World
e-Parliament
Report 2018

Contents

Foreword

The World e-Parliament Report 2018 marks a turning point. For the first time since the IPU and the United Nations established a baseline on the use of information and communication technologies (ICT) by parliaments in 2008, the data suggests that parliaments are finally using ICT more effectively. The promise that ICT would help parliaments to carry out their core functions in a bid to make them more open, accessible, accountable and effective is beginning to be realized.

New forms of exchange and peer learning between parliaments are starting to emerge. Parliaments are beginning to look at how to encourage innovation within the institution, often catalysed by partnership with civil society organizations. We must accompany and accelerate these developments.

We must not lose sight of the fact that many parliaments continue to experience significant challenges. It is our duty and responsibility to support their efforts to build ICT capacity as a core component of a modern parliamentary institution.

It is equally important to recognize that innovation is taking place even, or perhaps especially, in parliaments in low-income countries. In particular, the ubiquity of instant messaging apps is opening up new avenues for ongoing engagement between citizens and their representatives, with all the benefits and drawbacks that these new forms of communication bring. The job of parliamentarians everywhere continues to evolve in exciting and challenging ways.

Above all, we must start to look more closely at the impact of enhanced parliamentary openness on public perceptions of, and levels of engagement with, parliament. For this reason, the 2018 Report offers a new definition of what it means to be an e-Parliament, one which emphasizes the principles of collaboration, inclusiveness, participation and openness. We are setting the bar higher, because this is what citizens rightly expect from their parliaments today.

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Acknowledgements

Executive summary

This fifth World e-Parliament Report continues a series that has focused on the relationship between parliaments and information and communications technologies (ICT). First published in 2008, these reports have identified and described the efforts being made by parliaments to utilize ICT to strengthen democracy and their institutions. The 2008 report established an authoritative baseline on how parliaments use digital tools and technologies, which this latest edition continues. What started as a review of the technologies being adopted has matured as the technologies themselves have evolved. The present report is as much about governance and strategy as it is about technology and communications. It paints a picture of how digital tools, in their broadest sense, are changing and transforming parliaments, how they are managed and how new media and open data are helping parliaments connect with new audiences.

What we call an e-Parliament has come a long way in the ten years since the first World e-Parliament Report. This edition therefore sets out a revised definition to better capture what the term means today. Broader than the original, this new definition encompasses governance, transformation and efficiency, as opposed to technology per se, and thus provides a more flexible understanding of the people, processes, architecture and data involved.It recognizes the importance of good governance and a strategic sense of how digital tools and services can improve representation, law-making and oversight and make parliaments more open, accessible and accountable. The revised definition reads:

> **An e-Parliament places technologies, knowledge and standards at the heart of its business processes and embodies the values of collaboration, inclusiveness, participation and openness to the people.**

The first report, in 2008, found a significant gap between the potential of ICT and what parliaments had actually accomplished with it. Ten years on, although still there, that gap is closing: parliaments are finally using ICT more effectively, in all aspects of their work. This report paints a positive picture of improvements in parliaments as a result of their technology choices. Parliaments now appear more open to collaboration, with other parliaments, as always, but now increasingly with civil society; more active as publishers and broadcasters of information through a broader and more accessible range of media, including reusable media; more effective and efficient internally and better able to track and record their work accurately.

Citizens and parliaments remain apart in important ways, but significant efforts are being made to bring them closer. Parliaments are now more connected to the outside world, increasingly through two-way processes, where citizens are given more opportunities to get involved. And the trend towards greater openness and accountability continues: more parliaments are using open data and more are turning to popular communication channels.

This year's report describes achievements in the management of information and publication of data in accessible ways. From a strategic standpoint the trends seen in previous reports persist. Strategic planning is commonplace, but there is sometimes a disconnect among three things: a parliament's vision for what ICT can achieve, its strategy to achieve that vision and the process for monitoring, measuring, reviewing and implementing that strategy. There remains, too, a gap between parliaments in high- and low-income countries and continuing challenges in terms of funding, staffing and culture. Many parliaments are hindered by financial constraints, gaps in staff and member knowledge and capacity, as well as a lack of confidence among members in the reliability of information technology.

There has been progress, although limited, in terms of open data and publishing. Thirteen per cent of the parliaments surveyed have some form of open data feed, and 24 per cent publish reusable documents that can be downloaded from their websites. Open data repositories are also making inroads into lower-income countries. Parliaments continue to favour social media in their communications with the public. The report identifies significant growth in the use of instant messaging applications and a trend towards broadcasting digitally and online rather than through traditional media.

Parliaments require support right across the spectrum of digital tools, from planning and back-end systems to open data and citizen engagement. This echoes evidence from 2016

suggesting that more and better coordinated efforts to share ideas and good practices among parliaments would be welcomed by many.

Here are the key trends identified in this report:

- Digital technologies are now firmly embedded with **clearly identified governance and technology practices in most parliaments**. In parallel, while members remain politically committed to ICT, their managerial role is diminishing as ICT becomes more embedded in parliament's work.

- **The rise in the adoption of eXtensible Markup Language (**XML**) has levelled off**, suggesting it is now a mature technology for parliaments – in some cases because the systems have now been implemented, but in others because the need has yet to be recognized.

- **The use of instant messaging has seen a significant increase,** and social media use also continues to rise.

- **Digital broadcasting and video streaming have overtaken traditional broadcasting,** while the use of radio has shown the first signs of shrinking.

- **Barriers** to greater use of ICT include **training and skill deficits** among staff and members, and growing concerns over **security and reliability**. **Knowledge of how parliaments** work is seen as the biggest barrier to greater citizen engagement.

- Over a third of the parliaments surveyed now **collaborate directly with parliamentary monitoring organizations (PMOs)**.

- **Inter-parliamentary support is needed and in strong demand in many areas of ICT**, ranging from the new media and social tools to traditional ICT functions.

The survey of parliamentarians confirms the extent to which mobile technologies have become embedded in parliamentary work: they are used by all of the MPs surveyed under 30 years of age and 96 per cent of those over 60. The MPs in our sample see themselves as highly competent communicators. Most are comfortable with the concept of digital publishing, although fewer feel as confident in the newer, more interactive spaces. The broadcast model of communication is still prevalent, but members are increasingly turning to the more interactive spaces, and as they do, their need for support and training will increase.

The survey of parliamentarians shows that:

- Members now increasingly use digital technologies as core tools in their work, as do their offices and constituents in the process of public engagement. **Ninety-six per cent of the members surveyed use a mobile device** and **80 per cent expect their digital communication with the public to increase.**

- **Three quarters** of the respondents regard **e-mail as the most important digital tool, followed by Facebook and WhatsApp**.

- **Seventy-one per cent of members write their own social media content,** while content for their websites tends to be written by staff.

- Almost all members say they are able to publish information, and **three out of five consider their knowledge of online communication to be advanced**. Conversely, one out of five members claims to lack the skills needed to take part in online chats and events.

- **One quarter of the members have no support** or assistance for digital content and communication, while a third (33%) have one person or less.

Parliaments today are starting to become more innovative, gain new digital skills and work more often with external partners to achieve greater openness and transparency. Parliaments have historically been risk-averse, although in some places the institutional culture is beginning to change to accept more innovative practices. Public pressure and political commitment can help to improve openness and transparency but are often counteracted by centralization. New ways of working require changes in culture as well as technology and a commitment from all parts of parliament and beyond. Fortunately, parliaments that choose this path will not be alone, as many others share their goal. Their experience has shown that:

- **Innovation does not happen by itself**. Parliaments have not historically been considered good innovators; a conscious effort to modernize their institutional culture means that innovative practices are more likely to be accepted.

- **Change can be driven by public pressure for openness and transparency and political commitment within the institution**.

- Too much management stifles innovation; **the parliaments that have been successful in this area have learned to let go**.

- **Working with external partners, such as PMOs and academia, can bring in fresh thinking and new solutions**, resulting in better tools and applications for engaging the public.

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Introduction

This fifth World e-Parliament Report continues a series that has focused on the relationship between parliaments and information and communications technologies (ICT). It was ten years ago, in 2008, that the first World e-Parliament Report attempted to identify and describe the efforts being made by parliaments to utilize ICT to strengthen democracy and institutions. Research was undertaken not simply to understand what was happening but to advance the state of knowledge among parliaments and promote international debate and cooperation. The 2008 report established the first authoritative baseline and narrative for parliamentary use of digital tools and technologies, enabling parliaments to measure and evaluate their own use of ICT against an international set of data, identifying strengths and opportunities for improvement. This latest edition continues that pattern. Like earlier editions, it measures and tracks how ICT is being adopted by parliaments and their members to improve transparency and accountability towards the wider public. As we report in 2018, it is clear that e-Parliament is as much about governance and strategy as it is about technology and communications.

The 2008 report found a significant gap between what was possible with ICT and what parliaments had actually accomplished with it. But it was also clear from the enthusiastic survey responses received at that time that most parliaments had plans to improve their use of technology and were "acutely aware of the strategic importance of ICT". Ten years on, although still there, the gap between potential and reality is clearly narrowing: parliaments have become ever more effective users of ICT, in all aspects of their work. This latest report paints an overwhelmingly positive picture of parliaments improved through their adoption of technology, increasingly open to collaboration – with other parliaments, as always, but also civil society – and active in publishing and broadcasting through a range of more accessible and reusable media.

Digital technologies are embedded in many aspects of people's lives and becoming more so every year. Facebook alone boasts over 2.2 billion active users every month, with 1.45 billion logging on every day.[1] Growth in the use of social tools is well documented, so it is unsurprising to see them embraced by parliaments and their members. It is harder, on the other hand, to gauge how transformative these tools have been in terms of how parliaments work. What these reports do clearly show, however, is that ICT has had as dramatic an influence behind the scenes as it has in more visible areas. The legislative process and the processes of selecting, scrutinizing and monitoring our representatives in government have all been transformed by digital tools. These tools range from sophisticated document management programmes able to track the progress of bills and amendments, to online streaming of parliamentary proceedings, to the disclosure of accurate, timely reusable open data to help the public hold their elected representatives to account. The Internet is even transforming the voting process in plenary rooms: as highlighted in this year's report, a small number of parliaments now allow remote voting by Internet.

Reactions to such trends will naturally differ. Some will embrace the modernization of parliament, others will point to the tradition of plenary debate and voting. Technologies allow us to do many things differently but do not exist in a vacuum. The advent of the Internet and of the social networks has occurred in parallel with changing social attitudes that demand far more involvement, transparency and accountability. We must remember, too, that our access to technology is not equally distributed, either globally or within countries. Many parliaments face challenges of wider public access and skills if they are to use digital tools effectively. And as more people can engage with parliaments, understanding how they work becomes even more important. This report addresses the use of technology in parliament, but such a conversation cannot happen without also acknowledging and understanding the underlying social and cultural factors, as well as the barriers to more effective use of ICT – for parliaments, members and the public.

