and low-income parliaments in the implementation of document management systems for legislation continues to be seen in the current data. Such systems are inherently complex and highly specialized, presenting operational challenges for smaller parliaments and those with limited financial resources.

One area where the management of documentation has changed dramatically since the previous report, in 2012, is in publication technology. The uptake of XML as seen in previous reports has continued. The 2016 survey shows that the number of parliaments using XML as part of their document management systems has doubled since 2010. The primary

¹² See hansard-archive.parliament.uk

¹³ See nzlii.org/nz/legis/hist_act

¹⁴ See statengeneraaldigitaal.nl

Table 22 How many years does parliament's digital archive go back? (n=96)

	Less than 5 years	5–10 years	11–25 years	26–50 years	51–100 years	101–150 years	151–200 years	More than 200 years	N/A
Text of bills	7%	19%	33%	14%	13%	3%	3%	1%	6%
Plenary proceedings	7%	17%	28%	10%	18%	4%	6%	1%	7%

use of XML is for the sharing or exchange of documents and data with other systems and for the presentation and publication of data online.

It is in this latter area that the most significant changes in parliamentary technology have occurred in recent years. While parliaments clearly still face challenges in using XML, they increasingly see it and other open data standards as a core part of an increasing shift towards public transparency.

Pre-produced documents, such as those in PDF format, remain the most popular method of publication, but 39 per cent of the responding parliaments now make information available in an editable file format, 26 per cent as an XML file and 12 per cent through direct interface with the data itself. This latter approach allows third-party organizations to take the data parliaments produce, analyse it, share it, repurpose it and extend its reach.

Library and research services

Libraries play a unique role in parliament, bringing together parliamentary information and reference material to support the institution, its members and staff. They provide knowledge and analysis relating to the political, economic and social context of legislation and committee inquiries. Parliamentary libraries are very nearly ubiquitous: 97 per cent of the 2016 respondents reported having one, a five-point increase from 2012. Of the remainder, one has a service provided by an external library, and another is planning or considering a parliamentary library. Only one has neither library nor plans to start one.

The critical information and research role of libraries is supported and enhanced by the use of new technologies, allowing them to offer a broader and more responsive service to members. This section of the report will explore how parliamentary libraries are using digital technologies in the course of their work.

Bicameral parliaments seem to prefer having a single library to serve both chambers, the arrangement reported by 59 per cent of such respondents. One third (33%) maintain separate libraries for each chamber. Nine per cent describe other arrangements, consisting most often of separate physical libraries but a single and unified service to run them, as in Argentina, Chile and the United States. The Italian Chamber of Deputies and Senate each have their own library but the two cooperate within the framework of a joint parliamentary library project, making their services available to every member, regardless of chamber.

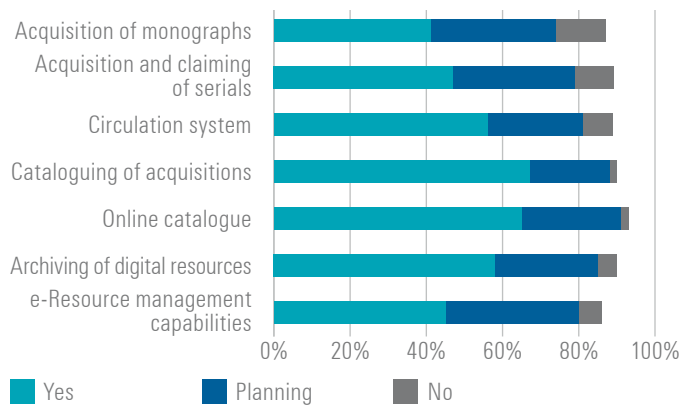
Table 23 Single or separate libraries for bicameral parliaments (n=66)

Each chamber has its own library	33%
One library serves both chambers	59%
Other	9%

Library management systems

More than two thirds of the responding parliaments (65%) provide an online catalogue. Just over half (56%) utilize an automated circulation system, and 67 per cent have systems for cataloguing their acquisitions. Fewer than half of parliaments have electronic resource management capabilities. A considerable number of libraries, typically around one third, are considering the implementation of automated systems to support various aspects of their function. Of those parliaments that have an online cataloguing system, 61 per cent are in high-income countries (versus 44 per cent of the total sample) and 6 per cent in low-income countries (as opposed to 13 per cent of the total sample). This suggests that there are issues of affordability and possible resourcing or support for small, less financially well-off parliaments.

Figure 31 Automated systems for managing library resources (n=110)



Two thirds (67%) of the libraries are connected to a parliamentary intranet system that enables them to make their services directly available to members. Around half of all parliaments offer resources relating to parliament on a website (52%) and provide a website that members and committees can access (47%). Another 31 per cent are planning or considering such a website). Sixty-three per cent of parliaments are able to accept requests and questions from members in an electronic format but only one third (35%) provide an electronic alerting service, which can include email or RSS feeds to send information automatically to members on their computers, phones or other digital devices.

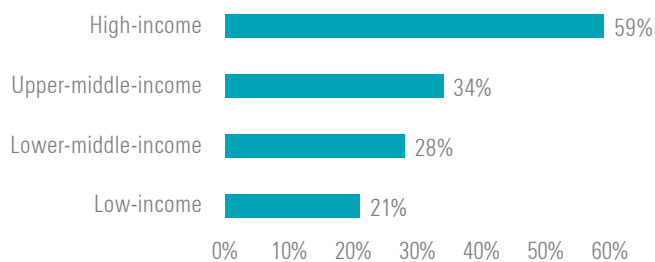
The Library of the Congress of Chile has developed a news desk system called *Pupitre* for use by parliamentarians in meeting rooms. It provides a tool to access current news stories from different sources in real time and keep up with topics of interest. The system can automatically authenticate members in the meeting room and then provide their most recent references in the news, the latest news about their political party, other news and a search function. News feeds constantly update the system as they are published. Members can review, print, share and send news articles from *Pupitre* without the need to visit or manage different news sites. The project aims to build a more informed parliamentary community and provide a tool to support their legislative work.

Sixty-three per cent of the libraries can receive requests and questions directly from members using electronic methods, but this represents a mere 3 per cent increase from 2012 and a 5 per cent increase from 2010.

Within the library's own operational sphere, ICT is also an increasingly important tool. Fifty-seven per cent of the parliamentary libraries use digital discovery tools for research and searching, and 37 per cent use open data sources. As with the wider parliamentary ICT environment, libraries make limited use of cloud storage: fewer than one quarter (23%) are reported as having access to it. Sixty-nine per cent, on

Table 24 Electronic networks and tools available to libraries (n=111)

	Yes	Planning	No
Library services are available to members through an intranet	67%	28%	4%
Resources relating to the work of the parliament are provided through a website	52%	37%	9%
There is a library website available to members and committees	47%	31%	15%
The library uses alerting services	35%	42%	14%
The library receives requests and questions from members electronically	63%	30%	5%
The library purchases subscriptions to online journals and databases	59%	31%	7%

Figure 32 Libraries using discovery tools to facilitate research and federated search (n=114)

the other hand, are reported as having digital repositories for preserving and providing access to parliamentary documents. As shown in Figure 32, library access to digital discovery tools is highly dependent on income level and heavily favours parliaments in higher-income countries. This issue obviously goes beyond access to library systems and is equally related to the ability (and opportunity) to produce such documents digitally in the first place.

Information on or about members of parliament is often available from a wider variety of sources, including parliamentary websites, media organizations and NGOs. Two thirds (67%) of the libraries collect data on member profiles; 40 per cent collect media releases from MPs; and 64 per cent collect news articles about members (some might originate from the press releases).

Providing research and other briefings on topical policy issues or current legislation is an important role for many parliamentary library and research services, provided by almost four out of five of the respondents (78%). As shown in Figure 33, this service is twice as likely to be provided by a separate research office (53%) as by the library directly (25%).

The data also indicates a correlation between the size of a parliament and where its research and analysis services are

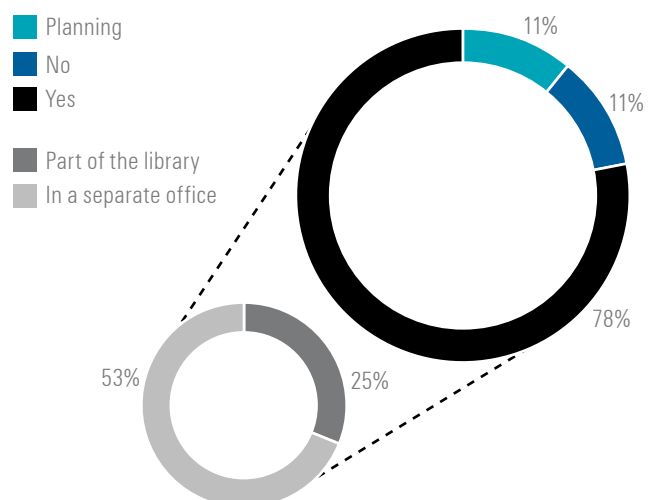
Table 25 What information do libraries collect about members? (n=91)

Member profiles	67%
News articles about member activities	64%
Media releases by members	40%
Other	11%

The Parliament of Uganda has created a daily media report for members and staff on articles about parliament, using the parliament's *Alfresco* document management system, which runs on the laptops provided to all members. The Daily Media Report is a current awareness tool designed as part of the library's efforts to keep MPs and staff informed about media coverage. The daily briefings are also summarized in a monthly report. One of the aims is to alert MPs and staff to emerging issues so that they have the time to consider possible responses.

Having studied the reading patterns, interests and needs of library users, the library discovered that MPs look in particular in newspapers for articles and information about themselves and parliament in general. The research also showed that parliamentarians and staff were often unaware of emerging issues and taken by surprise when negative stories appeared.

One tangible outcome has been to raise the readership of newspapers by referring members and staff to the source articles. It has also improved efficiency in keeping up with what is happening in the media and increased interest in news about parliament. The media reports are now so embedded in the parliament's culture that there are complaints when they do not appear.

Figure 33 Provision of research and analysis to members/committees (n=107)

located, when they are available. Larger chambers are more likely to employ specialized staff to provide research and analysis to members and committees, and such staff are increasingly being assigned to their libraries.

Figure 34 Provision of research and analysis services by size of parliament (n=107)

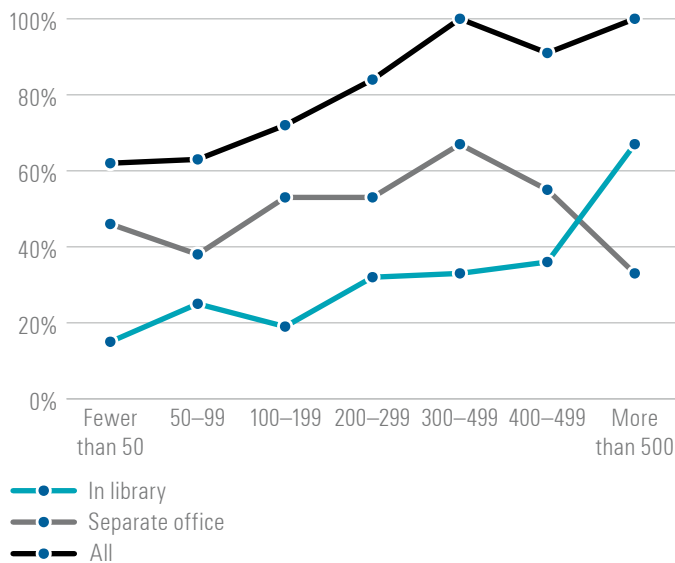


Table 26 Source of ICT support for library and research services (n=110)

	Library	Research services
Library technical staff	20%	10%
Librarians	18%	9%
Parliamentary ICT staff	89%	64%
Government ICT staff	3%	1%
Outside contractors	42%	21%
Other	0%	2%

As library and research services become increasingly reliant on new digital technologies, their systems support requirements increase correspondingly. Almost nine out of ten of the libraries surveyed (89%) get it from the wider parliamentary ICT support services, as do a large proportion of parliamentary research services (64%). Forty-two per cent of the libraries use external contractors for this purpose, and 20 per cent have their own technical staff.

Serving the public

Research conducted for the 2012 report found that 72 per cent of the parliamentary libraries studied had a mission to serve the broader public as well as their respective parliaments. At that time, 87 per cent of the responding parliaments allowed the public to visit their libraries in person, a rise from 66 per cent in 2010. For reasons that are unclear, that figure has fallen back to 68 per cent in 2016. This may reflect differences in the sample or more active promotion of the earlier survey, back in 2011. Readers are cautioned against seeing it as representing any significant diminishing trend in public access. As Table 27 shows, public access to parliamentary library resources via the Internet has

remained roughly similar (46 per cent in 2012 and 41 per cent in 2016).

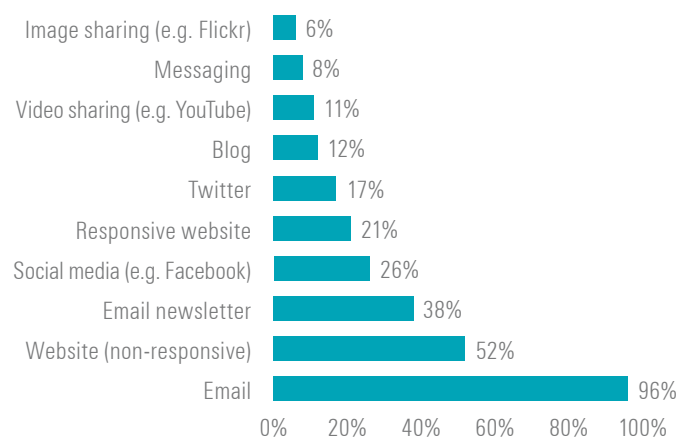
When it comes to informing, sharing information with and communicating with a wider audience beyond parliaments, these libraries, like their parliaments and society in general, are employing an increasingly wide range of digital and social tools. In 2012, 76 per cent of the libraries surveyed used no social tools for communication, and 57 per cent had no website. According to the latest data, social media use (primarily Facebook but also other related tools) has increased from 12 per cent in 2010 to 26 per cent in 2016. Use of Twitter has risen from 8 per cent to 17 per cent, and video sharing, using such tools as YouTube, has increased from 5 per cent to 8 per cent.

These increases seem entirely predictable based on the significant increase in social tools across the wider population during the period between the last two surveys. However, the use of digital tools by parliamentary libraries appears to lag behind that of the general population, whose use of Facebook, for instance, rose by over 340 per cent, compared with only 117 per cent in the case of these libraries. In terms of technology trends, 21 per cent of library websites are now responsive, which means they are designed to work seamlessly with a wide range of digital devices, reformatting content to optimize the page for either desktop, tablet or mobile phone.

Table 27 Services available to the public (n=107)

	Yes	Plan-ning	No
Visit the library and request assistance	68%	11%	17%
Access the library website	41%	29%	17%
Ask questions of the library by email	71%	15%	8%
Access internally authored research	39%	26%	20%
Other	0%	0%	7%

Figure 35 Digital and social tools used by libraries (n=101)



Library networks

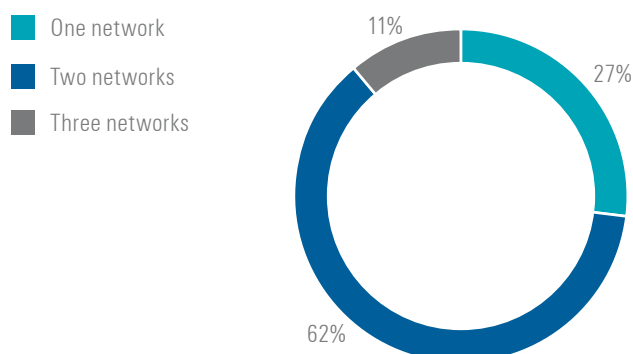
Parliamentary libraries have a strong track record of inter-parliamentary collaboration and sharing and have developed a number of global and regional networks and partnerships. The current survey shows that four out of every five parliamentary libraries (80%) are members of at least one network or association. This represents a significant rise from the 45 per cent and 64 per cent recorded in 2010 and 2012, respectively. It suggests that the value of international collaboration is increasingly recognized within the sector. As previously reported, membership and collaboration are equitable and not greatly affected by parliamentary size or income levels.

Out of the 80 per cent that belong to a network, 73 per cent belong to two or more and 11 per cent belong to three. In 95 per cent of these cases one of the networks is IFLA and the second is a regional network.

Table 28 Membership of formal networks (n=103)

	Yes	Planning or considering
AFLI – Arab Federation for Libraries and Information	6%	6%
APKN – Africa Parliamentary Knowledge Network	8%	7%
APLA – Association of Parliamentary Libraries of Australasia	4%	1%
APLAP – Association of Parliamentary Librarians of Asia and the Pacific	10%	2%
APLESA – Association of Parliamentary Libraries of Eastern and Southern Africa	10%	4%
ECPRD – European Centre for Parliamentary Research and Documentation	42%	12%
IFLA – International Federation of Library Associations and Institutions	69%	12%
Nordic Parliamentary Libraries	3%	3%
RIPALC – Exchange Network of Parliaments of Latin America and the Caribbean	4%	3%

Figure 36 Number of networks belonged to (n=82)



Summary

The modern parliamentary library is now a digital space as much as it is a physical one, relying on digital assets and communication tools to manage, research and communicate. The 2010 report observed that the increasing use of ICT was creating a growing demand for information services. New Internet-based technologies had “raised the bar for libraries by requiring that the information they provide be more current, more complete and better tailored to the individual needs of members, committees and other library clients”. This trend continued in the 2012 report as digital tools started to become normative. By 2016 this situation has matured further and it is clear from this report that digital tools, including management tools and social or publishing technologies, are now core library functions.

There is also a clear and growing demand for collaboration, with the number of libraries belonging to international or regional networks almost doubling from 45 per cent in 2012 to 80 per cent in 2016. Parliamentary libraries were also likely to be members of at least two networks and this has contributed significantly to the development and adoption of standards for the use of ICT, not only in the library and research services domain but across the wider parliamentary sector.

Parliaments online

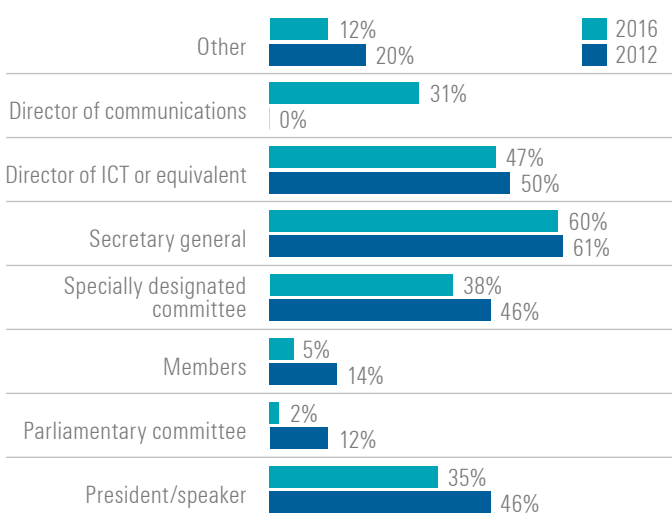
Websites have become one of the primary channels for parliaments to communicate, share information and engage with the public. As far back as 2008, 90 per cent of parliaments reported having a website, and in 2016, 100 per cent did so. It is important to remember, though, that the term “website” is broad, encompassing a wide range of content, functionality and usability. Back in 2007, when the data for the first report was collected, websites were typically static, functioning as information sources and broadcast repositories. There was little in the way of interactive tools or attempts at engagement. Today, with the proliferation of mobile devices, the social web and bandwidth capabilities, websites increasingly feature audio, video, data, far greater interactivity and the capacity to work cleanly on a wide range of devices. This in turn increases the complexity of a parliament’s web-estate and therefore the requirements to plan, manage and resource it as well as the costs of operating it.

Website planning and management

This section of the report will look at the nature of parliamentary websites, how they are planned and managed and the type of content they make available. A website’s importance to a parliament can be gauged by the level at which its strategic goals are set. For 60 per cent of the parliaments surveyed, this responsibility lies, at least in part, with the secretary general; for 35 per cent it lies with the president or speaker of the chamber. Fewer than half (47%) of the parliaments include their head of ICT in this process. In very few cases are members (5%) or parliamentary committees (2%) involved.

One third of parliaments involve neither speaker nor secretary general in setting their website’s goals. Another third (33%) include the secretary general but not the speaker, and a quarter (25%) involve both.

Figure 37 Who sets website goals (n=114)



According to the latest survey, the responsibility rests with a newly added candidate, the director of communications, in 31 per cent of the parliaments. This suggests that as websites mature as a strategic tool for parliaments they are seen less as a purely technical asset and increasingly as a tool for communication. As shown in Table 30, 42 per cent of parliaments involve neither the director of ICT nor the director of communications, and 19 per cent involve both, in defining their website’s strategic objectives.

Actual responsibility for managing a parliament’s website falls to a range of departments. The IT department is included in most cases (75%); the communications department and press office are each involved in about a third (32 per cent in both cases). Others responsible for the website include joint committees and groups, members’ individual offices and the government.

Drilling down further to operation of the live website and management of its content, one third of the parliaments involve multiple departments, each responsible for its own content. Otherwise, the role of managing content is equally split between IT, communications and the press office (19 per cent, 18 per cent and 15 per cent of respondents, respectively).

Table 29 Role of speaker and secretary general (n=114)

President or speaker	9%
Secretary general	33%
Both	25%
Neither	32%

Table 30 Role of director of ICT and director of communications (n=114)

Director of ICT	27%
Director of communications	11%
Both	19%
Neither	42%

Figure 38 Responsibility for website (n=114)

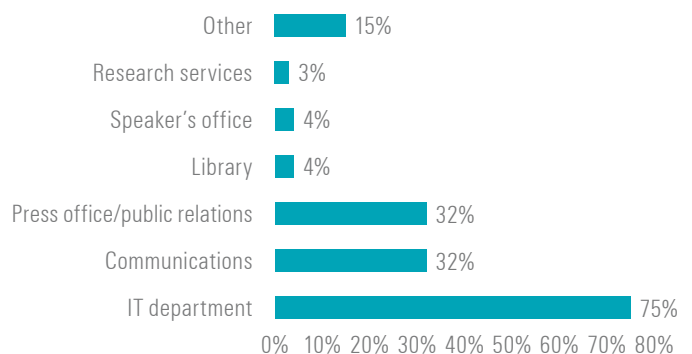
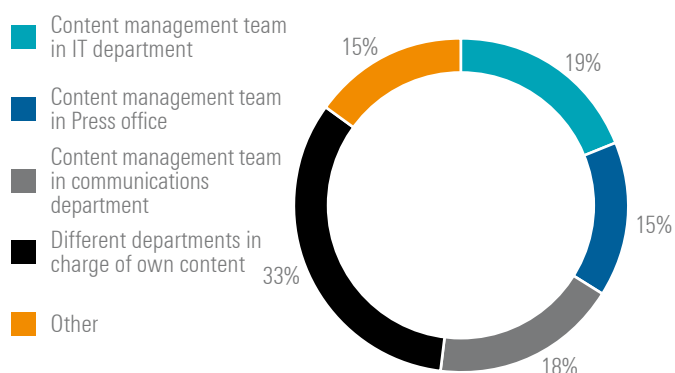
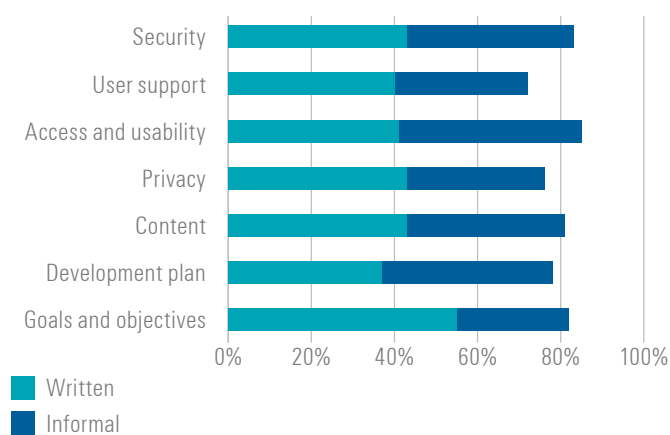


Figure 39 Who manages the website (n=113)**Figure 40 Website policies (n=111)**

As observed earlier, websites are increasingly seen as strategic tools for parliaments and are growing in complexity and scale. This means that more and more parliaments are developing formal policies to control and regulate their management and operation. Eighty-two per cent of parliaments have either formal, written policies (55%) or informal, unwritten ones (27%) for managing content on their websites. Only 37 per cent have a formal written policy for website development; 41 per cent have informal policies. Forty-three per cent have a formal policy for security; 40 per cent have informal policies.

Website content

Websites are now one of the primary ways that the public interacts with parliament, and certainly one of the most direct. They allow a parliament to make a wide range of information available in a single location and provide a level of customer service not previously possible. The Internet is often described as a “great leveller” and democratizer in terms of access to institutions. Debatable point perhaps, but the digital environment *does* support far greater engagement with parliament and far more opportunities to learn about the background and history of parliament, its structure, processes and members and to follow or get involved much more intimately in the legislative process.

Looking at the kinds of static content that websites provide, all include information on members of parliament. More than

Table 31 Type of information included on website (n=112)

Members of parliament	100%
Functions, composition and activities	99%
Parliamentary committees, commissions and other non-plenary bodies	98%
History and role	96%
Elected leaders	96%
Publications, documents and information services	95%
Links to related websites	92%
Administration of parliament	88%
Access to parliament	87%
Contact for questions about parliament	80%
Political parties in parliament	76%
Contact for questions about website operations	76%
Links to social media accounts	72%
Site map	71%
Frequently asked questions	65%
Elections and electoral systems	62%
About the website	57%

nine out of ten explain the functions and composition of parliament, the committees and leadership. They provide at least some publications and documentation and information on the history of parliament. As shown in Table 31, however, information about the website itself is less likely to be included (57% did so): given the complexity and richness of today’s parliamentary websites, this information might be seen as largely irrelevant. Three quarters of the websites (76%) provide contact details for questions about the website itself, 71 per cent a list of frequently asked questions (FAQ) and 71 per cent a site map to assist visitors with navigation.

As their websites have become richer and more dynamic, they are featuring much more detailed information about parliaments’ legislative, oversight and budgetary role. Such content is also increasingly likely to be dynamic and rich – live video feeds rather than simple text, as well as audio and video archives. Eighty-five per cent of the parliaments publish a schedule of business online, and the same percentage publish a list of plenary and committee activities and the associated documentation. In 2012 the figure was very similar for plenary activity (84%) and slightly lower for committees (75%).

Audio or video of the plenary is available in 61 per cent of the parliaments, but access to this material from committees is much less well developed and is provided by only 36 per cent of the respondents. Given the educational value of parliamentary resources being provided online it is also perhaps disappointing that a visual explanation of the parliamentary process is provided by fewer than half of the responding parliaments (47%).

Two items included on the list, texts of enacted legislation (published by 69 per cent of respondents) and an explanation

Table 32 Information relating to legislation, budget and oversight activities on the website (n=109)

Schedule of parliamentary business	85%
Plenary activities and documentation	85%
Activities of committees, commissions and other non-plenary bodies	85%
Full text of standing orders, rules of procedure or similar	84%
Explanation of the legislative process	74%
Text and status of proposed legislation	72%
Explanation of parliamentary terms, procedures and order of business	69%
Text of all enacted legislation	69%
Audio or video of plenary meetings	61%
Oversight (scrutiny) of the government by the parliament	56%
Chart or diagram showing how the business of parliament is conducted	47%
Explanation of the budget and public financing processes	41%
Audio or video from committee meetings	36%

of public finances (41%), are not always the domain of parliament, and may be the responsibility of the executive, which would explain the lower response rate.

As shown in Figure 41, illustrating how parliaments make information available on their websites, most of the responding parliaments remain in a publish-and-broadcast mode, posting information directly on webpages in a downloadable but not editable (or reusable) format, such as PDF. In the case of amendments to draft legislation proposed during plenary debate, for example, 65 per cent of the responding parliaments provide such information in static format on their website, but only 7 per cent offer a downloadable file that can be modified or further processed, such as an Excel spreadsheet, and only 7 per cent offer a live data feed to the source data. Similarly, 64 per cent of the parliaments provide information on member activities via a webpage or document that cannot be edited; only 5 per cent provide it as an editable download and 6 per cent as an open data source. The latter is increasingly important as it allows third-party groups, such as PMOs, not only to duplicate information but also to analyse and cross-tabulate it.

The point of a modifiable document format is not so that data can be changed, but so that it can be read, reused, linked and analysed. It removes the need for manual duplication or even data re-entry and reduces the risk of introducing errors into the data. Open data provided through an API cannot be directly modified but can be easily read and processed.

The document reported as the most available in downloadable and reusable form is the record of plenary voting, which is still provided by only 12 per cent of the responding parliaments. That document is also the most available via open data feed, but only 9 per cent of the parliaments provide it that way. This suggests that the concept of reusability of parliamentary data and the idea that others might want to add further value to it is relatively new to most parliaments. Open data feeds also entail additional costs and require structural and quality issues to be considered, technical and support infrastructure to be in place, and issues of security to be managed.

All but one of the parliaments providing a real-time open data feed for plenary amendments are in high-income countries (the exception being in an upper-middle-income country). High-income countries also account for 75 per cent of the parliaments providing this information in a reusable format that can be downloaded and of all the parliaments providing an open data feed for committee amendments.

Figure 41 How is access to content provided (n=111)

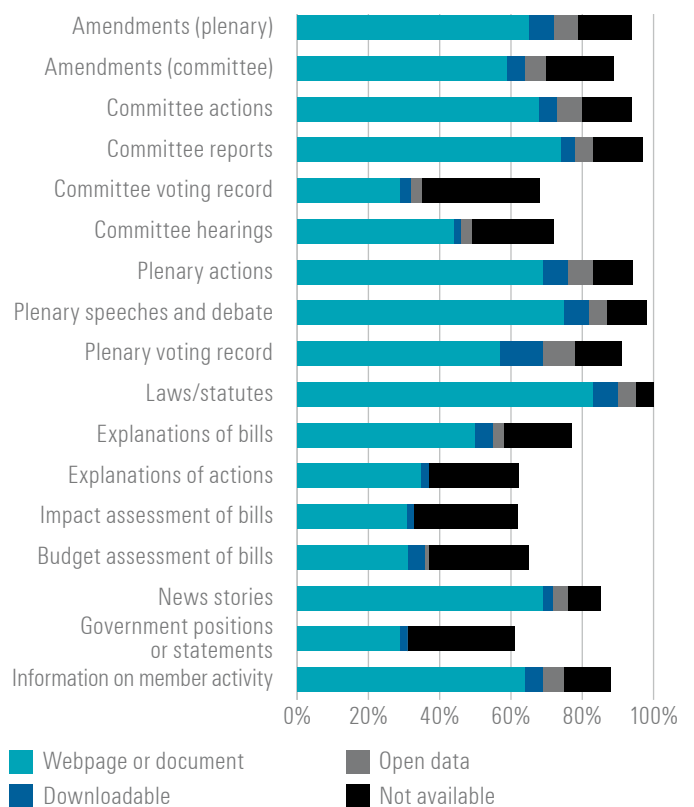
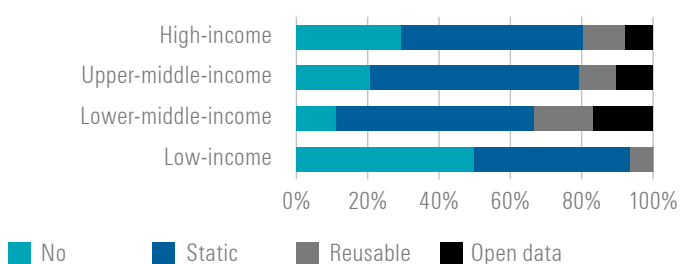


Figure 42 Publication of plenary voting record by income level (n=114)



Timely access to information

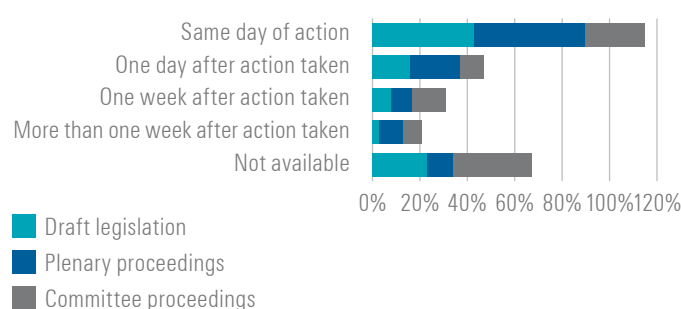
If the public is to become more involved in parliament and to follow the work their representatives are doing, then it is important to keep them informed about what parliamentary business is upcoming. Three-quarters of parliaments publish agendas to their website for both their plenary deliberations (73%) and committee meetings (74%) at least two days ahead of time. In the 2012 report, a plenary agenda was available at least two days before the meeting in 68 per cent of cases.

Ninety-three per cent of the parliaments publish documents relating to the plenary agenda on their website either on or before the day of the plenary, an increase from the 84 per cent reporting this in 2012. A very small percentage (3 per cent for plenary and 2 per cent for committees) only publish such information on their website after the event. However, 12 per cent of parliaments do not publish committee documents at all.

Table 33 When agendas are published on the website (n=107)

	At least one week before action	At least two days before action	Same day of action	After action taken	Not available
Plenary agenda	36%	37%	20%	3%	3%
Committee agenda	36%	38%	8%	2%	12%

Figure 43 When documents are usually available on the website (n=107)



Draft legislation (43%) and plenary proceedings (47%) are published on the parliamentary website the same day as the event in almost half of parliaments. A further 16 per cent of parliaments typically publish draft legislation the following day and one in five parliaments publish plenary proceedings the day after. This means that the record of plenary proceedings is available to the public via the parliamentary website either on the day or within one day of a debate happening in the chamber in 68 per cent of parliaments. Draft legislation is not available on parliamentary websites in 23 per cent of the parliaments (in some cases it is made available on websites belonging to government departments, rather than through parliament).

The public are less well served when it comes to accessing committee proceedings. Only 36 per cent of the parliaments publish committee proceedings within a day of the meeting (25 per cent on the day,) and one-third (33%) do not publish them at all on their website.

The above data shows that the digital tools have created the opportunity for parliaments to become considerably more transparent and accessible to a wider public than was ever possible before. Having access to such information is important in a strong democracy because it means that, should they choose, the public can become informed about what is happening in parliament and can follow the proceedings in detail. It is also important that parliamentary information and documentation is made available in a timely way. After all, information can often be perishable and of lessening value to concerned citizens as time elapses. The median number of parliaments that publish documentation, such as the text of proposed legislation, committee schedules and plenary proceedings on their website at the same time as it is made available to members or officials is 52 per cent (an increase of 1 per cent on the figure reported in 2012). Looking at what is published at the same time in more detail by document type, it is clear that parliaments are publishing information relating to process and procedure more often than background information to support the business of the plenary or committee. Seventy-eight per cent of the parliaments always or mostly always publish plenary proceedings at the same time as they make them available to members and officials (72 per cent do this always, and only 5 per cent never do). But in the case of legislative impact statements, the figure for the parliaments that always or mostly always publish concurrently falls to 34 per cent and rises to 29 per cent for those that never do (although this is not always the responsibility of the parliament and might be done by a government department in some cases).

Table 34 Information made available to the public, members and officials at the same time (n=110)

	Always	Mostly	Sometimes	Rarely	Never
Text of proposed legislation	52%	16%	9%	12%	6%
Committee schedules	56%	15%	6%	6%	12%
Plenary proceedings	62%	16%	7%	5%	5%
Explanations of legislation and procedure	37%	13%	9%	9%	18%
Impact assessments of legislations	26%	8%	10%	9%	29%

As well as providing relevant information in a timely way to members and the public, parliaments also need to ensure that material published on their websites is discoverable. Ninety-five per cent of parliaments have a search facility available on their websites to help users find and view content. Two-thirds (64%) provide an audio and/or video archive on their websites and 43 per cent an alerting service to notify interested parties about the availability of new documentation. In terms of broadening access, 36 per cent of parliaments have provided mobile-based services that support members being able to access parliamentary information and documentation as it is available on the website and 27 per cent have provided this for the public.

Table 35 Tools for finding and viewing information (n=107)

A search facility	95%
Audio or video archive	64%
Alerting services for documentation	43%
Mobile services enabling members to access information and documentation as they are made available on the website	36%
Mobile services that enable the public to access information and documentation as they are made available on the website	27%

Usability and accessibility

It is important for parliamentary documents and the tools for finding them to be available and understandable, and equally important that the tools are designed and deployed to be usable. There are various good practices and standards available for ensuring the usability of a website, making it not only intuitively easier to navigate but also accessible to those who might have different needs. The 2012 report noted an increase in usability techniques but no comparative rise in the application of accessibility standards.

The 2016 survey paints a mixed picture too. There is a notable increase in all aspects of both informal and formal usability and accessibility, but parliaments are still more likely to base their design and content on an understanding of user needs (81 per cent versus 72 per cent in 2012) and through user testing and usability methods (59 per cent, an increase of 15 per cent since 2012). The use of official standards, such as those from the W3C, has only been adopted in 53 per cent of parliaments, though this is a notable increase from the 38 per cent using such standards in 2012. There has also been a steady rise in the number of parliaments implementing IPU's own guidelines for parliamentary websites, up from 46 per cent in 2012 to 53 per cent in 2016, and a significant increase of 18 per cent more parliaments now undertaking a periodic evaluation of their website's usability and accessibility.