The World e-Parliament Report series

The World e-Parliament Reports, published in 2008, 2010, 2012, 2016 and 2018, help the parliamentary community ensure that their use of digital tools follows good practice; they highlight emerging trends and areas for improvement. The reports are also useful to civil society organizations wishing to build working relationships with parliaments; over a third of the parliaments now have a formal working arrangement with parliamentary monitoring organizations, which can serve as catalysts for greater public understanding and engagement.

This report is intended to be read as a standalone document but can also be seen as a continuation of the series begun in 2008 as a joint publication of the IPU and the United Nations. It follows the structure of the 2016 report in being shorter and containing less technical background information than the first three reports. This is intentional: as the subject deepens and becomes even more complex it was felt that the report's design would benefit from being pared back and simplified. This report also contains an additional survey (of members) and two additional sections, on an updated definition of "e-Parliament" and on parliamentary innovation.

The 2008 report was based on a survey carried out in 2007. A second survey in 2009 led to the second report in the series, published in 2010. That second report mirrored the 2008 edition, allowing the parliamentary community to map changes and growth 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. Over the years, this series of reports has generated data and analysis that have helped parliaments evidence the challenges and complexities of new technology in a parliamentary setting, and has offered suggestions to overcome obstacles to the effective use of ICT. Material and direction for these reports came from presentations and discussion at the

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1   See: zephoria.com/top-15-valuable-facebook-statistics.

World e-Parliament Conferences of 2007 (Geneva) and 2009 (Brussels).

The third report in this series, in 2012, continued the process, presenting more up-to-date data and highlighting current trends. That was when parliaments began to glimpse the opportunities offered by the new social media, open data, open source and non-proprietary systems that were emerging at that time. The third edition drew also from the World e-Parliament Conference in 2010 (Midrand, South Africa) and from other forums and meetings that had been dealing in various ways with the use of digital technologies in parliament. These included technical assistance projects in Africa and the Caribbean and for various conferences (such as the libraries and research conference held in Chile, in 2011). A key focus for the 2012 report was to identify new and emerging technologies and determine ways that parliaments could harness them for their own use and that of the wider public.

There was a four-year gap between the third and fourth reports in the series. In designing the fourth, in 2016, the IPU adjusted the format, making it shorter but continuing to track and observe trends for key data. New questions were added about the social media, reflecting their rapid rise: the 2008 report mentioned them only once, in a passing comment, but by 2016 they had overtaken traditional broadcasting as the pre-eminent communications media for parliaments. It was decided that year to add a second survey to be devoted to a different topic for each new report going forward. In 2016, it covered PMOs, with the support of the National Democratic Institute (NDI). This proved to be an important and timely addition to the series, giving parliaments, PMOs and others a clear idea about the depth, strength and nature of relationships between parliaments and citizens. The 2016 report was launched at that year's World e-Parliament Conference, in Valparaiso, Chile, which also conducted the first inter-parliamentary "hackathon".

Structure of this report

The research for this report was based on two surveys, the first for parliaments and the second for MPs. An additional section looks at innovations in how parliaments and partners are using ICT and the new digital tools available for building open and collaborative systems that improve transparency, accountability and participation. Responses to the survey of parliaments were received from 114 parliamentary chambers

in 85 countries. The survey of MPs, based on a total sample of 168 serving legislators, was conducted in person during the 137th IPU Assembly, in St. Petersburg, Russia, and the Fourth IPU Global Conference of Young Parliamentarians, in Ottawa, Canada.

This introduction provides background on the report series and key findings of past editions; briefly describes how the surveys were structured, with more detail on the method and sample provided in the appendices; and offers an updated reflection on the definition of "e-Parliament", considering its validity, use and purpose.

The format of this report differs from earlier editions in that key findings from the survey of parliaments are presented up-front, with details and analysis of the complete findings following later in the report. The first section includes an analysis of digital maturity among parliaments and introduces the new survey of MPs. For this and previous reports the survey of parliaments included questions on their members' use of ICT but it was also considered beneficial to direct such questions to the MPs themselves. The MP survey examines the tools and applications members use, the resources their offices allocate to digital communication, and the people responsible for developing content. The survey looks at the trends and identifies the key benefits and challenges that members face.

The next section of this report examines how innovation takes place in various parliaments and how parliaments can harness the transformative power of digital tools given existing constraints, in terms of skill sets, financing and an often risk-averse culture. It provides examples of innovative methods used in parliaments around the world and lessons learned from their experience, that others might follow.

The next seven sections follow the structure of the survey of parliaments and present an in-depth analysis of its findings. They start with a presentation of the data on parliamentary oversight and management of ICT and then discuss related infrastructure, services, applications and training. They are devoted to the systems and standards being used to create legislative documents and related information; the use of digital technology by parliamentary library and research services; parliamentary websites; and the ways in which parliaments and citizens engage and communicate, with information on how parliaments work with external partners to support openness and transparency. The final section analyses inter-parliamentary cooperation in this area.

Key findings from previous reports

This series of reports has come at a time of rapid evolution in parliamentary ICT. This was documented by means of surveys included in the first World e-Parliament Report, in 2008, and extensively updated in 2010, 2012 and 2016. The series sets out a range of challenges and opportunities for the use of ICT in parliaments. It paints a picture of potential that is limited in its realization by deficits in funding as well as knowledge, and by attitudes towards change. A narrative that runs across all the earlier reports is that parliaments are places where formal procedures are important but are also information-intensive environments. It is no surprise then to see parliamentary libraries singled out as places of innovation and leadership in managing and publishing information, documentation and data. The first report, in 2008, documented significant discrepancies between parliaments in high- and low-income countries, a recurring theme throughout the series thereafter.

That first report highlighted the importance of ICT as a way to bring parliaments closer to citizens, but there were few practical examples at that early stage to demonstrate the principle, beyond published statistics and a few attempts at interactivity. Many parliaments, moreover, lacked a systemic view of ICT when that first report was done. As stated in the report's conclusions, there was a significant gap between what is possible with ICT and has actually been accomplished by parliaments so far. For many parliaments, that first report captured the early stages of a significant technological wave that would come to be seen as both disruptive and transformative over the next ten years.

The 2010 World e-Parliament Report observed that the e-Parliament concept had been built upon the pillars of "active engagement, a clear vision, strategic planning, broad-based management and adequate resources". The report went on, however, to identify weaknesses in all of these areas. Forty per cent of the parliaments, for instance, lacked any strategic planning process, and only 43 per cent had a vision statement in place. Citing the importance of setting standards for the systems being used to manage digital documents, the 2010 report went on to highlight a lack of progress in this area since 2008, with fewer than half of parliaments using such a system and only a quarter using eXtensible Markup Language (XML) for any of their parliamentary documentation. Clearly, barriers remained.

By the time of the 2012 report, many of the challenges noted in previous reports were still strongly evident. As suggested by the 2012 findings, however, limited but still important progress was being made in developing e-Parliament. More political leaders were engaged in setting institutional goals and objectives for ICT, and mobile devices and applications were being adopted more rapidly than expected. The use of XML to manage legislation was increasing notably; more parliaments had systems for managing plenary and committee documents; and both the willingness and follow-through of parliaments to share information and collaborate on improving technology had increased substantially. One example was the considerable progress made towards an international parliamentary and legislative XML standard, considered a key milestone in a parliament's digital maturity, allowing data to be exchanged across internal systems and to be more readily publishable. It remains an open question, however, whether the standard being developed will eventually be adopted by parliaments and whether greater complexity (and concomitant cost) might actually be a barrier for some.

As noted in the 2012 report, parliaments in the lowest-income countries were starting to close the technology gap, despite the challenges faced, although the use of XML continued to correlate closely with a country's income level. This was also true for the technology adoption gap between citizens and parliaments. The lack of knowledge and awareness about what parliaments do and how they work remains significant as well.

The most important improvements attributed to ICT by the parliaments surveyed for that report were in their ability to publish more information and documents online; disseminate information and documents; and ensure timely delivery of information and documents to members. Those enhancements were helping parliaments and their members be more open and transparent towards citizens. There were also positive findings in respect of basic ICT services, such as personal computer support, systems administration, web publishing and network operations.

The major communication challenge identified by most of the parliaments in 2012 was not lack of access to technology but lack of knowledge. Over half of the parliaments cited lack of citizen understanding about the legislative process as a primary obstacle. Just under half cited lack of member experience with technology. Most parliaments identified two challenges as particularly difficult: lack of financial resources and lack of adequate staff. Parliaments in countries at all income levels reported financial constraints. Even those in the highest-income countries considered adequate ICT staffing to be the biggest challenge.

As noted in that year's report, transforming legislatures into modern institutions capable of using technology effectively requires a strong commitment to transparency, accountability and accessibility. By 2012, Internet access was available in almost all parliaments, and most had wireless access. The series shows how the "soft" skills and attitudes of political leaders and members can be transformed to establish a culture of transparency, consistent with their responsibility as representatives of the people 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".

The fourth report, published in 2016, showed that the deep changes reported in earlier editions – in the operational environment and cultural landscape of parliaments – had continued. By 2016, the digital parliament had become a distinct living entity, directly linked to constituents and the public in ways hard to imagine when the first World e-Parliament Report was issued. The 2016 report described parliaments as more outward-facing and open with stronger internal systems and processes – still challenged but getting better. Digital parliaments mirror the world around them, so it

was not surprising to see social networks become important tools, allowing citizens to connect more often and more easily with parliaments and MPs. Another important trend was that documentation and content were being made more available, whether through web-based technologies or open data. On the other hand, many parliaments were hampered by lack of access to best practices and lack of support from the international donor community in new and emerging areas of ICT, such as open data. And this problem was exacerbated in low-income countries.

The challenges parliaments faced were not matters of simply adopting technology. Many were strategic and needed to be addressed at a systemic level, requiring political as well as institutional commitment. The research highlighted that too few parliaments were fully implementing an end-to-end

strategic planning process, and when they did, too few were conferring leadership for execution upon senior ICT staff. The 2016 survey showed that use of digital tools was too often seen as a technical function, with ICT management or technical staff predominating. Yet it also showed that for ICT to be transformative for parliaments and contribute to greater openness and citizen participation, MPs would need to provide political leadership in that direction.