The IPU Guidelines for Parliamentary Websites also make recommendations about the use of multiple languages within the parliamentary web-estate when there is more than one official language in use in that country. Doing so, of course, adds a level of complexity but is important for the purposes of

Figure 44 Website tools and guidelines (n=103)

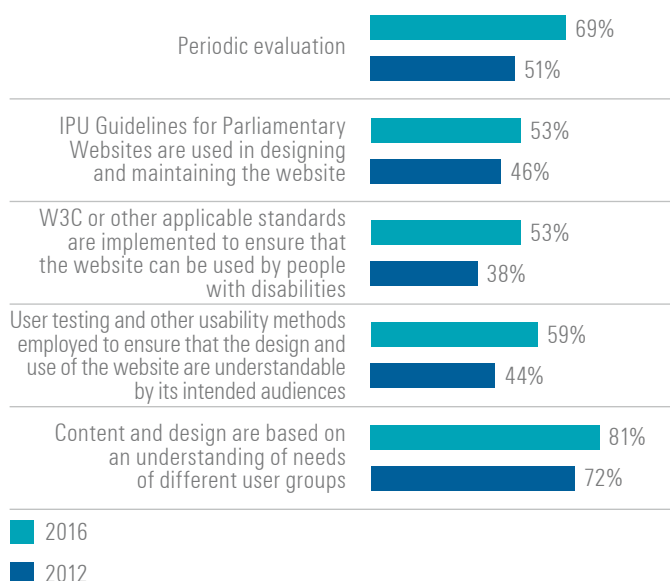
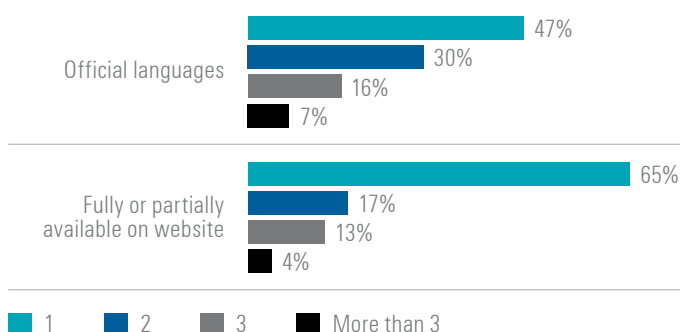


Figure 45 Official languages and number of languages available on website (n=110)



democratic inclusion and to help overcome the digital divide, as earlier World e-Parliament Reports have noted.

In addition to recognizing official languages on the parliamentary website, 17 per cent of the respondents have only one language but make at least some of their content available in two or more languages.

Most important improvements

Seventy-eight parliaments provided additional detailed comments on what they considered to be the most important improvements made to their website in the last two years. These descriptive comments were analysed to identify eight primary themes. As shown in Figure 47, matters relating directly to the website itself are significantly more prominent in the comments provided. Technical improvements are more often cited as the most important thing that has happened to the website in the past two years (42%), followed by improvement in the quality or range of website content (41%) or design and usability (41%).

Figure 46 Top three website improvements in past two years (n=78)

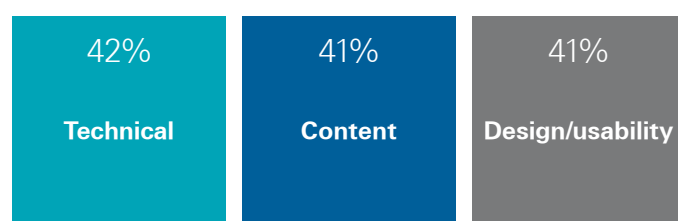
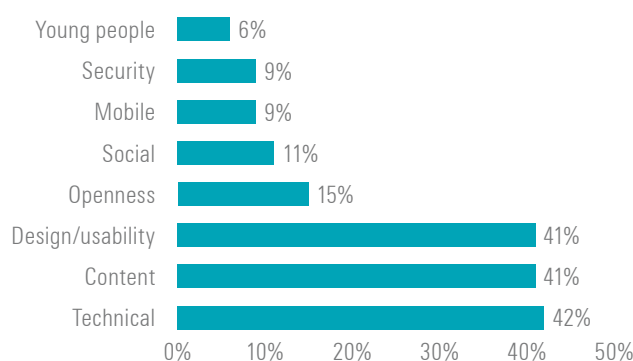


Figure 47 Most important improvements in past two years (n=78)



Far fewer parliaments cite website security as seeing the most important improvement (9%), but this does not mean there has been no improvement or impact: 15 per cent of the parliaments note improvements in transparency, publication or open data. This highlights the growing importance of open data as a way to support parliamentary openness and transparency.

One respondent said the availability of content had been improved because full information on parliamentary documents and activities could now be provided and updated daily. The same respondent also cited improvements in security and new alerting applications for Android, IOS and social networks.

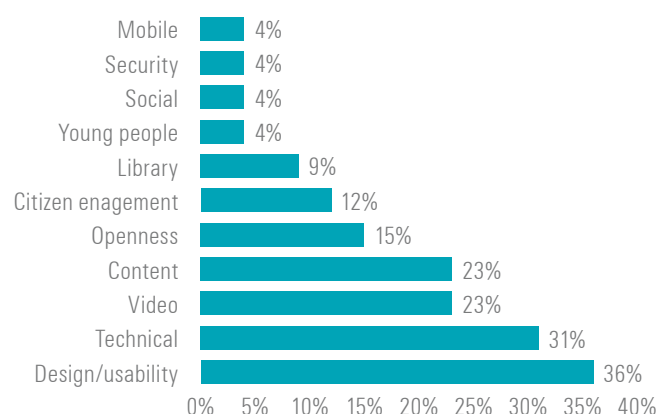
Another parliament observed that it had been able to open up to third parties, including new functionality for citizen consultation and open data. Accessibility improvements were also noted, including compliance with international website standards, better support for people with impairments and an on-demand captioning pilot for daily questions.

Respondents were asked a similar open question regarding the most important improvements they expected to make to their website in the next two years. This produced a slightly wider range of categories than the actual improvements described but the strong focus is nonetheless on the development and improvement of core web assets in parliament. Video content, both live streamed and archived, was mentioned among the improvements but usually in relation to site-wide or architectural improvements. Twenty-three per cent of the responding parliaments see the inclusion or improvement of video or audio capability as important. Design and usability improvements were the most often cited (36%), followed by technical improvements to the

website infrastructure (31%). Parliamentary openness was identified by 15 per cent of the respondents as a target for improvement over the next two years, the same percentage that identified this as important in the previous two. Twelve per cent identified activities relating to citizen engagement as the most important thing to be improved, something that was barely mentioned as being done in the past two years. One respondent identified improving communication with citizens through a new "civil law making portal"; another plans to develop an approach to allowing visitors to customize information to improve segmentation and loyalty on the website. One parliament said it would be improving its website so as to involve the public more directly in the law-making process.

A number of parliaments suggested that they would be improving the presentation and quantity of content on their websites over the next two years, including expanded publication of parliamentary material. There was also a strong focus on improving website usability and accessibility, ranging from a more responsive design (to allow websites to work seamlessly with a range of devices, from desktop PCs to tablets and mobile telephones) to a complete site redesign to apply the IPU Guidelines for Parliamentary Websites. Nine per cent of the parliaments said they intend to improve the availability of library materials on their websites in the next two years, most often referring to the presentation of material or greater public access to what are currently treated as internal resources.

Figure 48 Most important improvements planned to website for next two years (n=74)



Summary

Every parliament that took part in the survey now has a website, highlighting the importance of the Internet as way of connecting and communicating with citizens. This is also reflected in the way most parliaments involve senior management and their political leadership in setting strategic goals for their websites. This survey introduced the role of director of communications, a reflection of how websites have shifted from being seen as a technical platform to being recognized as an important tool for communicating with stakeholders. It is unsurprising to see that 31 per cent of the parliaments involve their director of communications or equivalent in website planning. Yet, 42 per cent involve neither the director of ICT nor the director of communications,

suggesting that not all parliaments have embraced the strategic value and opportunity presented by the Internet.

Website operations most often involve the IT department (75%); communications and press offices are involved in one third of the parliaments. Content provision is much more evenly distributed among offices for IT, communications and the press. This reflects the increasingly detailed and diverse range of information being published. The research also shows that most of the parliaments remain in a publish-and-broadcast mode. The website remains a tool primarily for reading or downloading information and less for interaction and engagement. Content has become richer and more dynamic, but there has been little improvement in the level of interaction reported since 2012.

While 93 per cent per cent of the parliaments now publish documents relating to their plenary agenda, either on or before the day, income again becomes a determinant in how information is made available. The move towards open data and open publishing requires investment in backend systems as well as cultural acceptance and management engagement. As noted above, all but one of the parliaments providing a real-time open data feed for plenary amendments are in high-income, and none in low-income, countries. Parliaments in

low-income countries still tend to publish less, and what they publish tends to be static and non-editable.

A cause of some concern is the 2016 survey's finding that, despite the range of good practices and standards available to support website usability, only 53 per cent of the responding parliaments have adopted official standards. It is promising, on the other hand, that more parliaments are carrying out evaluations of their web assets, which appears to reflect increased uptake of IPU Guidelines for Parliamentary Websites.

The most important improvements have been in the technical architecture and platform, content and usability. These are also seen as important areas for improvement in future. The survey shows that all aspects of parliamentary website usability and accessibility have improved and that parliaments are more likely to base their design and content on actual user needs (81 per cent versus 72 per cent in 2012), user testing and usability methods. There is also a notable increase in the use of official standards, such as those from IPU and W3C. The number of parliaments that reviewed their website usability and accessibility, however, remains low (around one in five).

Communication between citizens and parliament

The previous section discussed how parliaments are using their websites and related technologies to make information available. It focused largely on the website's architecture and usability and on the delivery of information – more the traditional broadcast mode of web publishing that still critically underpins a lot of e-parliament work. This section examines how parliaments and members of those parliaments are using new digital tools to communicate, engage with and directly interact with citizens.

It is important to frame such communication in terms of the challenges parliaments face when trying to communicate and engage with citizens digitally, particularly using the new range of fast-paced social platforms:

- Parliaments are collective entities, and this can slow down decision-making.
- There are naturally differing and opposing agendas.
- There is no single voice.
- There is a dual leadership structure (political and administrative).
- The action is highly visible and therefore mistakes can be amplified.
- The institution must remain apolitical.
- "There are few parliaments around."¹⁵

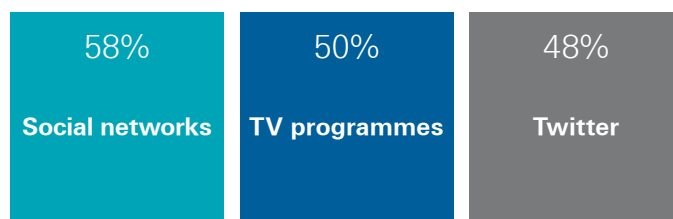
The use of web tools and email within parliament has been discussed in previous sections. These more established media are now being supplemented by a wide range of other digital tools to communicate and engage with citizens. Some, such as radio and broadcast television, are well established and important, particularly when Internet access is a challenge. Half of all parliaments (50%) report using programmes on non-parliamentary TV channels to communicate with citizens; 46 per cent have their own broadcast television channel; and 43 per cent have video-sharing capabilities.

The New Zealand Parliament broadcasts its plenary proceedings live to the public on free-to-air television and radio and via subscription satellite TV. It also streams live broadcasts via the parliamentary website and a parliamentary app. An archive is available through a separate website, inthehouse.co.nz, which is a partnership between the New Zealand Parliament and an independent production company. Live captioning is being introduced in 2016.

Figure 49 Video archive of New Zealand House of Representatives



Figure 50 Top three methods for communicating with citizens (excluding websites and email) (n=112)



This is the first World e-Parliament Report to record the use of social media among parliaments (which effectively means their Facebook pages) as being wider (with 56 per cent reporting they use it) than that of third-party television or radio as a channel to communicate with citizens, a substantial increase from the 31 per cent and 13 per cent doing so in 2012 and 2010, respectively. A further 25 per cent of respondents plan to use the social media. Twitter is also clearly relevant as a tool for communicating with citizens: 48 per cent of the responding parliaments have adopted it and 8 per cent use instant messaging platforms, such as Whatsapp.

The use of social media tools within parliaments has to strike an appropriate, finely tuned balance vis-à-vis traditional methods, which takes practice. Social media do not exist in a vacuum: their use depends on context and is subject to existing codes of practice for communication and the appropriate use of digital media. And while parliaments must act in accordance with protocols and align with communication and engagement strategies developed internally, within parliament, the social media operate in their own space and according to their own set of rules, beyond the influence or control of parliaments.¹⁶

¹⁵ Leston-Bandeira, C. (2014, Mar). *Seven reasons why parliaments struggle with digital*. Political Insight. psa.ac.uk/insight-plus/blog/seven-reasons-why-parliaments-struggle-digital.

¹⁶ For more information on the effective use of social media, refer to the IPU Social Media Guidelines.

Figure 51 Intersection of social media norms with traditional communications, engagement and protocol

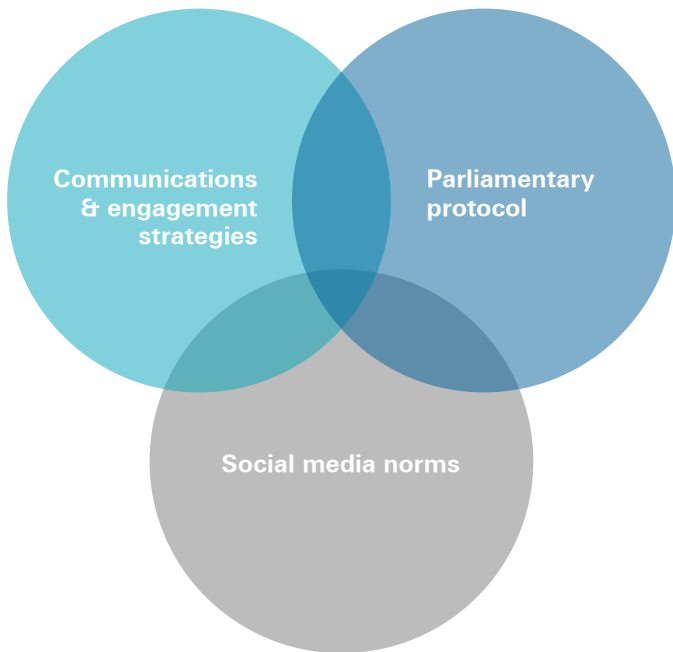
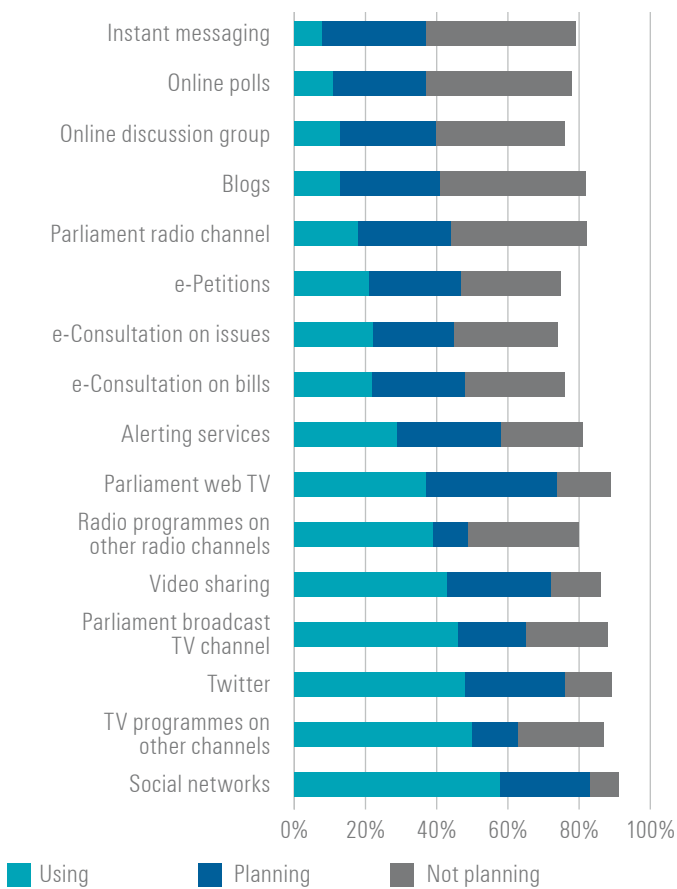


Figure 52 Methods for communicating with citizens (excluding websites and email) (n=112)



Digital tools are being used by parliaments in a range of ways in order to more effectively inform, educate and engage citizens. Social media tools are good for keeping in touch with the public, for sharing information and drawing people in to connect more deeply. The website, on the other hand, is a more permanent information resource, a repository for documents and data and even a place to get involved in the work of parliament. The use of e-consultation tools for bills and issues, e-petitions and online polls remains topical with parliaments. Yet, despite a significant number of parliaments stating that they were planning or considering the use of these tools in 2012, there is virtually no change in the actual numbers doing so (and the numbers planning to do so have fallen significantly, too). For example, in 2012, 20 per cent of the parliaments reported using e-petitions (up from 12 per cent in 2010); another 36 per cent were planning to. By 2016, the number using the social media had risen to only 24 per cent, with 29 per cent planning or considering their use. The use of e-consultation tools followed a similar trajectory, rising by only one percentage point (from 24 per cent in 2012 to 25 per cent in 2016) – even though 45 per cent of the respondents reported planning to implement such a process in 2012 (that figure having now fallen to 29 per cent).

The Brazilian Chamber of Deputies has been running its e-Democracia web portal since 2009. This is a way for citizens to participate directly in the legislative process and ask members questions during live public hearings and discussion forums.

The portal now includes the Wikilegis tool, which allows citizens to track and comment on pending legislation on an article-by-article basis. They can also suggest changes and add new text to draft legislation. This is an example of how parliaments can break down the barriers between citizens and their representatives, giving a sense that lawmakers, legislative consultants and citizens all have equal opportunities to propose solutions to policy problems.

Figure 53 Citizens contributing to draft legislation in Brazil



The Chamber of Deputies has also used a public “hackathon” to develop apps that make it easier for citizens to understand and stay connected with the work of parliament, and this has evolved into a more permanent “Hackerlab” within the parliament. *Retórica* is a web application created by the first Hackathon in 2013, and then taken on and improved by parliamentary staff. It gives citizens a graphical representation of lawmakers’ speeches organized by subject. There is also a “Social Panel” showing what people are talking about in social networks with regards to current policy topics. It is monitored by parliamentary staff and reported back to members as input for the legislative process.

Communication from members

Email remains the most widely used method of communication between members of parliament and their electorates. Two thirds of the responding parliaments (66%) reported that all or most of their members use this method. It is noticeable throughout this report, and particularly in comparison with previous reports, that the social media are now a significant platform for parliaments as reflected in the number of parliaments where members now use them. Where email is used by at least a “few” members in 85 per cent of the parliaments, social media is now closely following with at least a “few” members using it in 80 per cent of the parliaments. The social media are used by all members in only 5 per cent of the parliaments, far less than in the case of email (37 per cent of parliaments), suggesting that the adoption of new digital and social tools is much more personal and self-selecting, whereas more established tools such as email are inherently more institutionalized. This means that it is more difficult for parliaments to keep track of which members are using social platforms and how, because these channels invariably operate outside of any official parliamentary ICT or communications function.

Other social tools that are now being used by members include Twitter (used by members in 68 per cent of the parliaments), YouTube, Vimeo and other related video-sharing platforms (59%), photo sharing through tools such as Flickr (44%) and instant messaging, using tools such as Whatsapp and Snapchat (50%).

The above data show what tools members are using but not how effectively they use them. Lack of member interest is reported as a challenge by only 10 per cent of the parliaments, which is still too high. But it is skills and training that are seen (by 61 per cent of parliaments) as the most significant challenges for members trying to communicate with citizens using digital tools. Forty-two per cent of parliaments report that members feel overwhelmed by the amount of information they are required to deal with online. On the other side of the equation, digital and social tools will work effectively only if the public can use them; otherwise they risk creating a new elite with privileged access to their representatives. This lack of Internet access for citizens is recognized as a challenge by 36 per cent of the parliaments – 56 per cent of those in low-income, and only 6 per cent of those in high-income, countries.

Figure 54 The digital tools members use to communicate with citizens (n=96)

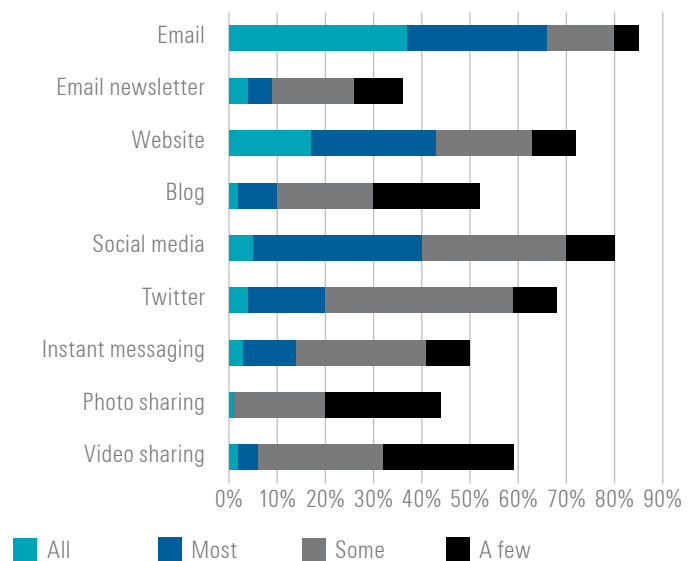
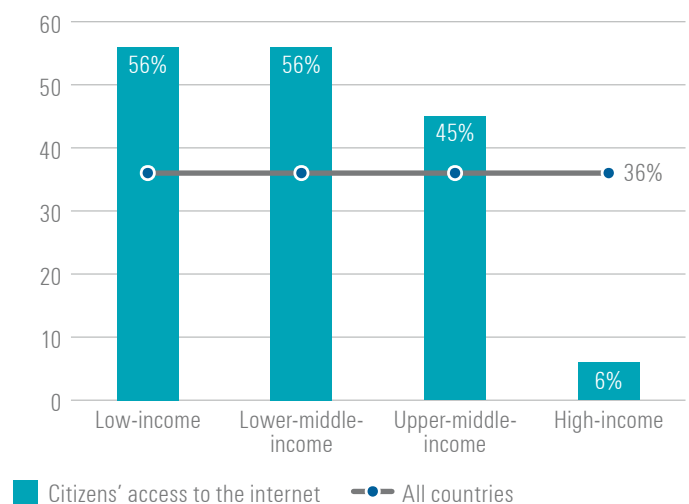


Figure 55 Citizens’ access to the Internet as a challenge by income group (n=96)



Communication from committees

Committees are also becoming more prominent users of digital and social tools for interaction with the public. Two thirds of the parliaments (67%) report that their committees now use websites to communicate information about the work they do, their scope and processes; 43 per cent use websites to communicate committee positions on current issues. As shown in Table 36, 71 per cent of the parliaments report that their committees use websites to publish committee reports and the findings of committee inquiries, yet only one third (34%) use this medium to seek submissions and comments directly from the public. The social media are starting to penetrate into the work of parliamentary committees, with 21 per cent communicating information through social channels, 13 per cent using it to solicit submissions and another 17 per cent planning or considering doing so in the future.

Table 36 How committees use digital and social tools to communicate with citizens (n=108)

	Website	Email	Social media
Communicating information about their work, scope and process	67%	40%	21%
Communicating the committee's position on issues	43%	23%	11%
Seeking submissions, comments and opinions from the public	34%	28%	13%
Publishing the findings or results of the committee	71%	14%	13%
Responding to submissions and comments received	17%	35%	7%

Communicating with citizens

Having identified how parliaments communicate with citizens, it is important to understand the purposes for which they do so. Effective engagement always requires an understanding of the audience (who to engage) and the purpose of the engagement (why). Three-quarters of the responding parliaments (74%) see digital tools, ranging from websites to social media, as important ways to inform citizens about proposed legislation and other policy-related matters that come before parliament.

Figure 56 Top three digital communication objectives (n=112)

1	Inform citizens about policy issues and proposed legislation	74%
2	Explain what the parliament does	64%
3	Engage more citizens in the political process	62%

Reinforcing this education and information role, 64 per cent of the parliaments consider digital media important in explaining the role of parliament. The Internet is now a potentially interactive space, no longer just a repository for publications and information. This is reflected in the 62 per cent of parliaments that see it as a useful medium for involving more citizens in the wider political process, though only a quarter (26%) consider it important to include citizens in the actual decision-making process. Fewer still (13%) regard digital engagement methods as important for improving policy and legislation or see them as an important way to facilitate an exchange of views between citizens and parliament and its members (12%).

Table 37 Most important objectives in using digital-based methods of communication (n=112)

Inform citizens about policy issues and proposed legislation	74%
Explain what the parliament does	64%
Engage more citizens in the political process	62%
Include citizens in the decision-making process	26%
Enhance the legitimacy of the legislative process	24%
Engage young people	14%
Explain proposed legislation	13%
Improve policy and legislation	13%
Facilitate an exchange of views	12%
Conduct a poll of citizens' opinions on issues or legislation	4%
Reach out to minorities	3%

Table 38 Challenges encountered using digital technologies to communicate with citizens (n=109)

Citizens are not familiar with the legislative process	57%
Members are not familiar with these technologies	39%
Members receive too much	29%
Too much effort and resources required to implement	27%
Online discussions and consultations are dominated by a few	26%
Citizens do not have access to the Internet	24%
Citizens are not familiar with these technologies	24%
Cannot judge how representative the responses are	22%
Members do not have specific constituencies	7%
Other	9%
None of the above	7%

As mentioned earlier, 43 per cent of the parliaments considered a lack of knowledge among members as an important challenge to their effective use of ICT. When it comes to communicating with citizens, it is the citizens' unfamiliarity with the legislative process that is considered the biggest challenge for parliaments (by 57 per cent of them) seeking to engage with them using digital tools. Other factors that affect the effectiveness of online engagement and communication, as shown in Table 38, include email overload, domination of the debate by small cliques or individuals, lack of transparency as to the representativeness of contributors and the resources required to run such fora. One respondent said that transparency needs to be greater and parliament's public image stronger before such processes can be effective.

Another observed that the country’s legislative process was not at present well suited to involving newer, more participatory media and that this presented a challenge to increasing user involvement. Data protection was also raised as a potential issue.

As shown in Table 37, few parliaments have prioritized engagement with young people as an important objective of their public-facing digital offering (14%). Fewer still see engaging with minorities as an important objective (3%). Only 41 per cent of parliaments have created specific digital tools or channels to engage with young people. This focus on specific outreach to younger audiences is not related to the size of the chamber. The sample does not significantly diverge from the distribution of parliaments by size: 21 per cent of the sample are between 50–99 seats, the same as in the case of youth-focused sites, and 9 per cent of the parliaments with between 310 and 400 seats, making up 11 per cent of the sample, have a youth site.

Figure 57 Parliaments using digital-based methods to communicate specifically with young people (n=107)

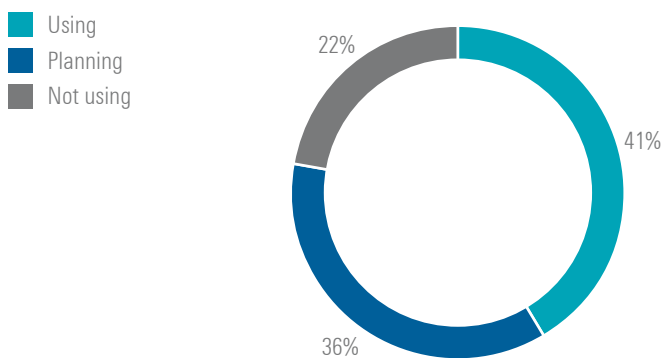
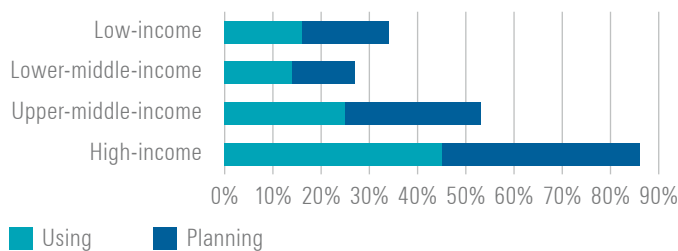


Figure 58 Specific engagement with young people by income level (n=107)



While the size of the parliament does not appear to be a significant factor in whether specific channels are provided for young people, income level appears to be a negative determinant. As Figure 58 shows, the high-income countries have a significantly greater tendency to use, or to be planning to use, such methods.

The use of the social media has been one the most significant, distinguishing trends to emerge in this report relative to previous ones. This is hardly surprising: the significant growth in social platforms, such as Facebook, has already been noted. Social media are clearly popular and parliaments are right to engage on the platforms that people use and feel most comfortable using. This does not, however, diminish

the value of the web as a method for communication and engagement, and the rise in social network adoption is mirrored by the substantial increase in the range of Internet-enabled devices that people now use.

Mobile devices and tablets are increasingly more likely to be the conduit to parliamentary material. Taking the European Union as an example, mobile access to the Internet increased by 58 per cent between 2012 and 2015 (from 36 per cent to 57 per cent).¹⁷ This presents a challenge in ensuring access and usability across an increasingly diverse range of platforms.

The additional cost of developing separate and specific content and applications is not negligible and leads to duplication and an increased risk of errors being introduced. An industry-wide solution to this problem is the use of what are known as responsive websites. The term “responsive” means that the website itself can automatically recognize the size of the screen it is being deployed to and then adjust the look and feel of the site to provide an optimum experience for the user. While this can marginally increase development time and costs, it removes duplication.

At present, one third (33%) of the parliaments are using responsive or mobile-targeted technologies to communicate with citizens, and a further 53 per cent report that they are planning or considering their use.

This explosion in multimedia sources of connectivity and the concomitant decrease in barriers to more direct communication means that parliaments are now receiving far more correspondence and submissions electronically than they did in the past. The 85 per cent of parliaments who reported an increase in the use of digital-based channels to communicate with parliament was seen as a significant positive in the 2010 report, and that trend continued at 64 per cent in 2012. In 2016 this figure has risen back to 80 per cent of parliaments reporting an increase in usage of these channels. No parliaments reported a decrease (although 12 per cent reported levels staying the same).

Continuous adoption is also not something that appears to be greatly influenced by the economic situation of the country. Access to the Internet and adoption of digital tools in low-income countries might be lower as an overall percentage, but the patterns of growth are consistent across all income levels. This suggests that, while barriers to adoption and effective use clearly exist in lower income countries, the appetite to harness the opportunities of digital tools for communication with citizens is still strong.

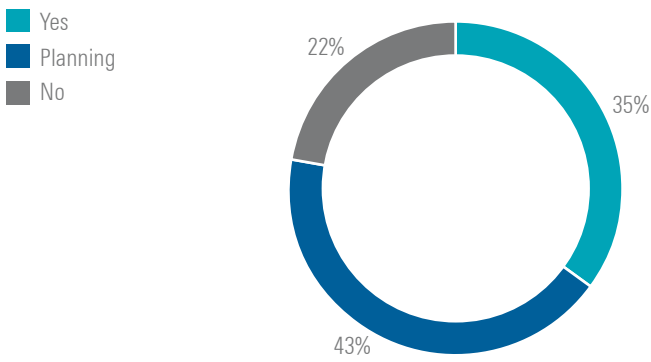
Table 39 Increasing use of digital tools by citizens to engage with parliament by income level (n=108)

Low-income	79%
Lower-middle-income	82%
Upper-middle-income	69%
High-income	89%
All respondents	80%

¹⁷ Source: Eurostat: ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&pcode=tin00083&language=en

Despite these significant and sustained levels of growth in online communication, only one-third (35%) of parliaments have put in place a policy regarding the retention of electronic communication received from the public. Another 43 per cent are planning or considering such policies. There does not appear to be any correlation between a parliament having a formalized strategic planning process and having policies in place to manage public correspondence: 75 per cent of parliaments with policies in place for archiving electronically received public correspondence, but also 68 per cent of those without such policies, have a formal strategic planning process.

Figure 59 Parliaments with a policy regarding the retention of electronic communications from citizens (n=106)



It is also surprising that the number of parliaments who have conducted any kind of assessment of the value of digital tools for engaging with citizens remains stubbornly low. Only 26 per cent of parliaments report that they have performed either an informal or formal assessment of their digital channels, exactly the same figure as in 2012.

Summary

Although only one in four parliaments has conducted an evaluation of its digital engagement, their use of digital and social tools and the range of new and innovative ways in which they use them, continues to expand. From internally developed applications to new social tools, citizens now have far greater opportunities to learn about their parliament, find out what is going on and engage with it in a way that suits them.

The latest survey shows that the use of e-consultation tools for bills and issues and online polls has not increased noticeably since 2012. The use of e-petitions has risen slightly to include one in five parliaments. It is in the use of social media where the real growth has occurred. As a tool for parliamentary

outreach and engagement it is more widely used than television or radio. Social networks such as Facebook are employed by almost three in five of all parliaments, an 80 per cent increase since 2012. Tools like Twitter and Whatsapp are increasingly being used, too. This rise in social traffic does not reduce the value of the parliamentary website: social sources can in fact be used to drive traffic to richer and more complex content online.

It is clear that social networks and applications such as instant messaging are seen as additional channels, not replacements. The importance of email, still the method most widely used for communication between members and constituents, remains undiminished even as the use of other social channels rises. The findings suggest that it is difficult for parliaments to keep track of which members are using social platforms, and how, because these channels invariably operate outside of any official parliamentary ICT or communications function.

Video and photo-sharing applications are also proving popular: members in 59 per cent of the responding parliaments use such video tools as YouTube and 44 per cent such photo-sharing sites as Flickr. Committees are also increasingly likely to use digital and social tools to connect with citizens, seek input for an inquiry or issue and publish materials. Committees in one third of the parliaments allow online submissions.

Opening up parliament means enabling citizens to understand how parliaments operate: large proportions of responding parliaments identified the ability to inform citizens about policy and legislation (74%), and about how parliament works (64%), as the biggest benefits of digital tools. Using digital tools to engage more people in the political process matters too. Yet, for this to happen, it is not enough for technical staff to become involved; it requires commitment from the most senior levels of the institution.

There is considerably less innovation in or focus on the more active aspects of digital engagement. Only one in ten parliaments consider it important to facilitate an exchange of views between members and the public. Not many more see digital engagement methods as important for improving policy and legislation. The focus of most parliaments appears to remain on publication and information rather than active engagement. While some parliaments have shown that creating innovative projects, such as Brazil's Hackerlab, are effective ways to build digital capability and improve the relationship with citizens, few appear ready to harness new digital tools for more participatory or deliberative purposes. This lack of proactive engagement is also reflected in a lack of youth-specific content. The parliaments that do provide specific content for young people are disproportionately more likely to be in low-income countries.

Inter-parliamentary cooperation

All three earlier World e-Parliament Reports have noted the long tradition of bilateral and multilateral cooperation and exchange between parliaments, which continue to exchange staff and ideas, supporting one another at both member and administrative levels. IPU and the United Nations have played a significant role in supporting legislatures and encouraging this cooperation to continue. Their jointly created Global Centre for ICT in Parliament has had a significant impact encouraging the adoption and effective use of digital tools. Parliaments are unique organizations. It is therefore important to share regularly with others what they do well, and events such as the World e-Parliament Conferences have been pivotal in doing that.

As borne out by the evidence in this report, the speed of technological adoption and change is set to continue for some time to come. Continuing advances in digital and social tools will make it challenging for individual parliaments to keep up and understand how to benefit from them locally. It makes the continued sharing of information and the exchange of both people and ideas more critical than ever.

A consensus had already developed by 2010 that the international parliamentary community, led by technologically advanced legislatures, should actively support capacity development in the parliaments of developing nations. The report that year identified significant advances in parliamentary networking since 2008. Groups such as the IFLA Section on Library and Research Services for Parliaments, the Africa Parliamentary Knowledge Network (APKN) and parliaments in Latin America and the Caribbean were starting to build their profile and range of activities. The exchange of people and ideas initiated at that time barely touched on matters of ICT, then a specialized field. At that time, 60 per cent of parliaments reported being members of at least one parliamentary network. Membership of such networks was greater among legislatures in high- and low-income economies (76% and 70%, respectively), than among upper- and lower-middle-income countries (40%). By 2012, 38 per cent of parliaments did not identify with the membership of any parliamentary network, a small drop from 41 per cent in 2010. Again, participation was heavily skewed towards low- and high-income countries.

For the 2016 report, respondents were asked if they belonged to any of the following parliamentary networks:

- Africa Parliamentary Knowledge Network (APKN)
- Commonwealth Parliamentary Association (CPA)
- European Centre for Parliamentary Research and Documentation (ECPRD)
- Open Government Partnership (OGP)
- Red de Intercambio de los Parlamentos de America Latina y el Caribe (RIPALC)

Note that one of the above networks, the OGP, is not inter-parliamentary but intergovernmental, currently comprising 69 national governments. Its mission is to promote transparency, empower citizens, fight corruption and harness new

technologies to strengthen governance.¹⁸ It does, however, feature an increasingly active legislative openness stream, and a growing number of parliaments have been involved in developing their countries' national action plans in this area.