The 2016 report looked for the first time at parliaments' external partners. It concluded that PMOs could be active and effective partners for parliaments and that the more parliaments recognized the need to publish and disseminate data, the more valuable these intermediaries were likely to become.

Defining the e-Parliament

If the parliamentary community is to promote the effective use of ICT there needs to be some shared understanding of what the term "e-Parliament" means, how it can be achieved and, where helpful, how parliaments can measure ICT effectiveness and maturity. While various definitions of the "e-Parliament" have emerged, the World e-Parliament Report defined it as follows in 2008:

> A legislature that is empowered to be more open, transparent and accountable through ICT. It also empowers people, in all their diversity, to be more engaged in public life by providing higher quality information and greater access to documents and activities of the legislative body. An e-Parliament is an efficient organization where stakeholders use information and communication technologies to perform their primary functions of law-making, representation, and oversight more effectively. Through the application of modern technology and standards and the adoption of supportive policies, an e-Parliament fosters the development of an equitable and inclusive information society.

This definition is more than ten years old, and much has changed since that time. Some of the terminology is dated ("information society" once had a formal and well-understood meaning that has since been lost), some of the concepts are subjective (such as "efficient") and the scope is limited to "primary functions". But the emphasis on standards of good practice, citizen empowerment and transparency is an approach that has stood the test of time and still resonates.

Another challenge results from conflation of the e-Parliament concept with a technical process, as in this example from the European Parliament's "e-Parliament" project:

> The main idea behind e-Parliament is to establish a fully digital legislative text production chain supporting MEPs' legislative activity, from drafting (or reception of external documents) to translation, providing verified and translated parliamentary texts to information dissemination systems in structured XML content.

While entirely accurate, this definition lacks broader context. Its technical focus obscures the larger goals and wider public value at stake, in terms of openness, transparency and accountability. The e-Parliament today is as much about governance and strategy as it is about technology or communication.

The "e-Parliament" label

The "e" in "e-Parliament" is problematic, suggesting an "electronic" transformation (or digitization) of an existing business process (such as e-commerce, e-content, etc.). This tends to emphasize the technical, digital side of the concept, as opposed to its meaning. Digital technologies are now part of the fabric of commerce, communications and banking. This has more recently become true for parliaments, where the "e" is more about "effectiveness" than "electronic" – and as much about outcomes as the enabling technology.

In considering an update of the e-Parliament definition the "e" might be considered redundant. So much of what a parliament does relies on processes that can be – or already have been – transformed, enhanced or at least supported by digital methods. The European Parliament's legislative drafting system mentioned above is just one example; others include the parliamentary record, vote counts, communication channels and broadcasting. For many, as this series of World e-Parliament Reports shows, these processes are now either deeply embedded or recognized and aspired to. Barriers to uptake are less about awareness than about culture, funding and skills. Seldom does the technology itself create barriers.

The "e-Parliament" label is useful, on the other hand, for finding a shared understanding of the domain and recognizing parliaments that have developed and embedded efficient, effective and open digital methods. Parliaments can leverage their own progress through exercises in learning, comparing and sharing among like-minded parliamentarians and staff. The term used for such processes, however, must be clearly defined.

A Working Meeting held in Geneva, in November 2017,[2] agreed to retain the term "e-Parliament", while acknowledging its sometimes problematic character. The term is dated, but replacing it would yield no particular benefit. Language evolves over time and, despite reservations as to its currency in the wider sense, there is no universally acceptable alternative. Above all, the term has recognition and currency; it usefully serves to highlight a context.

To remove the "e" would be to target the function and role of a parliament itself, which is not the intent here. The working meeting felt that it was more pressing to develop a clear and shared understanding of what an e-Parliament is (and is not), rather than impose a new and less well understood term in front of that meaning.

Defining the e-Parliament

The e-Parliament concept has four main components:

- **People** – Users and beneficiaries (MPs, staff, public, etc.) as well as those charged with developing and supporting the e-Parliament.

- **Process** – The underlying parliamentary or democratic functions that are being supported or transformed.

- **Architecture** – The infrastructure, hardware and software required to instantiate the transformation.

- **Data** – The information and documents created, stored, transmitted and shared.

2   This meeting was hosted by the IPU and attended by the parliaments of Argentina, Brazil, Chile, Kenya, Lebanon, Morocco, Portugal, Sri Lanka, United Arab Emirates, United Kingdom, United States of America and Zambia, and by the European Parliament and representatives of the Assemblée parlementaire de la francophonie, UNDP and the National Democratic Institute.

The main guiding principles of the various e-Parliament programmes tend to include the following:

- Transformation (of processes)
- Timeliness (of dissemination or decisions)
- Transparency (of information)
- Openness (of access)
- Cost efficiency (reduction)

The structure of the World e-Parliament Report series outlines the scope of relevant work areas:

- Openness, transparency and accountability
- International cooperation
- Communication and engagement with citizens
- Human resources and technical infrastructure
- ICT strategic planning and implementation
- Libraries and research services
- Technology services for members
- Management of parliamentary documentation

Experts at the Working Meeting agreed that any new definition should show a path forward but be broad enough to cover a wide range of parliaments, local conditions and maturity models – without suddenly excluding existing e-Parliament projects. The e-Parliament exists in a wider parliamentary context, so its definition assumes that:

- Parliaments share a number of core functions, including representation, oversight and law-making.
- Parliaments aim to put into practice the core values identified in the IPU's definition of a "democratic parliament": one that is representative, open and transparent, accessible to the people and accountable to them, and effective in its law-making and oversight functions.[3]

While the existing definitions were based on the current state of knowledge, the Working Group preferred a more vision-based definition that parliaments could aspire to and that parliamentary staff could use to engage senior leadership in the transformation:

- **The e-Parliament concept is not about ICT per se but how ICT (in its broadest sense) can be used as a transformative tool.** This means that the definition of an e-Parliament must move beyond technical considerations and focus on the parliament's vision, values, strategy, process and operating model.

- **The e-Parliament transforms both processes and relationships, both inside parliament and with outside actors.** Much of the transformation agenda in parliaments is ultimately driven by wider social changes, and in particular, greater demands for openness, transparency and accountability. The impact of civic demands has in many ways been greater than that of technology.

- **Strong governance models**, taking external stakeholders into account, are needed to clearly align the technology platforms adopted with public expectations and the parliament's own business needs. Parliaments are encouraged to produce open data but must go further and consider how such data is to be delivered, used and – most importantly – made usable (and reusable).

A technology vision for parliaments

The following elements and characteristics of an e-Parliament should be part of the working definition. They relate to how digital tools and services can help improve representation, law-making and oversight and increase a parliament's openness, accessibility, accountability and effectiveness from both the policy and technical perspectives:

- e-Parliaments require a commitment at the institutional level.
- The definition must incorporate governance and be multi-layered, covering purpose, process, people and technology.
- The definition must take account of new stakeholders that have emerged or become more prominent, to ensure inclusivity.
- Relationships are important both within parliaments and between internal and external stakeholders.
- The e-Parliament concept is complex and concerns more than digital tools.
- The definition must deal with innovation.
- It must provide a basis for measuring impact and effectiveness.
- Building, capturing and sharing knowledge and good practice is important.

With these parameters, the following definition is proposed to envision technology-enabled parliaments:

> An e-Parliament places technologies, knowledge and standards at the heart of its business processes and embodies the values of collaboration, inclusiveness, participation and openness to the people.

3   Parliament and democracy in the twenty-first century: A guide to good practice. IPU: 2006. Available at: ipu.org/resources/publications/handbooks/2016-07/parliament-and-democracy-in-twenty-first-century-guide-good-practice.

Key findings from the survey of parliaments

This section presents a summary of the survey of parliaments, intended as a "quick read" to highlight key findings and trends. Detailed analysis and in-depth discussion of the findings appear later in the report.

Of the 114 parliaments surveyed, 39 per cent are unicameral (single chamber) and the remainder bicameral. Twenty per cent of the responses from bicameral parliaments come from their lower houses, 26 per cent from their upper houses and the remainder from both, as combined responses (which were then divided into separate entries for each chamber). The sample takes into account the size of each chamber so as to be broadly reflective of the typical parliament, but with small parliaments (fewer than 50 members) slightly over-represented and medium to large ones (between 100 and 199 members) underrepresented. From an evidential point of view, this slight bias is useful in that previous reports in the series have tended to underrepresent smaller parliaments, many of which struggle for resources.

Figure 1. Relative size of parliamentary chambers by number of members (n=114)
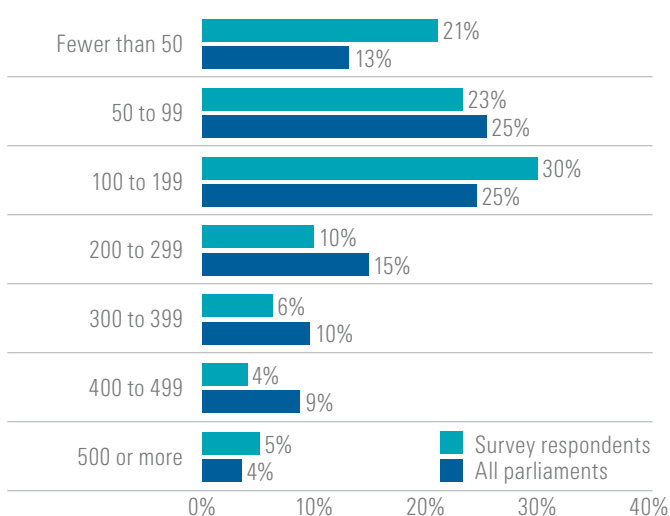
Geographically, 39 per cent of the respondents are European, 19 per cent African, 18 per cent Asian, 11 per cent Latin American, 3 per cent Caribbean (as in 2016) and 6 per cent from the Pacific region (up from 2% in 2016). The participating parliaments span the entire range of income bands defined by the World Bank,[4] although 44 per cent of the respondents are from high-income countries. Lower middle-income countries are slightly under represented (19 per cent of the respondents). The representation of low-income and higher-middle-income countries closely follows OECD rankings.

The 2012 report concluded that parliaments were hampered by a lack of access to best practices and a lack of support from the international donor community. This was particularly true for parliaments in low-income countries. The same finding was reached four years ago and remains an issue today. Financial

constraints, knowledge and capacity limitations and a general distrust of these technologies are challenges for all parliaments, regardless of national income or level of development.

The trend towards openness and greater public accountability observed in previous reports continues: the latest survey shows more parliaments using open data and communicating via publicly used tools and channels; social media use continues to grow and the use of instant messaging has significantly increased since 2016.