In this survey, 80 per cent of the responding parliaments indicated membership of at least one inter-parliamentary network (65 per cent if IFLA is excluded). This suggests an increase comparable with that between 2010 and 2012.

Figure 60 Membership of at least one network by income (n=93)

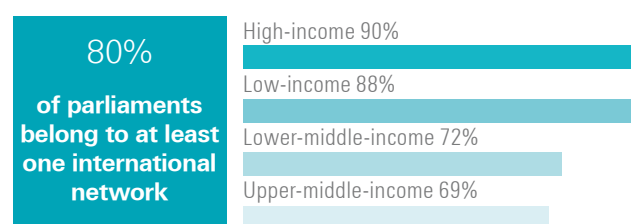


Table 40 Member of at least one network 2010–2016

2010	59%
2012	62%
2016	65%

Earlier reports detected higher rates of parliamentary network membership among both low- and high-income countries, and this remains the case in 2016, with 88 per cent of low-income and 90 per cent of high-income respondents now belonging to at least one network. The figures are only 72 per cent for lower-middle- and 69 per cent for upper-middle-income countries.

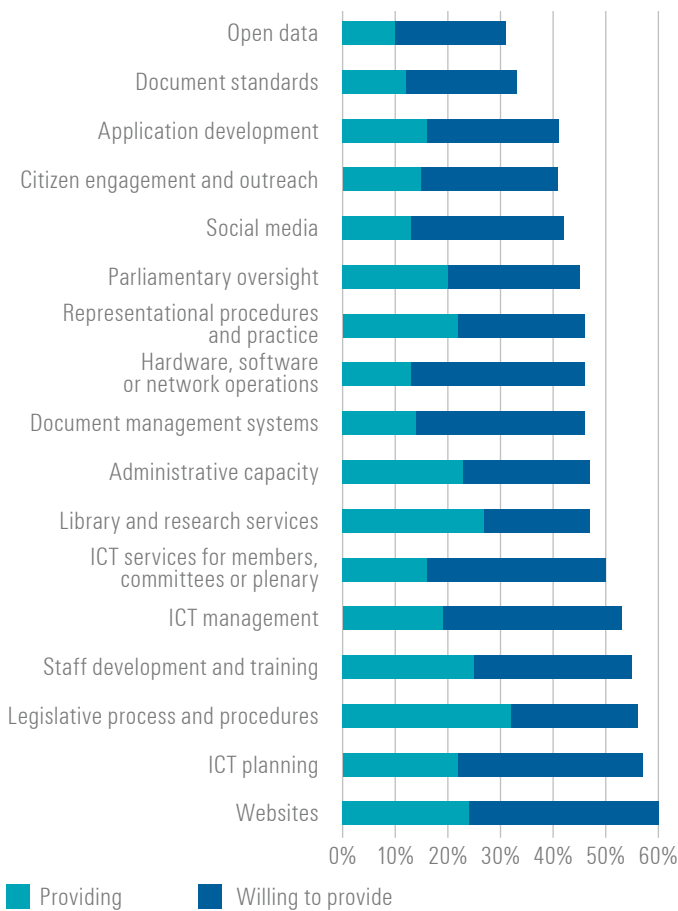
An individually crafted staff exchange programme exists between the parliaments of France, Germany, Ireland, Israel, Italy, Poland, the United Kingdom and the United States.

Around one in five of the responding parliaments provides support to others, and 18 per cent have set up committees to oversee inter-parliamentary support and cooperation. A further quarter of respondents do not provide support at present but say they would be willing to in future. The top five areas in which parliaments provide support at present are:

- legislative process and procedures (32%);
- library and research services (27%);
- staff development and training (25%);
- websites (24%);
- administrative capacity (23%).

¹⁸ See opengovpartnership.org/about

Figure 61 Provision of support to other parliaments (n=101)



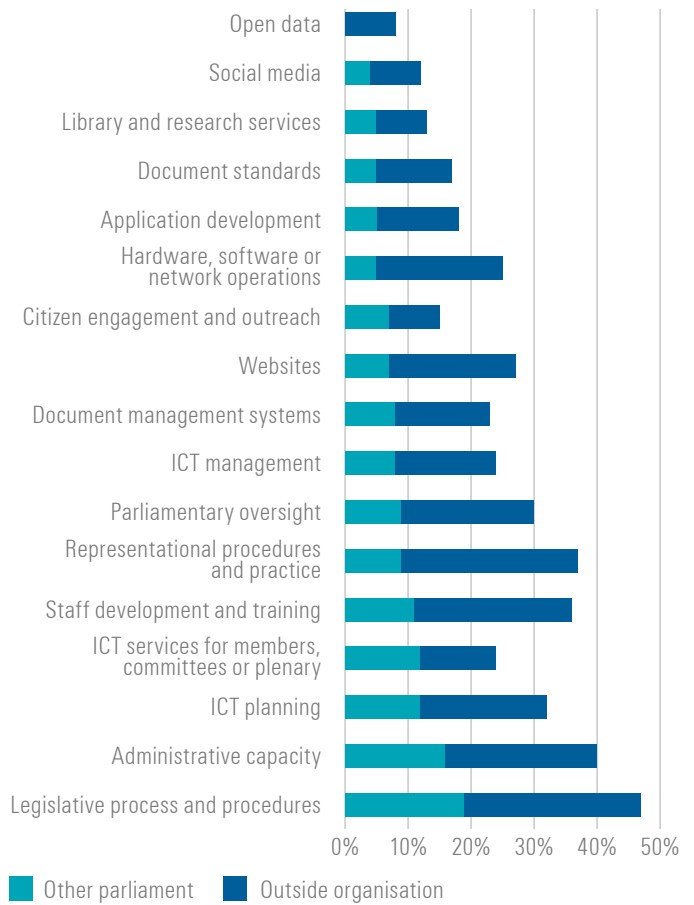
The top three areas in which parliaments are either providing or willing to provide support are websites (56%), ICT planning (56%) and support for the legislative process and procedures (55%).

These figures confirm both a demand for and a willingness to offer support between parliaments. On average, fewer than one in five parliaments (18%) are receiving support directly from other parliaments. Another 26 per cent receive support from external non-parliamentary organizations, which can include bodies such as IPU and UNDP. Far more of the parliaments (42%) said they do not receive such support but would like to.

The area in which support is most often being provided is “legislative process and parliamentary procedures”, accounting for 19 per cent of the assistance received from other parliaments and 28 per cent of that received from other organizations. Support for “administrative capacity” accounted for another 16 per cent of the inter-parliamentary assistance and 24 per cent of that from elsewhere.

Parliaments were asked to identify the areas where they do not currently receive support but would like to. The top five items correlate inversely with the areas of support least likely to be received, suggesting that many parliaments are not adopting new digital methods because they lack both the internal resources (staff, skills or funding) and external support (from other parliaments or other agencies) needed to do so.

Figure 62 Areas where support is received (n=75)



The Parliament of Trinidad and Tobago’s five-year ICT strategic plan is an example of internal organizational and political vision and a commitment to understanding the value of ICT. It is also a demonstration of how parliaments can support each other to transform and improve their ICT functions. The plan was developed by Parliament with assistance from the EU-funded project “Support to ICT strategic planning in the Caribbean Parliaments”, a project implemented by the UN Department of Social and Economic Affairs (DESA) and the Global Centre for ICT in Parliament.¹⁹ Internal participants included senior parliamentary and political leaders (President of the Senate, Speaker, Clerk of Parliament). Expertise was brought in from the Canadian House of Commons. The Speaker highlighted the value of this role of “critical friend” in engaging senior figures in Parliament: “There was lots of interest from the Clerk and President of the Senate in Canada’s approach and examples. They participated for almost three full working days. I was there too.” One outcome of the ICT strategic plan was that it encouraged the same senior leaders to develop an overall institutional strategy, which was delivered subsequently taking into account the recommendations of the ICT plan. The Parliament of Trinidad and Tobago is a clear example of integrated planning, where both political and administrative leadership were involved in the process and where ICT management and external advisors provided technical advice and feedback.

¹⁹ See ictparliament.org/caribbeanICTplanning.html

Table 41 Top five areas where support is wanted

	Receive support from other parliaments	No support received but would like
Open data	0%	53%
Citizen engagement and outreach	19%	52%
Application development	5%	51%
Document standards	5%	51%
Social media	4%	49%

Summary

As documented in previous reports and confirmed again here, there is a long-established tradition of sharing, collaboration and exchange between parliaments. As shown again by this year's survey, international and inter-parliamentary networks

remain popular. IFLA, a subject-specific network for libraries and research services, is the most extensive, active and influential example of this. It is also global in scope, setting it apart from the regional networks of Europe, Latin America and the Caribbean. If IFLA as well as these regional networks is considered, four out of every five parliaments belong to at least one network. If IFLA is excluded, the figure is still a robust 65 per cent, an increase consistent with that recorded by previous reports.

Parliaments are already supporting each other, and expressing a willing to do so more, in a wide range of areas, starting with website development, ICT planning and support for the legislative process. Parliaments are much less inclined, on the other hand, to offer support with open data, application development, social media or engagement and outreach. These, unfortunately, are areas where many parliaments would like to receive support but have not to date. This disparity suggests that more work needs to be done to consider strategic support and the transfer of knowledge and skills, particularly in new and emerging fields, such as open data and social media as well as increasing the availability of support for citizen engagement and outreach activities.

Key findings from the parliamentary survey

Parliaments are becoming more open and outward facing. The increasing adoption of social media continues but wider public uptake lags behind. Open data and methods for ensuring that data and documents are accessible and reusable, whether by other internal systems, the public or third-party organizations such as PMOs, have rightly gained attention and been a subject of much interest and discussion in parliaments. Yet at the strategic level, roadblocks to the effectiveness of ICT remain. The 2012 report concluded that parliaments were hampered by a lack of access to best practices and of support from the international donor community, particularly in low-income countries. Unsurprisingly, the findings of this report, four years on, led to the same conclusion. Financial constraints, staff knowledge and capacity and a lack of knowledge among members continue to be a problem for all parliaments, regardless of national income or level of economic development.

These challenges are strategic. They need to be addressed at a systemic level. And yet, this year again, the ICT-related achievements parliaments report as their most significant relate primarily to the management of information and publication. In one way this is positive: it shows that parliaments are focused on making information accessible and available for members, staff and the public. But it is a concern that more attention is not being given to macro issues and that strategic barriers to improvement may be holding back greater operational and technical development.

A trend that is clear in this year's report is that digital tools and services have matured to the point of being part of the core business of every parliament. That makes the value of a purely "e-parliament" survey questionable in the future. What is clearly visible in 2016 is that digital tools can transform how parliaments work not just at a day-to-day operational level, but also in terms of new ways of thinking, innovative parliamentary practices and a stronger, more vibrant culture of openness and transparency.

Vision and strategy

Parliaments are recognizing the importance of ICT, and this is reflected in the seniority of related decision-making levels. Yet, according to the data, there also appears to be a mismatch: ICT directors or their equivalents are represented in the senior management teams of only half of the responding parliaments – even though they are responsible for developing ICT strategic plans in 85 per cent of those parliaments. This survey also shows that one quarter of parliaments still have no vision statement; only 56 per cent have both a vision statement and a strategic plan, and only 47 per cent involve their ICT leadership in setting the strategic direction for investments in digital technology. Such strategic barriers to improvement will remain a problem until parliaments put in place an effective vision and strategic planning process. This can in turn be used to clear (or navigate around) operational constraints. A key

step in this process will be to involve senior ICT leadership in the strategic processes for parliament as a whole.

Resourcing and staffing

Optimizing and cultivating the skills, knowledge and interests of members and staff remains a key challenge for many parliaments. As new tools and technologies emerge and parliaments adopt more complex systems and processes, new issues of resource availability and support come to the fore. It is in new and emerging areas – such as social media and open data at the moment – that inter-parliamentary support is at its weakest.

Infrastructural needs

The Internet has become a nearly ubiquitous tool, serving almost every parliament, and digital tools are increasingly cemented into the core operations and procedures of parliament. An example highlighted in this report is the reduced number of parliaments that now capture the verbatim record of plenary proceedings by hand and a rise in the use of new technologies, such as speech recognition, directly within the chamber. And while the use of commercial software remains the norm for most applications, three quarters of the responding parliaments now use open-source for at least some of their software needs (though barriers and resistance persist on that front).

As per previous reports, most of the responding parliaments consider their Internet access reliable and adequate for their needs. There has been a significant increase in the median speed of Internet connections over the years, from 12Mbps in 2012 to 100Mbps in 2016. Connection reliability and speed will become more important issues as parliaments adopt new cloud-based technologies, or harness real-time software-as-a-service applications. That increasing importance is in turn being reflected in a growing number of service-level agreements with external – and more recently internal – support providers.

Email has become ubiquitous across parliaments but is not always used consistently or effectively. Only 35 per cent of the responding parliaments report that parliamentary email accounts are used by all members; nine out of ten report members using private email in addition to or instead of their parliamentary accounts. Preference for an existing email account appears to be the predominant barrier to using parliamentary accounts, though it is not clear why. Of far greater concern is that a lack of knowledge of ICT is seen as a barrier to effective use by 43 per cent of parliaments.

Few parliaments provide digital technology directly to members, but most are relaxing their regulations on the use of digital tools within the plenary chamber. This is now becoming not only commonplace but accepted and

seen as part of the business of the chamber. While some parliaments have specific regulations about what devices can be used and when, most allow the use of tablets and smartphones, particularly in the context of standard parliamentary procedure.

Wireless networks are commonplace within parliaments. Though marginally more often provided for members, they are increasingly being made available for staff and even public visitors. This makes for more flexible working options and supports a variety of digital tools, so that staff are not anchored to a wired network. There has been an increase in the provision of wireless access for visitors to parliament. This raises issues of security. As this research suggests, some parliaments have considered these security issues and put good management practices in place to address them. Many, however, have not.

Voting systems

Electronic voting systems, or digital voting system components, have become embedded in the majority of plenary chambers, consisting mostly of card-based systems and voting buttons. This has happened for various reasons, including to reduce corrupt voting practices, to speed up the counting process, and to increase transparency.

Creating legislative documents and information

The use of ICT for parliamentary and legislative documents is a story of inadequate resources stifling adoption internally but of a blossoming in the open publication of such documents. Half of the responding parliaments have implemented systems for managing legislative texts in digital format, about the same as recorded by previous surveys, suggesting that progress in this area may be stalling. A significant disparity observed in both 2010 and 2012 between high- and low-income parliaments in the implementation of document management systems for legislation continues to be seen in the current data. Such systems are inherently complex and highly specialized, presenting operational challenges for smaller parliaments and those with limited financial resources.

Adoption of document standards for exchange and publishing

One area where the management of documentation has changed dramatically since the previous report, in 2012, is in publication technology. The uptake of XML continues with the number of parliaments using it as part of their document management system doubling between 2010 and 2016. The primary use of XML is for the sharing or exchange of documents and data with other systems and for the presentation and publication of data online.

Parliaments are increasingly seeing this and other open data standards as an important part of a shift towards greater transparency. But they are not a panacea. Parliaments face challenges in using XML (and other standards) related to complexity, cost and process changes required to utilize new technologies. The increasing adoption of document standards

does not alter the fact that pre-produced documents, such as those in PDF format, remain the most popular method of publication. At this stage, only 39 per cent of parliaments are making information available in an editable file format, including 12 per cent that provide a direct data interface. The growth of accessible and open APIs is particularly significant, since it allows other organizations to use parliamentary data.

Library and research services

The modern parliamentary library is now a digital space as much as it is a physical one, relying on digital assets and communication tools to manage, research and communicate. The 2010 report found that the increasing use of ICT was creating a growing demand for information services. This trend continues in 2016, the situation having matured further. It is clear from this research that digital tools, including management tools and social or publishing technologies, are now core library functions.

There is a clear and growing demand for collaboration among library and research services, the number belonging to international or regional networks having almost doubled, from 45 per cent in 2012 to 80 per cent in 2016. Parliamentary libraries are likely to be members of at least two networks and this has contributed significantly to the development and adoption of standards for the use of ICT – not only in the library and research services domain but also across the wider parliamentary sector.

Parliaments online

Every parliament that took part in the survey now has a website, highlighting the importance of the Internet as a way of connecting and communicating with citizens. This is reflected in the way most parliaments involve senior management and their political leadership in setting the strategic goals for their websites. This survey introduced the role of director of communications, reflecting the shift from websites as a technical platform to one of communicating with stakeholders. It is unsurprising to see that 31 per cent of parliaments involve their director of communications or equivalent in website planning. Yet 42 per cent of parliaments involve neither the director of ICT nor the director of communications, suggesting that not all parliaments have embraced the strategic value and opportunity presented by the Internet.

Website operations most often (in 75 per cent of the parliaments) involve IT departments; communications and press offices are involved in one third of the parliaments. Content provision is much more evenly distributed among offices for IT, communications and the press. This reflects the increasingly detailed and diverse range of information being published. The research also shows that most of the parliaments remain in a publish-and-broadcast mode. The website remains a tool primarily for reading or downloading information, and less for interaction and engagement. Content has become richer and more dynamic, but there has been little improvement in the level of interaction reported since 2012.

Use of standards for accessibility and usability

A range of good practices and standards are available to support website usability, but as shown in the 2016 survey official standards have still been adopted in only 53 per cent of parliaments. It is positive, on the other hand, to see a notable increase in all aspects of both informal and formal usability and accessibility within the design and deployment of websites. It is also promising that more parliaments are carrying out evaluations of their web assets. One reason for the increase appears to be adoption of the IPU Guidelines for Parliamentary Websites.

The most important website improvements have related to technical architecture and platform, content and usability. These are also seen as important areas to improve in the future. The survey shows notable improvements in all aspects of website usability and accessibility, with more parliaments basing their design and content on actual user needs (81 per cent versus 72 per cent in 2012), user testing and usability methods. The number of parliaments that actually review the usability and accessibility of their websites, however, remains low, at around one in five.

Connecting with citizens

The latest survey shows that the use of proprietary e-consultation tools for bills and issues and online polls has not increased noticeably since 2012. Does this plateau signal an abatement in parliaments' expanding use of social media? Growth in parliaments' use of the social media in recent years has certainly been clear, mirroring though lagging behind wider public adoption. As a tool for parliamentary outreach and engagement, social tools are now more widely used than television or radio. Social networks such as Facebook are employed by almost three in five of the responding parliaments, an 80 per cent increase since 2012. Tools such as Twitter and Whatsapp are increasingly being used, too, and it is clear that members as well as institutions are rapidly adopting new social platforms. This presents a challenge: it is becoming increasingly difficult for parliaments to know what members are doing and how well they are using the tools that are available.