The achievements parliaments report as their most significant relate to the management of information and the publication of data and information in accessible ways. And there is a notable shift towards working with civil society organizations in many parliaments.

At a more strategic level, the trends seen in previous reports persist, including a vision of what ICT can achieve that is often disconnected from a strategy to achieve it and a process for monitoring, measuring and reviewing progress. In the past the strategic use of ICT has been seen as both an operational or managerial function as well as one with political oversight and involvement. It is perhaps a signal of the maturation of ICT from novelty to core business function that the 2018 survey shows a distinct shift in its management: parliamentary administrations are taking on a greater role, while political buy-in for the use of these technologies remains strong: 41 per cent of the parliaments surveyed report very high or high levels of political engagement in the oversight and management of ICT, up from 31 per cent in 2016.

The key trends identified in this report are as follows:

1. Digital technologies are now firmly embedded with **clearly identified governance and technology practices in most parliaments**. In parallel, while MPs remain politically committed to the use of these technologies, their managerial role is diminishing as ICT is operationalized and embedded within parliaments.

2. **The rise in XML adoption has levelled off**, suggesting it is now a mature technology for parliaments.

3. **The use of instant messaging has increased significantly,** while social media use also continues to rise.

4. **Digital broadcasting and video streaming have overtaken traditional broadcasting,** while the use of radio has shown the first signs of shrinking.

5. Barriers to greater use of ICT include **training and skill deficits** for staff and members, and growing concerns over **security and trust** among members. **Knowledge of how parliaments** work is seen as the biggest barrier to greater citizen engagement.

6. Over a third of the parliaments now **collaborate directly with PMOs**.

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4   See: data.worldbank.org/country.

Vision and strategy

Parliaments see ICT as having improved the volume of information and documents they offer on their websites as well as their capacity to disseminate information and documents and present existing online documents in a more accessible way. As shown in the following table, these are the top three areas of improvement cited in 2018. They are all about communication with the public and largely consistent with themes seen in previous reports, in 2016 and 2012.

Table 1.   Top three improvements (n=111)

	2018	2016	2012
1	More information and documents on the website **73%**	More information and documents on the website **89%**	Increased capacity to disseminate information and documents **49%**
2	Increased capacity to disseminate information and documents **66%**	Increased capacity to disseminate information and documents **86%**	Better management of documents **28%**
3	Existing online documents presented in a more accessible way **56%**	Existing online documents presented in a more accessible way **69%**	More timely publication of reports of plenary proceedings **23%**

Previous reports highlighted strategic barriers, including inadequate funding and staff capacity. Funding remains an issue for high- as well as low-income countries. The challenges raised as strategic and systemic four years ago remain so today. Previous reports recommended improvements, but as shown in this report, their delivery has been slower than the respondents to earlier surveys would have liked.

There is a strong sense that, beyond the technical aspects, parliaments understand the strategic benefits and implications of ICT and the importance of ICT governance. It would seem normal that responsibility for developing objectives and for oversight would be assigned to the most senior ICT staff member, but that is not the case in more than half of the parliaments. Most parliaments now have some form of ICT vision statement but only about half have connected it to a strategic plan.

Table 2.   Parliaments with a vision statement, strategic plan and planning processes (n=108)

Has a vision statement	63%
Has a vision statement and a strategic plan	52%
Has a vision statement, strategic plan and a process to update it	44%

On a more positive note, political engagement with ICT in parliaments is high. However, members in high-income parliaments are much more likely to be engaged and those in low-income parliaments much more likely not to be.

Resourcing and staffing

Recruitment and retention of technical staff remains a challenge for parliaments, for a variety of reasons often relating to local conditions. Parliaments recognize the need for institutional knowledge in key roles but are also flexible in their approach to ICT recruitment. The typical parliament employs 41 full-time equivalent staff for their ICT function and 75 per cent also make use of contractors.

Staff training is the area in which most parliaments receive outside support, 20 per cent of which comes from other parliaments and 26 per cent from other institutions or agencies. A further 30 per cent of the parliaments indicate a desire for external support in this area.

Infrastructural needs

Strong trends running across the series of World e-Parliament Reports demonstrate the importance of external communication. Increasingly, parliaments are focused not just on managing and preparing information for their own use but on ensuring that it can be openly published and shared with a wider public audience.

This report shows that parliaments are better connected to the outside world on an increasingly two-way basis. Aware of the growing importance and value of openness and transparency, parliaments are also using digital tools to widen access to the plenary and committee rooms. Actual citizen engagement, however, remains limited, and only 5 per cent of the responses cite it as important. This suggests that parliaments might be more focused on strengthening accountability for their work but have not yet fully embraced the idea of widening who can actively participate in these processes.

Open publishing and communication have also been considerations in the technologies parliaments have adopted or started using in new ways since the last survey. In 2016, parliaments identified web-based publishing, audio and video capture of proceedings, and the use of social media as the top three new technologies. They have identified the same technologies in 2018, but in a slightly different order. Growth in the use of open standards, such as XML, has slowed in the last two years but is expected to remain important over the next two, with 45 per cent of respondents intending to introduce them or use them in new ways.

Table 3. Top five important improvements expected in next two years (n=111)

		2018
1	Increased capacity to publish open data	70%
2	Increased capacity to disseminate information to citizens	61%
3	Better management of documents	61%
4	More interaction with citizens	60%
5=	Enhanced exchange of information with other parliaments	56%
5=	Existing online documents are presented in a more accessible way	56%

Table 4. Top five technologies that have been introduced or used in new ways (n=110)

		Previous 2 years
1	Social media like Facebook or Twitter	67%
2	Audio and/or video capture of proceedings	65%
3	Systems for putting information and documents onto websites	64%
4	TV broadcasting of plenary sessions	55%
5	Mobile communication devices	53%

Voting systems

Electronic voting systems and hybrid manual/digital ones have become embedded in most plenary chambers, with card-based systems and voting buttons the most widely used. This report shows the nascent rise in the use of online voting technologies that (in theory at least) allow the members of two parliaments to vote from anywhere, not just the chamber.

Capturing plenary records

Parliaments are using a variety of digital methods to capture the official plenary record accurately and efficiently. The most popular remains direct capture of text using a PC-based system, accounting for 71 per cent of the respondents, an increase from 57 per cent in 2010. This growth coincides with a fall in the use of manual note-taking with subsequent transcription. Direct transcription using speech recognition software has increased from 8 per cent in 2010 to 14 per cent in the current report. The use of such software is not confined to large or wealthy parliaments: only 42 per cent of parliaments using speech recognition are in high-income countries and half (50%) have fewer than 200 members.

Figure 2. Use of digital tools to capture plenary records (n=111)

- In digital format using a PC
- By hand and transcribed into digital format
- Digital format using a stenographic machine
- Digital format by using speech recognition technology
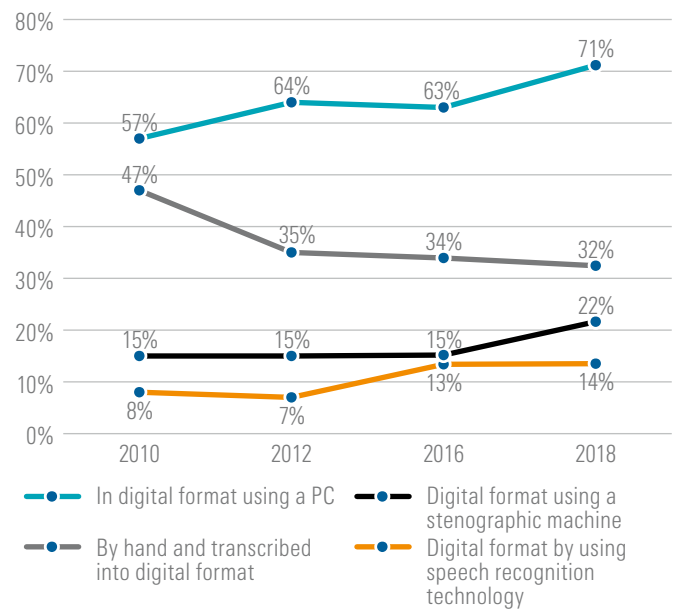
Creating legislative documents and information

More than half of parliaments now have a legislative management system (53%). Disparities remain, however, and it is obvious in this report once again that parliaments in low-income countries face greater challenges than others when it comes to implementing and supporting the complex ICT infrastructure required. The 2016 report described the use of ICT for parliamentary and legislative documents as a story of lack of resources stifling adoption internally but a blossoming in the open publishing of these document". That story continues.

Five per cent of the parliaments report that their systems provide workflow capability only, with no ability to handle plenary or committee amendments directly. However, 77 per cent report that their systems can track and manage all necessary actions taken by parliament on draft legislation. Four out of five respondents (82%) have systems that can handle all stages of a bill and 70 per cent have systems with workflow capabilities. Just over half of all respondents (51%) report that their systems can exchange data with systems outside the parliament.

Table 5. Features of document management systems for bills (n=57)

	2018
Has workflow capability	70%
Exchanges data with systems outside the parliament	51%
Handles all possible versions of a bill	82%
Handles committee amendments	72%
Handles plenary amendments	79%
Shows changes that the amendment would make	60%
Includes all actions taken by parliament on a bill	77%

Throughout this series of World e-Parliament Reports to date there has been a strong rise in the use of XML but, according to this year's report, that growth may be levelling off. After rising from 35 per cent in 2010 to 69 per cent in 2016, the share of respondents identifying at least some XML capabilities has fallen in 2018 to 67 per cent. The number of parliaments providing live-data application programming interfaces (APIs) using either XML or JavaScript Object Notation (JSON) continues to rise, and so does the number of parliaments that do not yet have facilities but are planning or considering them for the near future. Once again, however, these statistics mask the gap that is opening between better- and less well-resourced parliaments.

A number of parliaments identify user resistance and lack of management buy-in as barriers to the adoption of new legislative management systems. These systems are often by default able to support open publishing, which contributes to greater parliamentary transparency. Some parliaments must still overcome continuing cultural issues if they are to fully embrace open systems, but many appear to be making a strong commitment to openness and transparency, with the vast majority providing at least some open data to intermediaries and the public.

Open publishing

Since the inception of this report series, parliaments have seen a radical change in how they are able – and very often expected – to share data with the public. This is a relatively fast-moving area for parliaments. Portable Document Format (PDF) remains the most popular publishing format; 88 per cent of the parliaments publish them and another 8 per cent plan to. The proportion of parliaments using spreadsheets remains broadly similar to that reported in 2016 (38%) but the data shows a notable increase in the number of parliaments supporting live-data APIs. Seventeen per cent now have an XML-based API and 15 per cent have one based on JSON. Another 32 per cent are planning or considering an XML API and 30 per cent a JSON-based one. This suggests a rise in the publication of live machine-readable data and consistent growth in open data publishing. A consistent record of PDF-based publications, which are more suitable for direct human readership, remains in place.