Multi-channel

This rise in social traffic does not reduce the value of the parliamentary website; social sources can in fact be used to drive traffic to richer and more complex content online. Social networks and applications such as instant messaging are an additional channel, not replacements. The importance of email, still the method most widely used for communication between members of parliament and constituents, remains undiminished even as the use of other social channels rises.

The majority of members can choose to have and use an official parliamentary email account, though 91 per cent of parliaments report that at least some members use private email accounts, too. Members as well as institutions are adopting social media to communicate with citizens: whereas 85 per cent of parliaments report that at least some members use email, 80 per cent also report them using Facebook. Video and photo-sharing applications are also proving popular with members of parliament. Fifty-nine per cent of the parliaments

report having members who use video-sharing tools such as YouTube; members are reported to use photo-sharing sites such as Flickr by 44 per cent of the parliaments. Committees, too, are increasingly likely to use digital and social tools to connect with citizens, increasingly to request input for an inquiry or issue as well as to publish. Committees in one third of the parliaments allow online submissions.

Digital engagement

Although only one in four parliaments has conducted an evaluation of their digital engagement,²⁰ their use of digital and social tools and the range of new and innovative ways in which they use them continues to expand. From internally developed applications to new social tools, citizens now have far greater opportunities to learn about and engage with their parliaments, in a way and at a time that suits them.

There is considerably less innovation in, or focus on, the more active aspects of digital engagement. Only one in ten parliaments considers it important to facilitate an exchange of views between members and the public. Not many more see digital engagement methods as important for improving policy and legislation. The focus of most parliaments appears to remain on publication and information rather than active engagement. While some parliaments have shown that creating innovative projects, such as Brazil's Hackerlab, are effective ways to build digital capability and improve the relationship with citizens, few parliaments appear ready to harness new digital tools for more participatory or deliberative purposes. This lack of proactive engagement is also reflected in a lack of youth-specific content, and yet the parliaments that do provide specific content for young people are disproportionately more likely to be in low-income countries.

Opening up parliament means enabling citizens to understand how parliaments operate: large proportions of responding parliaments identified the ability to inform citizens about policy and legislation (74%), and about how parliament works (64%), as the biggest benefits of digital tools. Using digital tools to engage more people in the political process matters too.

Publishing documents online

While 93 per cent of the parliaments now publish documents relating to their plenary agenda either on or before the day, income is again a determinant in how information is made available. The move towards open data and open publishing requires investment in backend systems as well as cultural acceptance and management engagement. This report identifies numerous challenges to greater openness, including continued use of primarily static and non-editable formats, particularly PDF. While there has been an attitudinal shift towards openness, such barriers to open publishing have effectively confined parliaments to "broadcast mode".

In terms of publishing standards, XML has been heavily promoted within the parliamentary community. But as discussed in this report, there are challenges to using it effectively, particularly in less well-resourced parliaments.

²⁰ Digital engagement is used here to refer to the broader use of digital tools to actively engage with citizens, as opposed to the evaluation of web assets discussed later, which refers more to the platforms, tools and their usability.

It is also important to recognize that other standards exist and can prove more effective (or pragmatic) for parliaments and other users. An important conclusion of this report is that ongoing support for the adoption of new tools and technologies remains vital if parliaments are to realize their potential for openness and transparency, engage with a wider audience and support their own evolving document management needs.

Open data

Sixty per cent of parliaments agree that publishing data in an open format, so that others can use, reuse and redistribute it, will lead to important improvements. But this figure masks an imbalance: it is the view of only 38 per cent of the parliaments in low-income countries but of 64 per cent of those in high-income ones. And yet, open data is not the preserve of bigger or economically better-off parliaments. It is being embraced by an expanding range of parliaments, almost half of which (46%) consider open data an important development for them over the past four years, regardless of income level.

When open data is made available, it is often (in 77 per cent of the parliaments) published through channels on the parliament's own website. Twelve per cent make open data available "on request". More than one in ten parliaments now make data available via a third-party organization, which might be a governmental open data portal, such as in New Zealand, or a PMO or other civil society organization, as happens in Serbia. This data might be shared with third parties via a restricted mechanism rather than being fully open at the parliamentary level. Nonetheless, it is still accessible and usable (if not fully reusable) by citizens.

It is in the technical architecture and standards required to support open and shared data that the most significant changes in parliamentary technology have occurred in recent years. Parliaments are slowly but increasingly seeing XML and other open data standards as a core part of their shift towards public transparency. It is significant that 12 per cent of the parliaments now offer a direct interface to the data itself. They are at the vanguard of a new sharing revolution that allows third-party organizations to take data produced by parliaments and analyse, share and repurpose it. This extends the reach and value of parliamentary data and is a core tenet of greater public involvement in a digital age. Three quarters of parliaments now make data available directly from their websites, and one in ten publish it with support from, or via, a PMO or other NGO.

The significant growth witnessed in the use of open data may mirror changes elsewhere, but it underpins the potential for a fundamental change in the relationship between parliaments and citizens. No longer is it necessary (or even acceptable) for parliaments to be closed, and to publish complex documents in complicated language as and when they choose (or can afford). Open data and new social tools clear away the barriers to data and information. Parliaments can now make data available in new ways without presupposing what others might want to do with it. Third-party organizations, even individuals, can now monitor, measure, analyse, comment on and use it to build both knowledge and confidence in the parliament. This matters because it is far from sufficient to simply publish data and expect people to use it. Aside from small groups of specialists, people are rarely aware of such data and, when they are, often lack the technical skills to access, investigate, analyse or understand it. The effective use of open data requires parliaments to take a strategic approach to such questions, partnering with organizations that can stimulate more widespread and proper use of the data generated.

Cooperation and support

As documented in previous reports and confirmed again here, there is a long-established tradition of sharing, collaboration and exchange between parliaments. Inter-parliamentary networks remain particularly popular, IFLA, a subject-specific network for libraries and research services, being the most extensive, active and influential example. IFLA is also global in scope, setting it apart from the regional networks of Europe, Latin America and the Caribbean. If IFLA as well as these regional networks are considered, four out of five of the parliaments belong to at least one network. If IFLA is excluded, the figure is still a robust 65 per cent, an increase consistent with that recorded by previous reports.

Parliaments are already supporting each other – and expressing a willingness to do so more – in a wide range of areas, starting with website development, ICT planning and support for the legislative process. Parliaments are much less inclined, on the other hand, to offer support with open data, application development, social media or engagement and outreach. These, unfortunately, are areas where many parliaments would like support but have not been getting it to date. This disparity suggests that more work needs to be done to consider strategic support and the transfer of knowledge and skills, particularly in new and emerging fields, such as open data and social media, as well as increasing the availability of support for citizen engagement and outreach activities.

Measuring the digital parliament

Having looked at the survey responses from parliaments in detail and identified the key themes and trends, including the challenges facing parliaments, this section will focus on a short macro-level analysis of digital maturity in the participating parliaments, applying a digital maturity index generated using the survey data. As previous World e-Parliament Reports have noted, any measurement based on unverified self-evaluations and possibly incomplete data has to be used with care. Be that as it may, it is still considered useful to examine the maturity of parliaments to help individual parliaments better understand the strengths and weaknesses of their digital programmes.

Background to the e-parliament index

The second World e-Parliament Report, published in 2010, included a statistical model for assessing ICT maturity within parliaments. It built upon the more informal measurements used in the first report, in 2008, by assigning a numerical score to six categories (matching the categories used in the survey that year and replicated here):

- oversight and management of ICT;
- infrastructure, services, applications and training;
- systems and standards for creating legislative documents and information;
- library and research services;
- parliamentary websites;
- communication between citizens and parliaments.

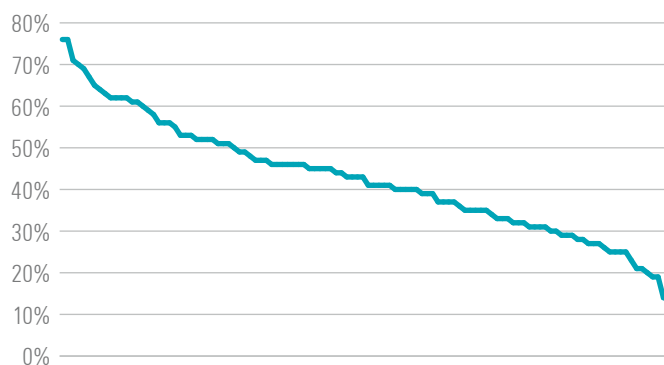
Values for each section were combined to provide an overall score. This index was applied again in 2012, but for 2016 the survey's baseline was no longer appropriate, focusing as it did on the technical aspects of ICT. As this research clearly shows, other factors are now considered important in assessing e-parliament, including how digital tools and methods are planned and managed at a strategic level and the overall strategic importance given to ICT (and key ICT staff). Therefore, while the broad categories have been retained and a majority of indicators from the 2012 index reused, the latest index adds evaluations around the strategic value of ICT and, at the other side, open data and social media. The scores generated using this index are not directly comparable with earlier scores.

The scores were assigned to each parliament based on their responses to the survey and were then totalled and a value found for each section, with a maximum of 100. The six sections were combined and an overall score was calculated, again with a maximum value of 100. The purpose of the index is not to compare one parliament against another but to determine the level of maturity and clarify trends shown in the report. As in the main body of the report, individual parliaments are not identified.

Key findings

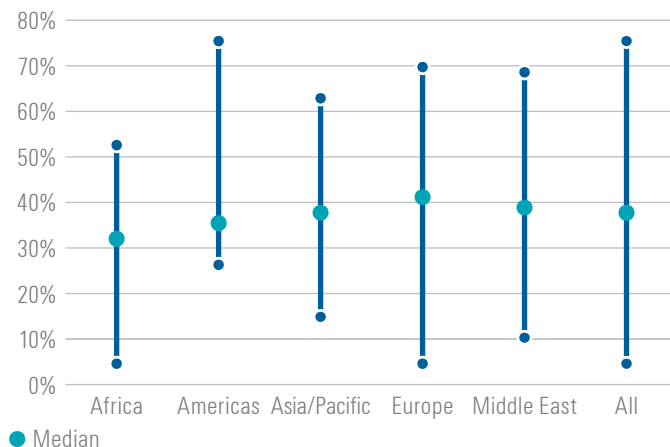
The findings demonstrate a wide variation in the levels of digital maturity among parliaments. Most of the parliaments (67%) scored between 33 per cent and 65 per cent, while only 5 per cent received an overall score of 66 per cent or higher. This leaves more than one quarter of the parliaments (27%) with a score in the bottom third. The average score was 64 per cent for the top 20 parliaments and 24 per cent for the lowest 20. The scale is a continuum, such that there is no point at which a parliament becomes "digitally mature". Its purpose is to indicate the direction in which parliaments are moving: not simply the quantity or range of technology and tools being used but their effectiveness in supporting the parliament and its stakeholders.

Figure 63 All scores



It is also useful to analyse the scores by region. Because of the sample size, the scores for Asia and the Pacific are combined, as are the scores for participating parliaments in the Caribbean, Latin America and North America. The median score for all parliaments is 43 per cent, 14 per cent being the lowest and 76 per cent the highest. Only Europe and the Middle East have median ratings above the overall median. Africa has the lowest median score, 38 per cent, and also shares the lowest overall score with Europe.

Figure 64 Range of scores by region



The extreme distribution of maturity can be demonstrated by comparing the top 20 and bottom 20 parliaments according to geographic region, as shown in Table 42: 55 per cent of the lowest-ranking parliaments are in Africa, which is home to none of the top 20. Conversely, 35 per cent of parliaments in the top 20, and none in the bottom 20, are in the Americas. Given the relative number of legislatures in that region, this suggests high levels of digital maturity for Latin America in particular. Europe provides half of the top 20 parliaments, which is not unexpected.

Table 42 Top and bottom 20 countries by region

	Top	Bottom 20
Africa	0%	55%
Americas	35%	0%
Asia/Pacific	10%	15%
Europe	50%	20%
Middle East	5%	10%

Evaluating the average scores by topic category (see Figure 65), it is clear that core ICT applications in parliament (infrastructure, services, applications, training) are relatively mature (which explains the decision to revise and expand the index). Other areas show a medium level of maturity, but there is potential for improvement in most areas.

Figure 65 Average scores by category for all parliaments

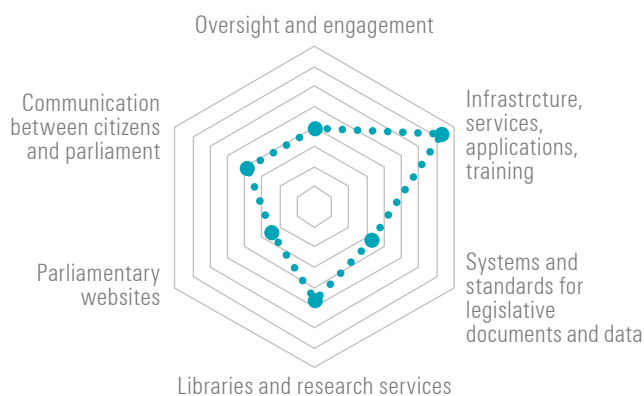
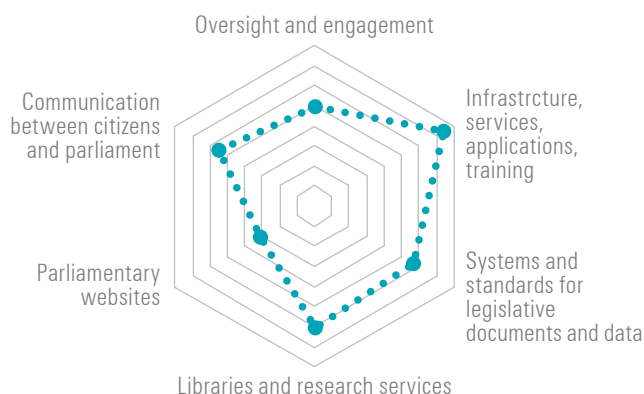


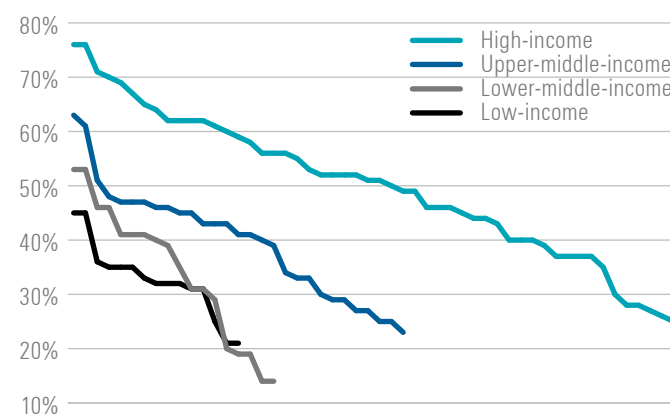
Figure 66 Average scores by category for all top 20 parliaments in each category



It is possible to compare the average scores of all parliaments with those of the top 20 legislatures in each category. This reveals that while parliaments experience a range of digital maturity, as to be expected, they differ relatively little in the areas of infrastructure and strategic oversight. There is much greater variation in the use of standards, library and research services and citizen engagement. Scores for strategic oversight and parliamentary websites (which includes the publication of open data) remain relatively low across all the parliaments, including the top 20 in those categories.

The distribution of scores based on the size of the chamber shows no particular pattern. As the earlier survey findings have consistently shown, however, the income level of a country is a key determinant in whether its parliament can afford certain digital functions. The reports have shown that as complexity increases and new tools, platforms and methods emerge, parliaments in low-income countries are consistently less likely or able to implement them. A review of the scores against World Bank income levels clearly shows a direct correlation between a country's income and the digital maturity of its parliament. Out of the top 20 parliaments, 18 are in high-income countries, but 12 in the bottom 20 are in middle-income countries; only three of the bottom 20 are in low-income ones. Parliaments in low-income countries, on the other hand, are more likely to be distributed towards the lower end of the continuum. These and other findings suggest that income levels are a key factor but that parliaments in low income countries can disproportionately benefit from external support.

Figure 67 Digital maturity plotted against income level



This assessment of digital maturity shows that parliaments are generally well provisioned in terms of core technical infrastructure but that there are weaknesses in terms of support and process around planning and managing that architecture. Library and research services appear generally mature, but there remain weaknesses and opportunities for improvement around the provision of outward-facing information and, in particular, open data. This is despite the rise in the use of open systems and open publishing and suggests that this area is still maturing.

Scores relating to how effectively parliaments communicate with citizens show a range of results, suggesting that this emerging area, too, has yet to be exploited effectively. There is, of course, some correlation between the sophistication of digital tools, the provision of open documents and data, and the effectiveness of citizen engagement.

Survey of parliamentary monitoring organizations

Analysis and discussion of the PMO survey

The use of digital tools for parliamentary monitoring is relatively new, and there is limited data available on the work and nature of PMOs around the world. A detailed study undertaken by NDI and the World Bank, published in 2011,²¹ estimated at more than 190 the number of PMOs operating at that time, monitoring 80 national parliaments. PMOs were at the time more prominently represented in Latin America and Europe and were seen to be tracking a wide range of activities – those of individual members and parliamentary groups as well as debates and activities in the chamber. The survey of parliaments discussed above found that parliaments are increasingly providing open data but that there are barriers to effective use of that data by citizens (pertaining to awareness and the technical skills or tools needed to access, understand and analyse the data properly). PMOs play an important role in bridging that gap.

The primary challenges reported in 2011 were limited access to financial resources and the difficulty of obtaining parliamentary information and data. It was found that the impact of PMOs was often limited by an inability to translate their monitoring activities into greater public awareness or advocacy. The report described a continuum ranging from partnership (PMOs working closely with parliaments to improve transparency) to more adversarial relationships. It is clear from the report that ICT and the Internet have been significant enablers for PMOs.

The work of PMOs in creating strong, open and accountable parliaments was recognized in the Declaration of parliamentary openness, issued at the World e-Parliament Conference 2012, in Rome, Italy.²² Its four primary headings were as follows:

- 1 **Promoting a culture of openness:** Parliamentary information belongs to the public.
- 2 **Making parliamentary information transparent:** Parliament shall adopt policies that ensure proactive publication of parliamentary information and shall review these policies periodically to take advantage of evolving good practices.
- 3 **Easing access to parliamentary information:** Parliament shall ensure that information is broadly accessible to all citizens on a non-discriminatory basis through multiple channels, including first-person observation, print media, radio, and live and on-demand broadcasts and streaming.

21 Mandelbaum, A.G. (2011). *Strengthening parliamentary accountability, citizen engagement and access to information: A global survey of parliamentary monitoring organizations*. National Democratic Institute and World Bank Institute.

22 See www.openingparliament.org/declaration

- 4 **Enabling electronic communication of parliamentary information:** Parliamentary information should be released online in open and structured formats that allow citizens to analyse and reuse it, using the full range of technology tools.