Figure 3. How documentation is made available to people outside parliament (n=111)
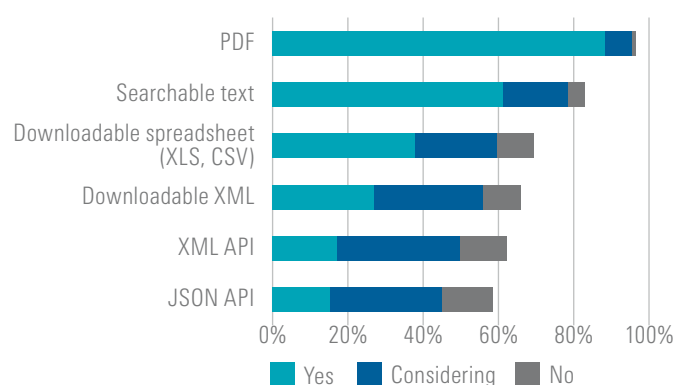
Despite continuing barriers to open publication of parliamentary data, particularly for low-income parliaments, 10 per cent of parliaments are now making their data available via an external organization, such as a PMO, and 69 per cent directly through their own parliamentary websites. Another 9 per cent of the parliaments offer such access only on request.

Library and research services

The modern parliamentary library is now a digital space as much as a physical one, relying on digital assets and communication tools to manage, research and communicate. The 2010 and 2016 reports found that the growing use of ICT was increasing the demand for information services, a pattern that continues in 2018. Digital tools are now part of a library's core function, and this increasingly includes the use of social and publishing technologies and instant messaging.

Figure 4. Digital tools used by the library to support users (n=86)
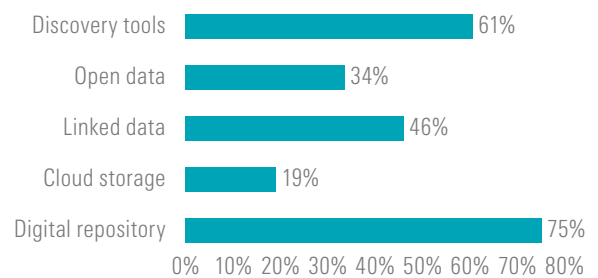
There has been expanding interest in inter-library collaboration, with the proportion of libraries belonging to international or regional networks more than doubling, from 45 per cent in 2012 to 93 per cent in 2018.

Parliaments online

Every parliament responding to the 2018 survey indicates that it has a website, as was the case in 2016. In the strategic oversight of websites, however, the role of members (including the President or Speaker as well as committees) has diminished in favour of the administration. Secretaries General now have a role in deciding the strategic direction of websites in 61 per cent of the parliaments, and senior ICT staff members in over half. There is also a noticeable rise in the role of communications staff and a slight drift away from the dominance of IT departments – which still tend, however, to be the most heavily involved in running the sites. According to the survey, as shown below, IT departments are responsible for the websites of 76 per cent of the parliaments but tend to be less involved in their day-to-day management. Responsibility for content is also shifting and now tends to rest with content owners in separate departments more than with a central team.

Figure 5. Who manages the website (n=114)

- Different departments
- Communications department
- Press office/ Public relations
- IT department
- Other

11%
11%
17%
42%
11%
20%
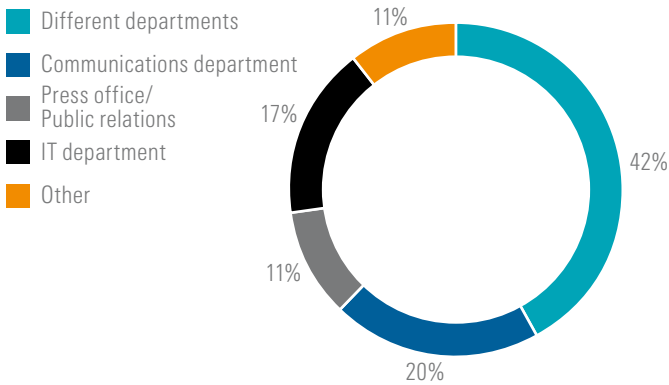
As for the content itself little has changed; it remains focused on providing information and educational resources to the public. The information they provide on the history and role of parliaments, their members and committees and how they work appear to generate the greatest public interest. A schedule of parliamentary business is provided by 95 per cent of parliaments but the efficiency and timeliness of publication vary significantly. Only 45 per cent of the parliaments publish plenary or committee agendas a week or more in advance; 15 per cent publish their plenary agendas the same day. The survey did not distinguish between draft and final agendas, which can change up to the day of action.

Overall, the 2018 survey records a certain amount of progress in the timely publication of website information and, to a lesser degree, in the publication of open data. Thirteen per cent have some form of open data feed and 24 per cent provide reusable documents for download from their website. Open data repositories are now starting to appear in lower-income countries, too, and while 60 per cent of the parliaments with open data feeds are still in Europe, 13 per cent are now in Africa.

Figure 6. How is access to content provided (n=113)

- Committee reports
- Laws/statutes
- Plenary actions
- Plenary speeches and debate
- Amendments (plenary)
- Plenary voting record
- Information on Member activity
- Explanations of bills
- Committee actions
- Amendments (committee)
- Committee hearings
- Explanations of actions
- Committee voting record
- Budget assessment of bills
- Impact assessment of bills

0% 20% 40% 60% 80% 100%

- Web page
- Downloadable
- Open data
- Not available

Accessibility and usability

Website design continues to be driven more by user needs than by standards, although a significant number of parliaments now apply some kind of standard or follow IPU guidelines. The areas in which websites have changed the most over the past two years relate to design and usability, and to a lesser extent, technical and content issues. Greater citizen participation is reported for the first time as an important development by 6 per cent of the parliaments, and as an aspiration for the next two years by 7 per cent. Future plans focus on usability and improved content as well as responsive design and additional video materials.

Connecting with citizens

More parliaments than ever are using online applications for their top three priorities in connecting with citizens: to inform, explain and engage. Digital technologies are clearly a way forward in that direction. The social media overtook broadcasting in 2016 as the most popular medium for citizen communication and has pulled further ahead in 2018, with Internet-based video for the first time overtaking broadcast programmes.

Table 6. Top five objectives in using digital-based methods of communication (n=111)

		2018	2016
1	Inform citizens about policy issues and proposed legislation	68%	74%
2	Explain what the parliament does	68%	64%
3	Engage more citizens in the political process	61%	62%
4	Include citizens in the decision-making process	29%	26%
5	Engage young people	22%	14%

Digital is seen by more parliaments as the way forward, while radio, although still relevant to many, is diminishing in importance. These changes come in response to public demand: three quarters of the parliaments report an increase in the number of citizens using digital channels to engage with them in the last two years. None report a reduction.

Figure 7. Trends in the use of digital tools for citizens communicating with parliament (n=107)

- Increased — 76%
- Remained steady — 12%
- Decreased — 0%
- Do not use — 12%

0% 10% 20% 30% 40% 50% 60% 70% 80%
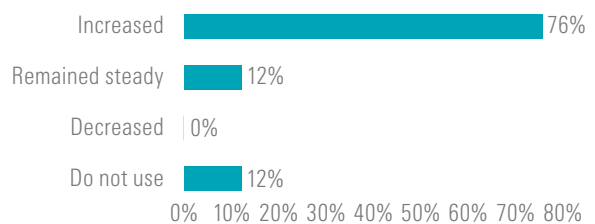
The 2016 report identified how parliaments were adopting new media, supplementing established media with a wide range of digital tools to communicate and engage with citizens. Today, some of the established media, such as radio and broadcast television, are still important, particularly since Internet access remains a challenge for parliaments and

citizens alike. About half of the parliaments (51%) still use regular (not the parliament's own) broadcast TV channels to communicate with citizens. By contrast, 62 per cent now share video content via the Internet, a significant increase over the 43 per cent doing so in 2016.

In 2016, social media tools overtook television and radio as the media most widely used by the parliaments surveyed to communicate with citizens. They have significantly increased their lead in the 2018 survey, with 70 per cent of the parliaments using a social network and 68 per cent using Twitter. Only one in five (20%) uses instant messaging (such as WhatsApp), but that proportion represents a large jump (154%) from the 8 per cent reported in 2016.

Figure 8. Methods for communicating with citizens (excluding websites and e-mail) (n=113)
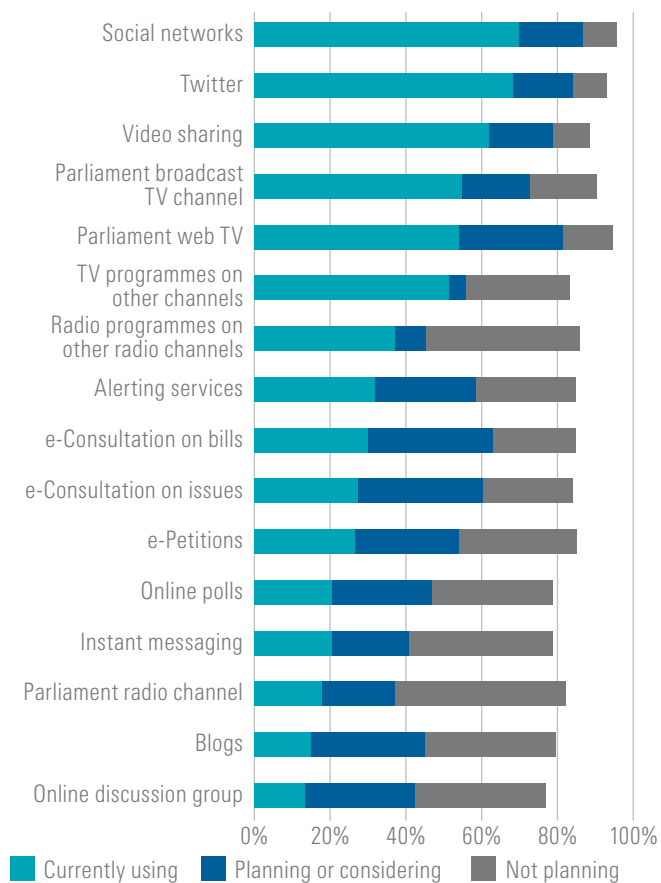
In terms of how they communicate, most members still use e-mail as their method of choice for digital communication. But the fastest growing method is instant messaging, up by 154 per cent since 2016. Committees, while tending to communicate through websites, are increasingly using social media as well, although still more for publishing than for engagement. Deeper analysis of how members use digital tools is provided later.