About the organizations in this survey

This new survey was carried out as part of the World e-Parliament Report project, with the support of NDI. The participants in this survey are civil society organizations concerned with observing and monitoring the work of their respective parliaments and using digital tools to publish, analyse or report information on parliamentary activities. Thirty-three PMOs from 31 countries completed the survey (a number of additional submissions were incomplete or did not meet the criteria, and were discarded). It is difficult to quantify the response rate, but if growth in the PMO community since 2011 is extrapolated from the survey findings (discussed below), the number of PMOs operating around the world could be estimated at around 250, suggesting a response rate of approximately 13 per cent.

The PMOs taking part in this research reflect a broad range of countries. Almost one quarter (23%) are in Latin America and 29 per cent in Europe, consistent with the upward trends previously observed in those regions. The figures for respondents in Asia (19%) and Africa (16%) suggest that PMO activities in those regions are starting to develop and mature.

The 2011 research undertaken by NDI and the World Bank identified financing as a significant barrier to PMO effectiveness at that time, and that appears to be the case in 2016 as well: only 3 per cent of the survey respondents are in low-income countries, a significant underrepresentation, particularly considering that 29 per cent of the countries represented in the survey are high-income.

The longest established of the PMOs surveyed was started in 1981; the two newest in 2015. As shown in Table 43, 27 per cent of the PMOs were established before 2000 and 42 per cent between 2000 and 2009. Three out of ten were started after 2010.

The size of PMOs varies considerably. The largest employs 47 and the smallest employs no permanent staff at all, relying completely on volunteers. Those employing more than 40 FTEs make up 14% of the respondents. One third of the respondents employ 20 or more; 30 per cent employ five or fewer.

There is less reliance on voluntary staff than might be expected for NGOs: volunteers account for no more than 25 per cent of staff among 70 per cent of the respondents and for more than three quarters of staff among only 10 per cent.

Figure 68 Distribution of PMOs by region (n=31)

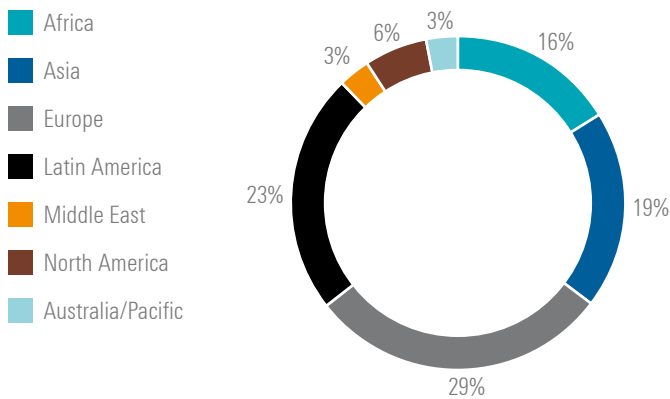


Figure 69 World Bank country income levels for respondents (n=31)

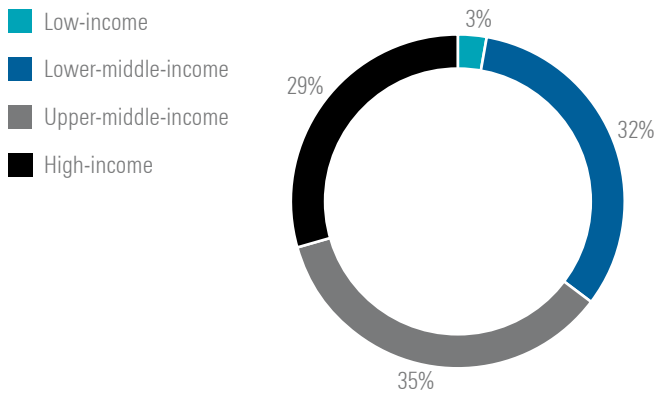


Table 43 Year the PMO was started (n=33)

Before 2000	27%
Between 2000 and 2009	42%
After 2010	30%

Figure 70 Full-time equivalent staff levels (n=30)

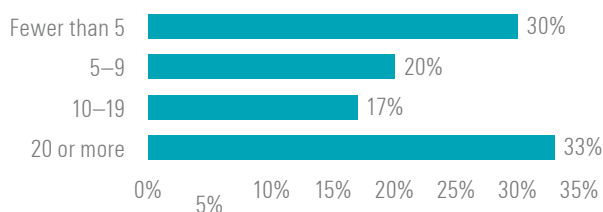
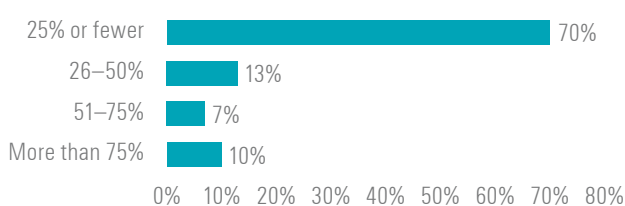


Figure 71 Volunteer staffing (FTE) (n=30)



How PMOs are engaging citizens

It is difficult to define a specific audience for the data and value-added commentary and analysis that PMOs provide. In principle, every citizen in a PMO's country or region is being served. In reality, the audience interested in political or parliamentary activities tends to be small and to vary over time or by issue. One of the opportunities that PMOs offer is the chance to build interest in parliament among previously disengaged groups. Larger PMOs may successfully engage with a broad swathe of the population; others may be content to occupy a specific niche, engaging with the next tier of people or organizations in their wider democratic ecosystems. Their annual audience for engagement in terms of parliamentary activity ranges between 500 and 8 million people. The median audience is 97,000 people, and yet 40 per cent of the responding PMOs estimate their annual audience at 10,000 or fewer.

Respondents to the survey were asked to describe their work and the methods they use to support and encourage greater citizen involvement in the legislative process. The results reveal that beyond the link to parliament and the commitment to openness and transparency, PMOs undertake a wide variety of roles and exist for a range of purposes.

We develop informative/educational tools (printed handbooks, posters, interactive training devices and online tools as well) on how transparency is important to exercise citizens' rights and to control the power of elected officials.

The most prominent activity themes revealed in the data are shown below. They can be summarized by the terms "monitor", "inform" and "connect":

What PMOs do		
Monitor	Inform	Connect
publish analyse research	explain educate share	data members committees

Monitoring

PMOs publish updates on what is going on in parliament, through their websites, using push updates such as RSS feeds, and via email lists. One PMO reported emailing 2,300 people per sitting-day and providing the same information via an RSS feed, tailoring the information to individual requirements (e.g. that pertaining to a particular member, topic or piece of legislation).

PMOs report adding value to the processes they monitor by providing a summary or narrative of bills or events in parliament. A number of PMOs have been providing commentary on the budget. It is a core function of most PMOs to first make such information available and then to consider the experience of users in finding and using that information. This is a positive step, reducing the potential for confusion or information overload.

We have a public campaign called "Visible Candidates" which provides information about the profiles and curricula vitae of the candidates in congressional elections.

Informing

A lack of public understanding about how parliaments work has already been cited as a barrier in the parliamentary survey. PMOs recognize this, too, and many are developing the ways and means to inform and educate the public about what parliaments are, how they work and how citizens can get involved. One PMO produces a legislative handbook for citizens called “The Passport”. It has been designed to educate citizens on their rights and on the role of the legislature.

Parliamentary language is often seen as confusing and a barrier to greater public involvement, so PMOs have been developing ways to make information accessible to citizens and easier to understand – for instance, by simplifying complex parliamentary jargon and interpreting information to make it more meaningful, as two PMOs reported doing. Such activity is not unique to PMOs. Parliaments in Brazil and the United Kingdom have run workshops with civil society groups and other digitally active citizens where similar concepts have been explored.

Our recent initiative, which started two months prior to the Parliamentary election, involves thousands of youth, all around the country. People are becoming more and more informed about parliamentary data and the people’s right to this data.

Connecting

The term PMO may often be an understatement: many go far beyond monitoring and reporting. Some actively intervene to connect citizens with members of parliament and involve them in the legislative process, whether through committees or by curating discussions and proposals around draft legislation.

This can be as simple as publishing detailed information about members, making it easier for the public to see who represents them and how they can be contacted. One PMO uses crowd-sourcing techniques to gather citizens’ proposals and ideas and refer them to the relevant parliamentary committees; others sponsor live public events, where citizens can discuss issues with guest MPs, and non-partisan dialogue to help citizens organise and advocate legislation.

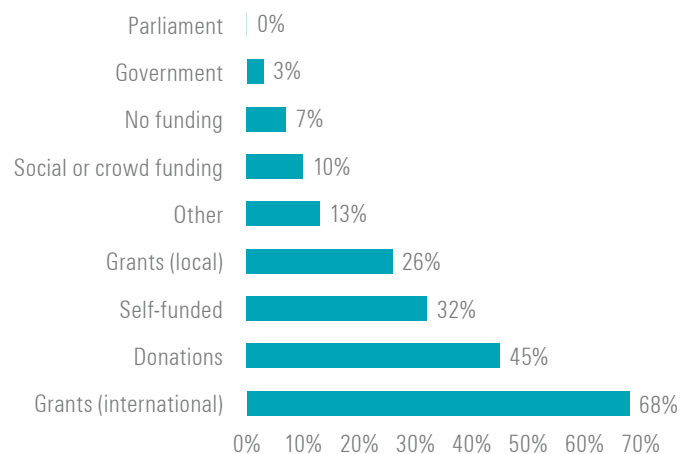
Our web-platform lets citizens post questions, which are answered by the MPs on the platform. Those that are not answered remain pending for that MP until answered.

Table 44 Funding sources by income level (n=32)

	Grants	Grants – international	Crowd-funded	Self-funded	Donations
High income	20%	30%	20%	40%	60%
Upper-middle income	17%	75%	0%	33%	50%
Lower-middle income	33%	78%	11%	22%	22%
Low income	100%	100%	0%	0%	0%

Sources of funding

Figure 72 Source of funding (n=32)



As discussed earlier, funding is an essential challenge for the PMO community (as it is for parliaments when it comes to adopting digital tools and services). The vast majority of PMOs responding to this survey (68%) are funded by international donor agencies (but a word of caution about generalizing from this figure: the survey respondents here tend to be more engaged in the international PMO community). Donations (45%), self-funding (32%) and grants from in-country organizations (26%) are also important sources of funding. Social or crowd-funding is a source for one in ten PMOs, reflecting the rise in this form of fundraising and the digital nature of the respondents’ work. None of the PMOs in this survey receives funding from the parliament it monitors. This may be because funding is unavailable (PMOs in new or emerging democracies are more likely to be viable bodies for donor funding) or in the interests of independence. One PMO reports having developed a funding relationship with a commercial organization, which in effect sponsors its work.

When a PMO’s funding is analysed in terms of its country’s income level, access to international grants appears to diminish as income levels and development levels rise. In contrast, the ability to self-fund, raise donations and harness newer crowd-funding methods increases with income level.

Working with parliament

PMOs engage in a wide variety of monitoring, reporting and engagement activities. Three out of five respondents (60%) report that more than half of their work is related to

parliament, parliamentary data or citizen efforts to engage with parliament. This accounts for more than 90 per cent of the work done by 35 per cent of the respondents and less than 10 per cent of that done by only 6 per cent of the respondents.

Most PMOs report having some kind of relationship with the parliaments they monitor; only 9 per cent have none. Of the remainder, 42 per cent report having a formal relationship and 49 per cent an informal one. This suggests that both parties benefit from working together, to share data, promote transparency and awareness and encourage citizen engagement with the work of parliaments. It is encouraging, too, that two thirds of PMOs describe their level of cooperation with parliament as adequate or better. Only 9 per cent report the relationship being very poor or there being very little cooperation, though almost a quarter (24%) describe the level of cooperation as limited or poor.

Where PMOs do work with their parliaments, they interact and collaborate with a diverse range of people and groups.

Table 45 Percentage of work related to parliament (n=33)

Less than 10%	6%
10–50%	33%
51–90%	24%
More than 90%	36%

Figure 73 Quality of cooperation with parliament (n=33)

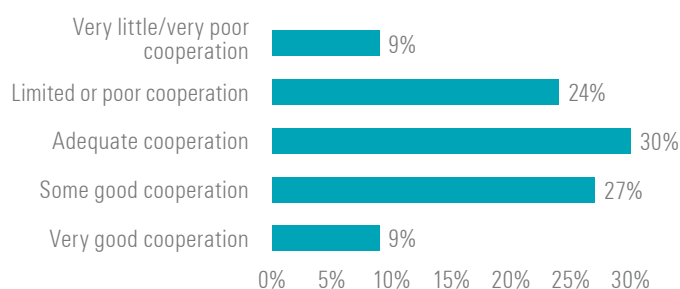
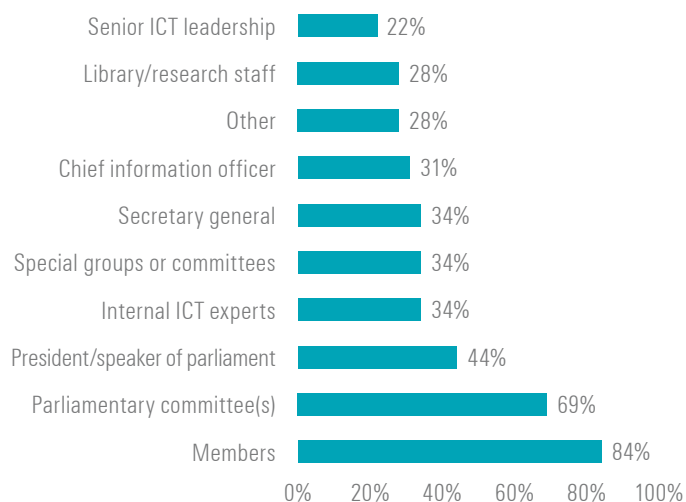


Figure 74 Quality of cooperation with parliament (n=32)



It is unsurprising that the group most of the PMOs (84%) report working with are members. More surprising perhaps is that 69 per cent report working with committees, the second highest number. Only around a third of the PMOs work directly with parliamentary ICT staff (34%) and fewer still (22%) with senior IT leaders in parliament. Forty-four per cent do, however, report working with the president and speaker of the parliament. Other groups that PMOs work with include journalists reporting on the work of parliament, subject matter experts within parliament (including committee experts) and those performing freedom-of-information roles.

Publishing data

PMOs publish a wide variety of parliamentary information and data. They focus primarily on members, as reflected by the fact that 84 per cent publish member lists. Half of all respondents publish data on members’ interests and others include information on members’ assets, financial information, contact information, constituency office as well as attendance and voting records. Almost two thirds of the PMOs publish legislative texts; some go further and provide accompanying analysis or narrative. One third publish transcripts of the plenary proceedings, and 47 per cent publish the text or details of bill amendments. A small number of PMOs provide commentary on committees, either for public discussion or more academic analysis.

Data comes from a variety of sources, although 90 per cent of the respondents report obtaining at least some of their data and information directly from parliament. One third (32%) obtain data from the government or a government agency and 58 per cent compile data internally, underscoring that a key role being played by PMOs is to add value to the raw parliamentary data by way of further analysis and

Figure 75 Parliamentary data published by PMOs (n=32)

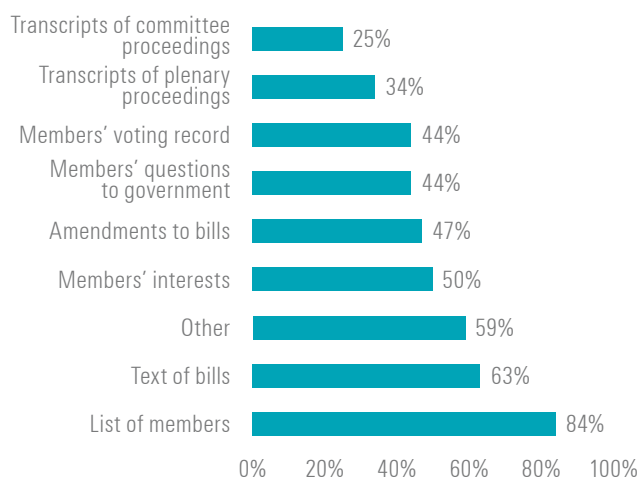


Table 46 Origins of the data (n=31)

From parliament	90%
Compiled within the organization	58%
From government (or a government agency)	32%
From other sources	32%

narrative. A number of PMOs acquire data informally from members who are supportive of their activities; others scrape the information from a variety of non-parliamentary online sources.

Collecting the data is not always straightforward either. Eighty-four per cent of the PMOs report having to use manual data-gathering methods, regardless of source; 59 per cent report using screen-scraping technologies to take data from websites; and 69 per cent parse data from PDF or similar documents. Three out of five (59%) are able to obtain their data from an open data source published by their parliament or another agency, whereas 31 per cent can directly access a data source but through a proprietary agreement, so the data cannot be made widely available to the public or other casual users.

Three quarters of the PMOs (72%) publish data in aggregated or summarized form; the same percentage produce additional commentary or narrative; and 78 per cent produce infographics or visualizations of raw data and analysis.

Around three quarters of the PMOs publish aggregated or summarized data, some kind of commentary or narrative and infographics to support their use of parliamentary data. This is a significant finding, demonstrating that PMOs are much more than mere data brokers: they add value to the data parliaments generate (whether directly, indirectly or unintentionally). Half of the respondents produce infographics using manual methods and tools, but 31 per cent are able to generate infographics dynamically from the data. Nine per cent of PMOs do not generate infographics themselves but obtain them from other organizations.