Looking at their members, parliaments see inadequate skill levels and training as a continuing challenge. A third of those surveyed also expressed concerns over security and trust. Looking at citizens, parliaments see limited Internet access and limited skills – but even more critically, limited knowledge about parliament – as continuing barriers to their involvement.

The 2018 report shows that parliaments are more and more willing to adopt new technologies but continue, perhaps inevitably, to lag behind the general public. It is therefore encouraging to see them embrace instant messaging, the social tools and digital video as ways to engage more directly with citizens – on the citizens' own turf. Parliaments are also tending to work more than they have with external partners. Civil society organizations, such as PMOs, are becoming an increasingly important intermediary for parliaments. Thirty-six per cent of those surveyed work with them directly and 17 per cent support their work informally. Although many PMOs operate autonomously, using publicly available data, parliaments increasingly work with them to ensure the data is understandable and useful for citizens.

Cooperation and support

There is a long-established tradition of sharing, collaboration and exchange between parliaments. This is well documented in previous reports, and as the latest survey shows, international inter-parliamentary networks continue to be popular. Membership of the Open Government Partnership (OGP) has grown. The International Federation of Library Associations and Institutions (IFLA) remains a pre-eminent network for parliamentary libraries and represents the single largest inter-parliamentary grouping.

While the 2016 report identified emerging technologies as the area with the greatest unmet demand for support, considerable demand is being reported in 2018 in more traditional areas of ICT as well. This shows that parliaments require support right across the spectrum of digital tools, from planning and back-end systems to open data and citizen engagement. None of the parliaments surveyed in 2016 received support for open data innovation, but over half (53%) indicated they would like to. By contrast, 8 per cent of those surveyed in 2018 report receiving such support, with 46 per cent still indicating a need for it. These findings strongly support evidence from 2016 that more and better coordinated efforts to share ideas and good practices among parliaments would be welcomed.

Table 7. Top ten areas where support is required (n=73)

		Would like support	Receive support
1	Document standards	47%	7%
2	Document management systems	46%	9%
3	Open data	46%	8%
4	ICT services for members, committees or plenary	43%	12%
5	ICT management	42%	8%
6	Websites	39%	9%
7	Social media	39%	5%
8	Citizen engagement and outreach	37%	7%
9	Hardware, software or network operations	36%	8%
10	ICT planning	34%	13%

As the table above shows, demand for inter-parliamentary support and collaboration is great, and goes largely unmet. This is about more than providing support: it is about developing a structured, clear and coordinated approach to sharing knowledge and good practice.

This research has shown the critical importance of ICT within a parliament's infrastructure, as core tools supporting transformation, openness and accountability. Digital tools help connect parliaments to citizens, make members more effective legislators and increase the institution's professional capacity. These reports have shown that parliaments are cautious in adopting new and emerging technologies, but when they do, significant benefits can result. Parliaments' use of digital tools mirrors that of the wider world: business transformation, increasing quantities of data, better and more open communication. These reports have revealed barriers to adoption – in terms of political commitment, skills and funding. But they have also detected a willingness to try new ideas. Digital tools are firmly embedded in the modern parliament, and as this report shows, supporting their effective use is vital.

Measuring a parliament's digital maturity

The data gathered for this 2018 report has been analysed to build a detailed picture of the extent to which participating parliaments have become digitally mature. As noted in previous World e-Parliament Reports, any measurement based on unverified self-evaluation, and possibly incomplete data, must be treated with caution. For this reason, individual parliaments are not named in the rankings discussed below. There is nonetheless value in examining the relative maturity of parliaments: as a way to help individual parliaments better understand the strengths and weaknesses of their own digital programmes. Background on the index constructed for this purpose is provided in the appendices.

The index is intended to measure progress towards or movement away from digital maturity – in terms of the quantity or range of technology and tools adopted, but also their effective use to support the parliament and its stakeholders. It represents a continuum, there being no point at which a parliament becomes "digitally mature".

The findings reveal wide variation in the levels of digital maturity from one parliament to the next. As shown in Figure 9, the top-ranking parliaments rate slightly lower than in 2016, a finding ascribed to the data supplied rather than an actual drop in maturity. Overall, the patterns remain very similar, with parliaments at the lower end gaining most in maturity. The parliament scoring highest on the maturity scale in this year's survey did not participate in 2016, so no conclusion there is possible. Otherwise, the list of the ten most digitally mature parliaments has changed little, the only notable difference being the quality of data received. It is more useful in any case to focus on the middle to lower end of the chart, which highlights ongoing challenges for low-ranking countries as well as gains made towards digital maturity by those that have invested internally or received support from other parliaments and agencies to improve their ICT practices since the last report.

Figure 9. Digital maturity – All scores
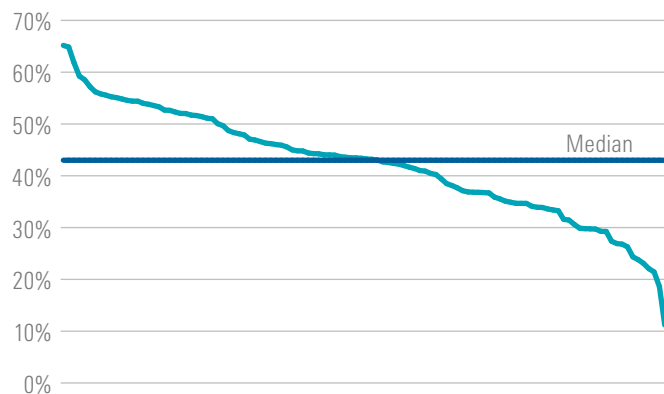
In analysing the scores by region, because of the sample size, the scores for Asia and the Pacific have been combined, as have those for the Caribbean, Latin America and North America. The median score for all parliaments is 43 per cent, the same as in 2016. The lowest is 11 per cent and the highest 62 per cent. Only the Americas and the Middle East

have median ratings above the overall median. Africa has the lowest median score: 36 per cent.

Figure 10. Digital maturity – Range of scores by region

The extreme discrepancy between top- and bottom-ranking countries follows geographic lines. As shown in Table 8, 35 per cent of the 20 lowest-ranking parliaments (compared to 55 per cent in 2016) and 10 per cent of the 20 highest (compared to none in 2016) are in Africa. Conversely, 35 per cent of the 20 highest-ranking parliaments, and none of the 20 lowest, are in the Americas. Given the relative number of legislatures in the region, these figures suggest high levels of digital maturity for Latin America in particular. Europe not surprisingly accounts for 40 per cent of the top 20 parliaments, but also 30 per cent of the bottom 20. This is due in some cases to poor or limited data for the areas measured by the index.

Table 8. Digital maturity – Top and bottom 20 countries, by region

	Top 20	Bottom 20
Africa	10%	35%
Americas	35%	0%
Asia/Pacific	5%	30%
Europe	40%	30%
Middle East	10%	5%

Based on the average scores by area of concern, it is clear that core ICT applications are now well covered in the parliaments surveyed. Other applications are moderately mature, showing room for improvement but also gradual progress since the last report.

For each area of concern, the average score for all the parliaments has been compared with that for the top 20 and bottom 20. The comparison shows that the degree of digital maturity varies, as expected, but less so in the areas of infrastructure and strategic oversight and more so with respect to standards, parliamentary websites and citizen

engagement. Scores for strategic oversight and engagement, including open data publication, remain relatively low across all the parliaments surveyed.

Figure 11. Digital maturity – Average scores by area of concern (for all parliaments, top 20 and bottom 20)
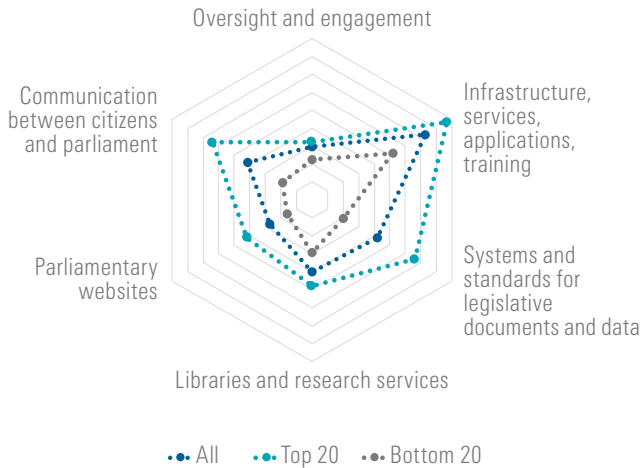
The distribution of scores based on size of chamber follows no particular pattern. As the earlier survey findings have consistently shown, however, a country's income level can be a key determinant of whether its parliament can manage certain digital functions. The report shows that, as complexity increases, and as new tools, platforms and methods emerge, parliaments in low-income countries consistently tend to implement them less. Those parliaments have improved their rankings, on the other hand, in terms of overall digital maturity, accounting now for fewer of the lowest-ranking parliaments. This may in some cases be the lagging effect of significant efforts to improve digital maturity. But firm conclusions are difficult, since there is churn from one survey to the next in the countries taking part, and hence no clear benchmark. A more worrying trend is that lower-middle-income countries, the next bracket up, now account for the bulk of less digitally mature parliaments. This raises questions about the support being provided in those parliaments for improvement. One obvious anomaly in this data set – what

appears to be reverse maturation among the highest-income countries – has two explanations. First, a small group of parliaments, having ranked very highly in 2016, furnished less complete data and more conservative responses in 2018. Second, a group of European parliaments failed to quantify their answers about external communications, particularly by MPs, which they say they do not (or cannot) monitor. This suggests that the overall digital maturity of those parliaments is greater than shown here.

Figure 12. Digital maturity plotted against income level
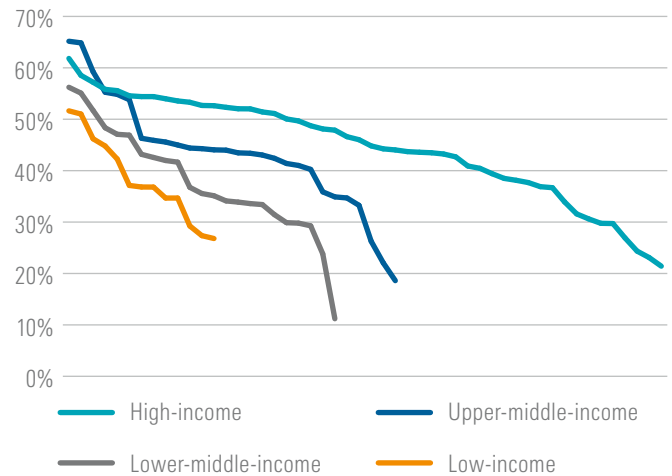
It is difficult to produce a valid year-on-year comparison of digital maturity. Different parliaments respond to different surveys in different ways and the quality of the data varies, both within and between surveys. Any assessment of digital maturity must therefore be subjective. Overall, if the outliers are excluded from the dataset, this year's index paints a picture of steadily rising maturity. The median value for the index remains the same as in 2016, but there are fewer high-scoring parliaments and improvements among the lower- to middle-ranking ones. The improvements in many of those latter parliaments, moreover, correlate with known modernization projects since the 2016 survey. This is progress, perhaps slow but sure, towards greater digitization and better understanding of its value within these institutions.

Survey of parliamentarians

The research informing this section of the report is a survey of 168 members of parliament. Data was collected by means of a short survey administered face-to-face during the 137th IPU Assembly, in St. Petersburg, Russia, and the Fourth IPU Global Conference of Young Parliamentarians, in Ottawa, Canada. This section will discuss the findings of that survey and present the key conclusions.

The respondents are predominantly male (almost two thirds) but less so than the gender balance for MPs worldwide, in which women account for only 23.5 per cent.[5]

Figure 13. Gender breakdown of respondents (n=168)

- Male
- Female

38%

62%
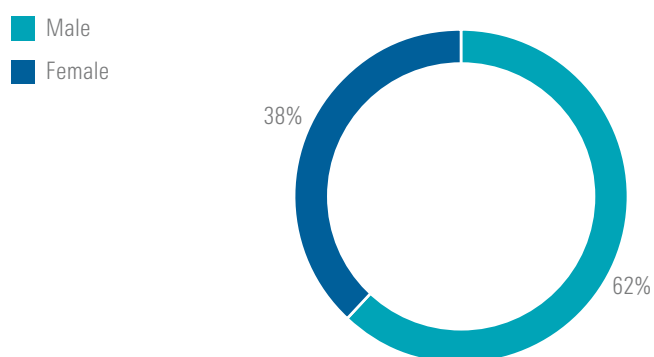
The average age for legislators worldwide is 53. The largest age group among the survey respondents is 41–60, accounting for 29 per cent. Six per cent of the respondents are under 30, compared to only 2 per cent of MPs globally. Sixteen per cent of the respondents are under 40, compared to 12.9 per cent of MPs globally.[6] In terms of length of service, 85 per cent of the respondents have been in office two or more years, with 29 per cent serving more than ten years.

Figure 14. Age of respondents (n=168)

disclose their nationality. The continent best represented is Africa, with 26 countries; the representation of Asia, Europe and Latin America and the Caribbean is also good. Only the Pacific region is notably underrepresented. As shown in Figure 16, this sample strikes a good balance in terms of development level, based on World Bank data.

Figure 15. Distribution of respondents (n=168)
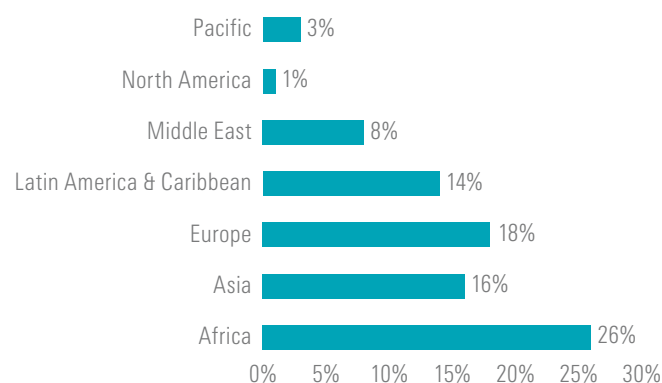
Figure 16. Economic status of respondent's country (n=168)

- Low-income
- Lower-middle-income
- Upper-middle-income
- High-income

19%   20%

24%

36%
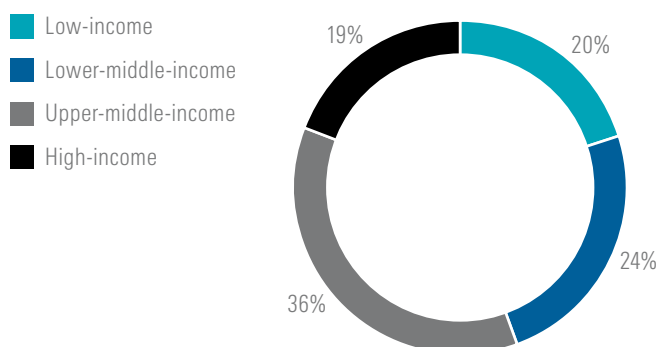
Technology usage

The use of ICT technologies is virtually ubiquitous among the legislators surveyed. Almost all (92%) use mobile phones, 85 per cent use laptop computers and 82 per cent desktop computers. As the table below shows, this tendency to adopt different devices is not greatly affected by age – except in the case of legislators under 30, who are less likely to use computers but all have mobile phones or tablets.

Table 9. Device usage by age

	Under 30	31–40	41–45	46–50	51–60	61–70
Mobile phone or tablet	100%	88%	91%	86%	94%	96%
Laptop computer	60%	81%	70%	79%	82%	84%
Desktop computer	50%	65%	57%	68%	67%	72%

The respondents hail from 86 countries in total. The largest number of responses per country come from Bahrain, Brazil and France, each with five responding legislators; 42 countries have only one each. Six respondents have chosen not to

5   As of October 2017 (see IPU Women in Parliament dataset at archive.ipu.org/wmn-e/world.htm).

6   IPU (2016). Youth participation in national parliaments. Geneva: IPU.

The technology that members use comes from a variety of sources. Much of it belongs to the members themselves (68% of the mobile phone and tablet users) or is supplied by their parliaments (45% of the desktop and 41% of the laptop users).

Table 10. Who supplies technology to legislators

	Self	Party	Parliament	Other
Mobile phone or tablet	68%	4%	36%	4%
Laptop computer	50%	6%	41%	5%
Desktop computer	39%	7%	45%	5%

Access to parliamentary documents

It thus appears from the member survey that the vast majority of legislators use digital devices. But how do they use them to carry out parliamentary business? The main survey of parliaments shows that the use of internal document-sharing networks and systems, remote access and cloud storage has expanded the availability of documents significantly in the last few years.

This survey of MPs asked about individual member access to parliamentary documents – i.e. relating to the business of parliament and law-making, including agendas, draft legislation, amendments, submissions and correspondence. Only two legislators (1%) reported having no digital access to any such documentation. Fifty-eight per cent reported having such access in their parliamentary office and 33 per cent in an office outside of parliament (such as their constituency office). Just over half of all respondents (55%) can access these documents from anywhere, and one in ten (11%) can do so from their offices, homes and mobile devices. One in five

(18%) have digital access from their offices in parliament but not from locations outside or from remote devices.

Figure 17. Where digital documents can be accessed (n=168)

Using digital tools

The overwhelming majority of members surveyed (94%) indicate the ability to publish information and content to social media platforms, with only 6 per cent indicating no such knowledge; 42 per cent consider their knowledge "advanced" in this area. Ninety-one per cent indicate they can communicate online through tools such as e-mail and messaging products. Almost three out of five (59%) consider themselves "advanced" users of such tools.

These two-way but more traditional communication methods are both preferred and better understood than other, more interactive or technical digital communication methods. Thirty-eight per cent of the legislators surveyed consider their skills in creating websites or blogs to be "intermediate" or "advanced"; 62 per cent claim no such skills, or only "basic" ones. There is a similar pattern for members participating in interactive digital forums (online chats and events), as shown in Table 11.

Table 11. Digital communication skill levels

	Publishing information on social media (n=165)	Communicating online (n=165)	Creating websites or blogs (n=162)	Participating in online chats and events (n=164)
None	6%	2%	**31%**	18%
Basic	16%	8%	**31%**	26%
Intermediate	36%	30%	25%	**29%**
Advanced	**42%**	**59%**	13%	27%

The participating MPs were invited to select the top three digital tools they use to communicate with the public (n=168). Consistent with the pattern seen in the surveys of parliaments over the years, a large majority of the members (74%) chose e-mail. But there has also been strong growth in the use and widespread public adoption of social media, as reflected in the strong showing by Facebook, identified by 67 per cent. Perhaps reflecting this rise in the social media, MPs appear

to assign less value to websites, and still less to personal blogs (identified as important by only 9%). Also noteworthy is the rise of WhatsApp, first flagged anecdotally in the 2016 World e-Parliament Report as becoming increasingly popular by attendees at the 2016 World e-Parliament Conference. As revealed by the 2018 survey, 54 per cent of the respondents now consider this tool important.

Figure 18. Top digital tools for communicating with the public (n=168)

Email	74%	YouTube	15%
Facebook	67%	Instagram	13%
WhatsApp	54%	Other	11%
Twitter	40%	Blog	9%
Website	33%	Snapchat	4%
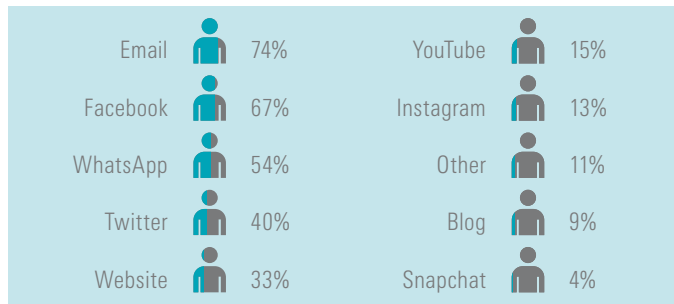
Respondents selecting "other" indicate a range of tools they like to use, largely offline ones such as telephone calls and public meetings, but also digital tools such as FaceTime (one respondent) and Viber (five). These tools also appear in the most frequently used digital combinations (respondents were asked to choose the top three tools, but some chose more). A quarter of the respondents selected e-mail, Facebook and WhatsApp, more than any other combination.