Figure 76 Sources of data (n=32)

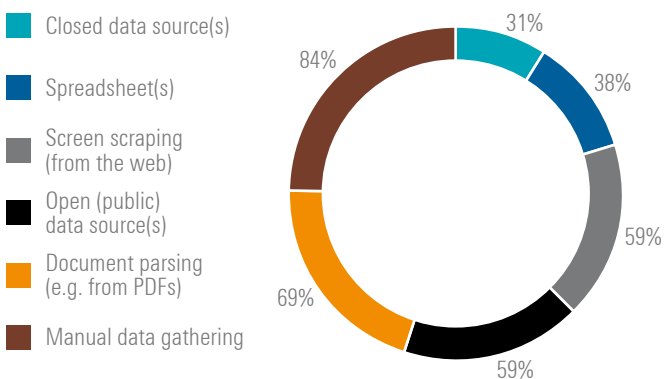
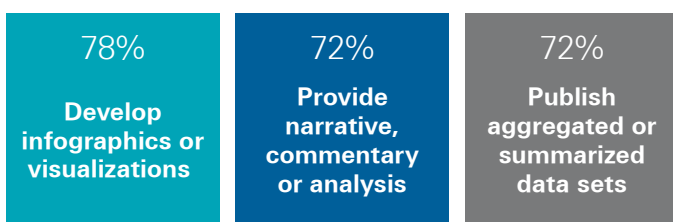


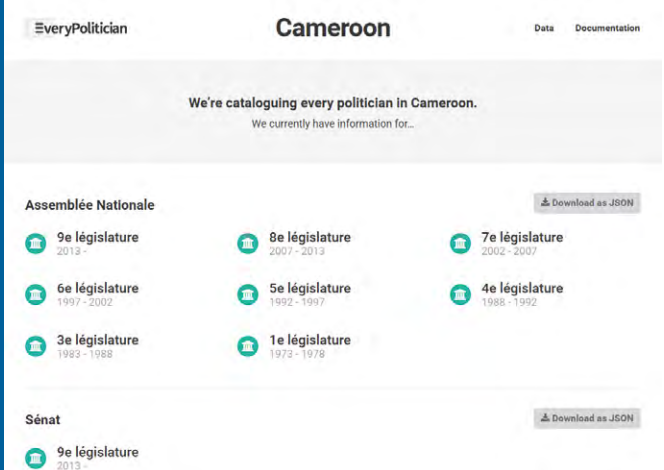
Figure 77 Sources of data (n=32)



Standards and data architecture

“EveryPolitician”²³ is an online open repository of data on elected members of over 230 parliaments around the world. Its aim is to collect, store and share information about every parliament for use by PMOs, journalists and other groups interested in promoting access to democracy. EveryPolitician draws data from a wide variety of sources and in a multitude of formats, ranging from live API feeds to screen-scraping tools. The aim is to centralize and standardize such data so that others can analyse parliaments individually or collectively (e.g. to measure gender balance across all parliaments). Data can be viewed online or downloaded in CSV or JSON format.

Figure 78 Example of an EveryPolitician country page



The project was created as part of Poplus, which aims to build shareable and reusable technology for civic activists and NGOs. It is an example of how diverse, distributed data about a common topic (in this case MPs) can be streamlined, cleansed and made equally available for sharing. While much of this data is already available, it can be a struggle for local PMOs to find, access and make sense of. Tools such as EveryPolitician simplify the process, supporting the efficacy of local PMOs as well as the wider international community.

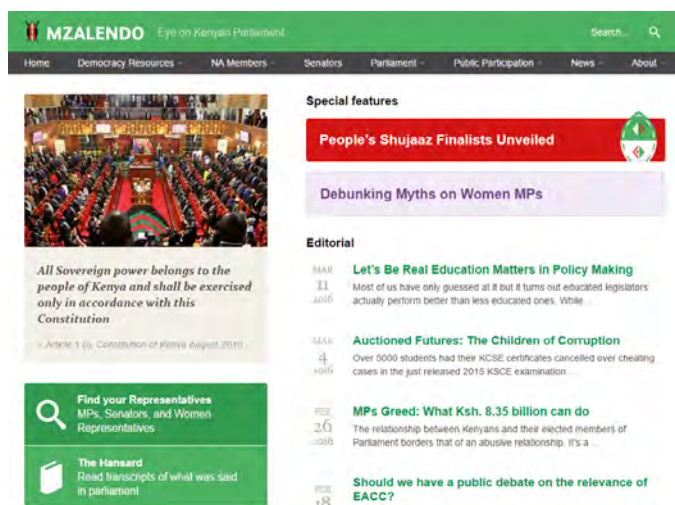
Standards matter when it comes to sharing data. It is difficult to exchange information between systems and organizations without them. Yet three out of five of the responding PMOs (61%) report that they do not use an open data standard. As will be discussed, this does not mean their data is not readable or reusable. But it does demonstrate the relative newness of the sector and the slow emergence of accepted global standards for parliamentary data. One such standard, Akoma Ntoso (Architecture for Knowledge-Oriented Management of African Normative Texts using Open Standards and Ontologies), was developed by and for the parliamentary community out of the need to exchange data within parliamentary systems. It provides a single standard for open data but is only being used by one

23 See everypolitician.org

of the PMOs. A second open data standard for parliamentary data, known as Popolo, was created as an open-source standard for government data and is recognized as a W3C standard, giving it significant credibility and veracity. It was developed by and for PMOs. Popolo is being used by 26 per cent of the respondents. One PMO is using a standard known as Publicwhip, a historical standard developed in the United Kingdom to publish the parliamentary record (Hansard) but now considered a legacy standard.

One third of respondents (36%) use third-party tools off the shelf, without further modification; the same percentage modify such tools to suit their specific needs. Seventy-one per cent develop at least some of the tools they use themselves, internally. When third-party tools are used, they include products developed for very specific PMO-related functions, such as variations on the UK platform TheyWorkForYou, as well as open-source applications such as Google Maps. The Pombola tool, developed by the PMO MySociety (UK), is one of the third-party tools most often cited and used by other PMOs. It is in effect a packaged set of components that organizations can lightly customize to create their own online PMO, therefore overcoming some of the resource and funding barriers prevalent in the sector.

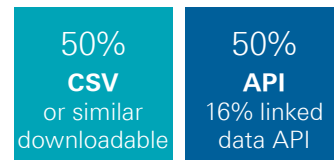
Figure 79 Kenyan platform Mzalendo, an example of the Pombola components



Taking this concept further, MySociety collaborated with Ciudadano Inteligente (Chile) to found Populus, building free-to-use open-source components for democratic strengthening and acting as a focal point for developers of parliamentary technology for civil society. The components available currently include:

BillIt	Flexible document storage tool for bills and other forms of documentation that ensures information can be tagged and retrieved.
Cuttlefish	An easy-to-set-up transactional e-mail server
MapIt	A web service which makes it easy to find out which administrative area (i.e. county, city, region) covers a particular place.
Represent Boundaries	A web API to geographic areas, such as electoral districts that can be used to display location-based information such as profiles for candidates.
SayIt	A web service which makes it easy to store and retrieve written transcripts and written statements made by politicians and other public figures. This can be used to build an interactive archive of the parliamentary record.
WriteIt	A tool that lets the public send a message to a public person without having to create and configure email servers.

When it comes to getting data out to the public, PMOs use a variety of methods. They are not dissimilar to parliaments in their strong reliance on downloadable spreadsheet formats, such as CSV files. Sixty-nine per cent publish data in at least one reusable format. Half (50%) publish in a CSV format, and the same percentage (50%) publish data using an API (16 per cent using a linked-data API). This means that individual data sets can be connected together more easily. The PMOs report little use of fixed documents, such as PDFs, which are so prevalent in the parliamentary world (though this is unsurprising given the nature of their work).



Key findings from the PMO survey

PMOs perform a wide range of activities, from tracking individual members to following debates and educating citizens. In a digitally connected era, PMOs can play an increasingly important role in bridging the gap between parliaments and citizens. When the technical requirements or complexity of open data stand in the way of effective use, PMOs can be a valuable resource for all parties. This research confirms the strength of the PMO sector in Latin America and Europe but identifies growth in Africa and Asia.

Funding remains a primary challenge for the PMO community. Most of the respondents (68%) are funded by international donor agencies. Other sources of funding include donations (45%), self-funding (32%) and grants from in-country organizations (26%). Social or crowd funding is a source for one in ten PMOs but is heavily skewed toward those in higher-income countries. For those in lower-income countries, grant funding from international donors becomes far more critical. None of the PMOs surveyed received funding directly from its own parliament.

Forty-two per cent of the PMOs report having a formal relationship with parliament, and 49 per cent an informal one. This suggests that both parties benefit from working together, to share data, promote transparency and awareness and encourage citizen engagement with the work of parliaments. It is also a positive finding that two-thirds of PMOs describe their level of cooperation with parliament as adequate or better. Only 9 per cent report that the relationship is very poor or that there is very little cooperation. Almost a quarter (24%) describe the level of cooperation as limited or poor, which suggests that there is still significant room for improvement.

Where PMOs do work with their parliaments, they interact and collaborate with a diverse range of people and groups, primarily with members but also with committees. In one third of the cases they work directly with parliamentary ICT staff. In terms of reach, the audiences vary dramatically from a few hundred to many millions of people, and this is reflected, too, in the broad range of activities the PMOs undertake, which can be placed under the headings of:

- monitor;
- inform;
- connect.

A wide variety of parliamentary information and data is being published by PMOs. It focuses primarily on members

as reflected by the member lists that 84 per cent of the respondents publish. Half of the respondents publish data on members' interests. Information is also published on their assets, financial information, contact information, constituency offices as well as attendance and voting records.

The data that PMOs publish comes from a variety of sources. Nine out of ten obtain at least some of their data and information directly from the parliament. One-third obtain it from the government and 58 per cent collect, collate and compiling data internally. This suggests that a key role of the PMO is to add value to the raw parliamentary data by way of further analysis and narrative, as well as turning it into a usable (and reusable) format. Three out of ten PMOs use screen-scraping technologies to get data from websites and 69 per cent parse data from PDF or similar fixed documents. Three out of five report that they are able to obtain at least some of their data from an open data source published by parliament or another agency. When it comes to publishing data themselves, 50 per cent publish in a CSV format, 50 per cent use an API, and 16 per cent used a linked data API.

Open data is also about interoperability, letting others share, reuse and repurpose data. Yet three out of five of the PMOs do not use an open data standard. Those that do are more likely to use the civil society Popolo standard for their data schema; PMOs have not been adopting the Akoma Ntoso parliamentary standard, a finding that highlights both the sector's immaturity and the need to continue to promote open standards for parliamentary data. The value of this lies as much in the shareability of applications and components and the lower costs this brings as it does in the reliability and accessibility of the data itself.

This research shows that, despite challenges with funding, PMOs are thriving in an environment where there is an increasing public appetite for openness and transparency. On the back of new digital and social tools, these innovative organizations are holding parliaments and their members to account, a core feature of any strong democracy. They are educating and informing citizens and can reach audiences that can be difficult for parliaments to replicate. The parliamentary survey highlights the importance of open data and better citizen engagement, working with organizations that support stronger democracy. This research clearly shows that PMOs play a role in making parliaments stronger, more open and more accountable.

Conclusion

Digital and social technologies have supported deep changes in the cultural landscape of many societies. The increased penetration of mobile devices and rapid adoption of social platforms change how people interact with the world around them. Parliaments do not exist in isolation, and it is clear that new digital technologies have created significant opportunities to become more open, accessible and engaging. However, they have also created challenges for many parliaments. The rapid evolution of digital tools comes at a cost, both financially and in terms of adequate resourcing. New systems now offer far greater potential to manage the parliamentary process in more reliable and effective ways. Yet, to take advantage of this, parliaments must invest in new tools and be prepared to change their working processes and culture to adopt them. This is not always easy, and lack of funding and insufficient knowledge among staff and members continue to be cited as barriers to effective use across a wide range of parliaments, just as they have been in previous World e-Parliament Reports.

The challenges are not simply matters of adopting technology; many are strategic and need to be addressed at a systemic level. And yet, as this research shows, too few parliaments fully implement an end-to-end strategic planning process, and even when they do, too few value their senior ICT staff in terms of the overall leadership and direction of parliament. Given the critical importance of good ICT practices to the success and effectiveness of parliament, this seems to be a significant gap.

What is clearly visible in 2016 is that digital tools can transform the way parliaments work at a day-to-day operational level and can support new ways of thinking, new innovations in parliamentary practice, and a far stronger and more vibrant culture of openness and transparency.

Parliaments remain hampered by a lack of access to best practices and a lack of support from the international donor community. This is particularly true of parliaments in low-income countries, which face significantly greater barriers to taking advantage of new digital innovations. This report makes it clear that digital tools and services have matured to the point of being part of every parliament's core business.

This report highlights that:

- 1 **The critical role of ICT as a core-enabler in strengthening and transforming parliaments is not always reflected in a parliament's strategic planning or the role that IT management plays within it.**
- 2 To realize the real benefits of ICT, **parliaments must make a commitment to a vision and to strategic change supported at the highest levels** of the institution.
- 3 **Lack of funding and insufficient knowledge among staff and members** remain key challenges for parliaments.

Parliaments are continuing to adopt technologies internally:

- 4 **The adoption of document management systems to support the legislative process is hampered by a lack of resources.** Such systems support increasing complexity and better internal processes and are helping parliaments embrace the surge in open publishing.
- 5 **Cloud-based technologies are starting to change the way parliaments manage documents and data.** This shift brings with it security considerations and can be successful only where there is sufficient (and increased) Internet bandwidth and capacity.
- 6 Within parliaments, **wireless networks have become ubiquitous** for members and are increasingly prevalent for staff and public visitors.
- 7 **Parliaments increasingly see XML and other open data standards as a core enabler of greater openness and transparency,** but this comes with clear challenges in terms of complexity, cost and the necessary process changes.
- 8 **The parliamentary library remains a primary source of innovation** in this area, and it is clear from this research that digital tools are now part of the core function of libraries.

The external face of parliament has changed, though such existing assets as websites and email continue to be important:

- 9 **Social media have become a key strategic communication channel for parliaments,** but the digital world is decidedly multi-channel. This is also true for members, though it can be difficult for parliaments to know how members are using these new tools, and thus how best to support them. Despite the rise of the social media, email remains a primary communication channel for members.
- 10 **The parliamentary website remains a core asset,** as a way to provide information, documentation and data. Though most parliaments remain primarily in a publish-and-broadcast mode, websites are no longer the preserve of IT departments. IT, communications and press offices all get involved now in managing and planning them. Content, too, now comes from multiple sources, reflecting the increasingly detailed and diverse range of information being published.
- 11 Though the figure remains low, **more parliaments are carrying out evaluations of their web assets.** One reason for the increase appears to be the adoption of the IPU Guidelines for Parliamentary Websites. Just over half of the parliaments surveyed have adopted standards to support website usability and accessibility.

12 **Open data is increasingly important for parliaments and will continue to grow in importance. There is evidence, however, that parliaments are struggling to make this data available and accessible for citizens.** The significant growth in the use of open data mirrors technical changes seen elsewhere but also opens potential for a fundamental change in the relationship between parliaments and citizens.

More needs to be done to reach out to citizens and others beyond parliament:

13 There is great scope for **parliaments and members to become more innovative in how they engage citizens directly in the legislative process.** They should be doing more to move away from merely publishing information and inviting responses through passive channels and look as well at more active models for directly engaging and involving citizens in policy and legislation.

14 **Parliaments are unable to offer sufficient inter-parliamentary support in the areas of open data, application development, social media or engagement and outreach.** Unfortunately, these are the areas where many parliaments feel they need support. This is despite parliaments remaining very willing to provide a wide range of support to their counterparts and suggests that the resources needed to support these emerging areas are not available.

The digital age has opened a space for new intermediaries that can take the information and data that parliaments create, whether formally or informally, and make sense of it for ordinary citizens. PMOs can do this. They can also train and educate the public to engage more effectively with parliaments. PMOs have been strengthened by the advent of new digital tools and technologies. Their ability to aggregate, analyse, critique and generally hold parliaments to account has sometimes been met with resistance. However, where PMOs share a mandate of stronger democracy, greater openness and transparency and a more accountable parliament, they should be seen as allies, not enemies. As parliaments start recognizing the importance of open data they also realize that it is not enough simply to publish; they and others must ensure the data published is useful and usable.

15 Though they face financial challenges, **PMOs can be active and effective partners for parliaments, reaching audiences that parliament cannot and adding value to the democratic process in unique ways.** Parliaments should embrace this.

Appendices

Appendix A – parliaments taking part in the survey

- Parliamentary chamber (in report and data set)
- Parliamentary chamber (received after deadline so available in data set only)

AFRICA		CARIBBEAN	
Angola	●	Dominican Republic	●
Burkina Faso	●	Trinidad and Tobago	●
Burundi	●	EUROPE	
Cameroon	●	Andorra	●
Côte d'Ivoire	●	Austria	●●
Gabon	●	Belgium	●
Ghana	●	Bosnia and Herzegovina	●●
Kenya	●●	Croatia	●
Lesotho	●●	Cyprus	●
Mauritius	●	Czech Republic	●●
Morocco	●	Denmark	●
Namibia	●●	Estonia	●
Niger	●	Finland	●
Nigeria	●●	France	●
Senegal	●	Germany	●
Seychelles	●	Greece	●
Sudan	●	Hungary	●
Togo	●	Ireland	●●
Uganda	●	Italy	●
Zambia	●	Latvia	●
Zimbabwe	●●	Lithuania	●
ASIA		Luxembourg	●
Afghanistan	●●	Montenegro	●
Azerbaijan	●	Netherlands	●
Bhutan	●	Norway	●
Cambodia	●●	Poland	●
India	●	Portugal	●
Japan	●	Republic of Moldova	●
Malaysia	●●	Serbia	●
Mongolia	●	Slovakia	●
Myanmar	●●●	Slovenia	●
Republic of Korea	●	Spain	●
Sri Lanka	●	Sweden	●
Thailand	●●	Switzerland	●●
Turkey	●	The former Yugoslav Republic of Macedonia	●
		Ukraine	●
		United Kingdom	●●

LATIN AMERICA	
Argentina	●●
Brazil	●●
Chile	●●
Colombia	●
El Salvador	●
Guyana	●
Suriname	●
MIDDLE EAST	
Bahrain	●
Egypt	●
Iraq	●
Israel	●
Jordan	●●
Kuwait	●
Lebanon	●
United Arab Emirates	●

NORTH AMERICA	
Canada	●
United States of America	●
PACIFIC	
Fiji	●
New Zealand	●




Appendix B – parliamentary monitoring organizations taking part in the survey

- CCAF (Canada)
- Center for Democratic Transition (Montenegro)
- Center for Research, Transparency and Accountability (Serbia)
- Centers for Civic Initiatives (Bosnia and Herzegovina)
- Centre de recherche et de formation sur le développement intégré (Côte d’Ivoire)
- Coalition for Democracy and Civil Society (Kyrgyzstan)
- Congreso Transparente (Guatemala)
- Congreso Visible (Colombia)
- Directorio Legislativo (Argentina)
- EiE Nigeria
- Fundación Ciudadano Inteligente (Chile)
- Fundar, Center for Analysis and Research (Mexico)
- [GovTrack.us](#) (United States)
- Indonesian Centre for Law & Policy Studies
- Institute for Press and Development Studies (Indonesia)
- [KildareStreet.com](#) (Ireland)
- Kosova Democratic Institute
- Median Research Centre (Romania)
- Mzalendo Trust (Kenya)
- National Democratic Institute (United States)
- OpenAustralia Foundation
- Openpolis (Italy)
- Parliamentary Monitoring Group (South Africa)
- PILDAT (Pakistan)
- Reflexion Democratica (Peru)
- Regards Citoyens (France)
- SimSim-Participation Citoyenne (Morocco)
- Sinar Project (Malaysia)
- TEDIC (Paraguay)
- The Social Guard (Israel)
- Transparencia (Peru)
- TransparencyIran
- Vouliwatch (Greece)



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