Figure 19. Top digital combinations (n=168)

Email + Facebook + WhatsApp	25%
Email + Facebook + Twitter	20%
Facebook + Twitter + Website	14%
Email + Website + Facebook	13%
Email + Facebook + Instagram	8%
Facebook + WhatsApp + YouTube	5%
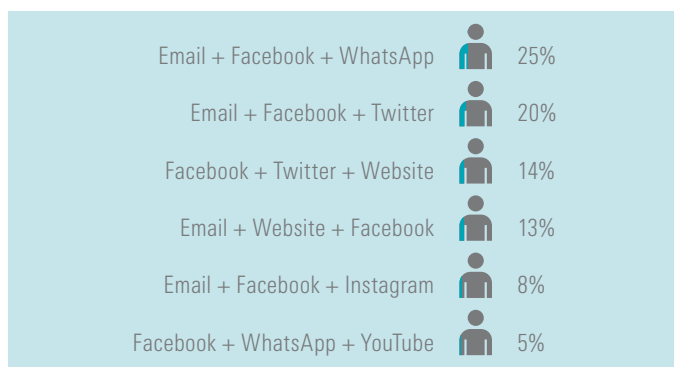
The online popularity of individual legislators varies enormously, depending perhaps on the vigour of their social media campaigns. Two of the respondents (perhaps outliers) report having more than a million followers, while at the other extreme, six report having 100 or fewer. Most of the MPs surveyed (53%) have between 1,000 and 9,999 social media followers. Thirty-four per cent have more than 10,000 and 15 per cent fewer than 1,000.

Figure 20. Social media followers (n=123)

More than 100,000	5%
Between 50,000 and 99,999	2%
Between 30,000 and 49,999	7%
Between 10,000 and 29,999	20%
Between 5,000 and 9,999	18%
Between 1,000 and 4,999	35%
Fewer than 1,000	15%

0% 5% 10% 15% 20% 25% 30% 35% 40%
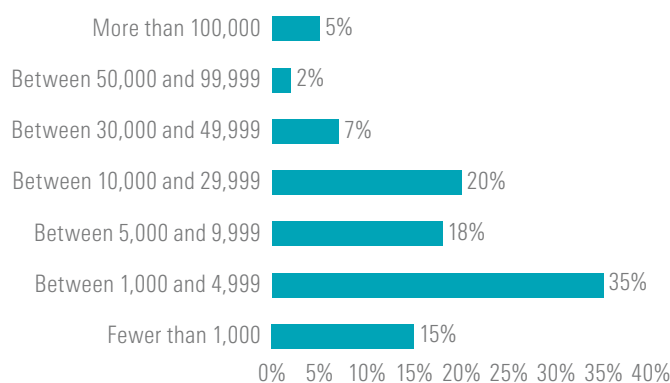
The more interactive the space, the more legislators tend to create content for it themselves. Seven out of ten (71%) write their own content for social media, compared to 55 per cent who do so for websites and only 43 per cent who do so for blogs. Staff are reported to produce 40 per cent of the website content, 29 per cent of the blogs and 37 per cent of the social media postings. To a lesser degree, the members' political parties also appear to generate some of this content, which could include the re-posting of policy statements or party news and information.

Table 12. Who creates content for members (n=123)

Created by	Website	Blog	Social media
Self	55%	43%	71%
Staff	40%	29%	37%
Party	10%	6%	9%
Other	6%	7%	6%

Maintaining the production and output of digital content requires considerable resources and time, yet nearly a quarter of the MPs (24%) report receiving no assistance for this purpose. So in addition to their parliamentary workload, they must produce all this content themselves. A third (33%) have no more than a single full-time equivalent (FTE) person supporting them in this area. Most of the MPs surveyed (65%) have between one and three people working on their social media and digital content, and 2 per cent have a team of 10 or more. One MP reports having 12 staff to generate digital content.

Figure 21. Number of staff employed by members to work on digital communication (n=130)

- None
- 1 or less
- Between 2 and 3
- Between 4 and 9
- 10 or more

2%
9%
24%
33%
32%
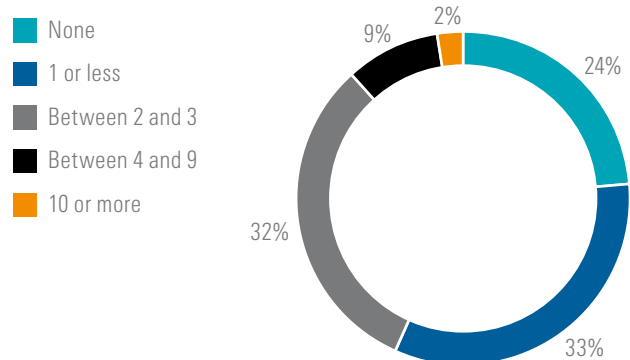
The impact of digital tools

As this series of reports has shown, digital tools have made remarkable and rapid inroads into the work, structure and culture of parliaments. A separate survey was conducted for the first time in 2018 asking members how these developments impact their work. The findings show that nowhere is this dramatic shift towards digital more obvious than in the rise of new communication tools. As we have seen, e-mail, Facebook and more recently WhatsApp are becoming critical "business-as-usual" tools for elected members. To provide some context for this rise in the use of digital tools, legislators were asked to assess how much of their time communicating with the public was spent online

(using the tools shown above) compared to offline (using traditional methods, such as meetings, visits to surgeries, postal correspondence and telephone).

A quarter (25%) of the legislators surveyed spend a lot more of this time communicating offline, but nearly three out of five spend more time communicating online (33% spend "a lot more" and 26%, "somewhat more"). In other words, members now spend a significant amount of time communicating with the public online. It highlights the importance of good training and support for legislators and their staff in using online tools safely and effectively.

Figure 22. Balance between online and offline communication with the public (n=157)

Category	%
A lot more offline	25%
Somewhat more offline	15%
About the same	33%
Somewhat more online	15%
A lot more online	11%
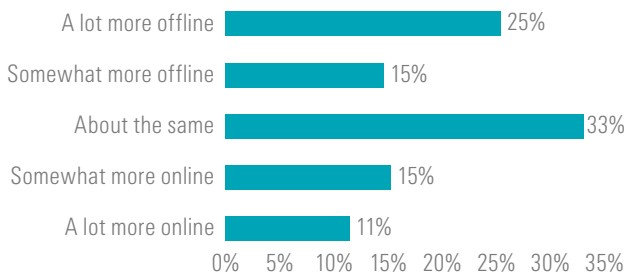
Respondents were also asked how the current balance, per Figure 22, is expected to change over the next three years. As shown in Figure 23, 5 per cent expect their online communication and use of digital tools to decrease over the next three years ("a lot" according to 2%), but a significant majority (80%) expect it to increase ("somewhat" according to 46% and "a lot" according to 34%). Sixteen per cent expect no change in their current level of digital communication. This data suggests a strong expectation among elected members that digital tools will soon become even more important to their work.

Figure 23. Change in online communication with the public expected over next three years (n=158)

Category	%
Reduce a lot	2%
Reduce somewhat	3%
About the same	16%
Increase somewhat	46%
Increase a lot	34%
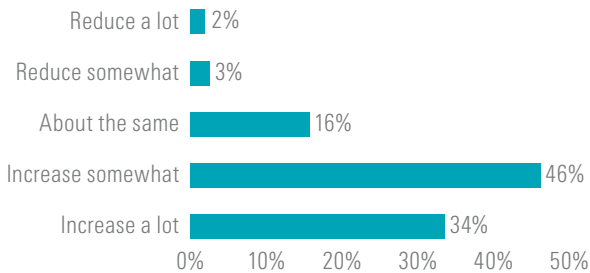
The benefits and challenges of digital tools

The legislators surveyed identified a number of themes around the challenges and benefits of digital tools and communication. Many saw the ability to build and expand networks, and to easily disseminate information quickly and widely at relatively low cost, as a vital benefit of these new tools, as in this response:

I can reach (and be reached by) many people simultaneously and easily. I can forward and shape ideas, gather input, tap into sources that I would otherwise not have access to.

This leads into the economics of digital communication: the savings in time, printed materials and postage. The use of digital media also ensures a readily accessible record and archive of correspondence.

Some of the members characterize the digital technologies as "how the world works", and increasingly, part of the picture going forward, for society as well as parliament. This suggests a sense of inevitability: that members need to engage with and use these tools regardless of how they feel personally. Some of the respondents recognize that what they say and do online affects how they are measured and judged, as in this comment:

A new mechanism of evaluation of my performance as representative.

Gives me first hand info on what are peoples opinion about me and my work.

Problems with digital tools were also reported, relating mostly to lack of public access to them and – particularly for legislators representing rural constituencies – access not just to devices but to reliable Internet and electricity. Lack of access to physical infrastructure, and to a lesser extent lack of digital skills, were also noted as problems.

It is only when network operators can increase connectivity and make smartphones more affordable to the poor that we can better use digital.

Respondents to the survey see the value of digital communication and the power of networks, but also the abuses they can lead to: misinformation and attempts to manipulate people online.

A lot of correspondence on social medias are not very profound but very superficial.

Some members and staff mention lack of training as a problem; some see digital communication as time-consuming. There is a sense that easy access to digital tools disinclines the public to think through their messages to legislators:

I believe the public uses electronic communications without thought and therefore a lot of time is spent addressing issues that could have been easily addressed elsewhere.

Summary

Members use digital tools to support their work in parliament and to communicate with citizens. All of the younger members use mobile technologies, but so do most of those over 60 (96%). Older legislators tend more to use desktop computers, younger ones appear more reliant on mobile technologies.

Legislators see themselves as highly competent communicators and most are comfortable with the concept of digital publishing. Far fewer members feel as confident in more interactive spaces. This suggests that the broadcast model of communication is still prevalent but that members are increasingly turning to the more interactive spaces. As they do, their need for support and training will increase. Consistent with the findings of the main survey of parliaments, the tools that MPs cite as the ones they use most are e-mail, Facebook and WhatsApp. And where members are present on social media, they are more likely to post content themselves, while they tend to rely on their staff to produce blogs or website content.

The survey of parliamentarians shows that:

1. Members now increasingly use digital technologies as core tools in their work, as do their offices and constituents in the process of public engagement. **Ninety-six per cent of the members surveyed use a mobile device** and **80 per cent expect their digital communication with the public to increase.**

2. Three quarters of the respondents regard **e-mail as the most important digital tool, followed by Facebook and WhatsApp**.

3. **Seventy-one per cent of members write their own social media content,** while content for their websites tends to be written by staff.

4. Almost all members say they can publish information, and **three out of five consider their knowledge of online communication to be advanced**. Conversely, one out of five members claims to lack the skills needed to take part in online chats and events.

5. **A quarter of the members have no support** or assistance for digital content and communication, while a third (33%) have one FTE or less.

Innovations in parliamentary engagement

The World e-Parliament Report has traditionally been based on data received through surveys from participating parliaments. This section examines in depth how digital tools are being introduced in parliament to engage more effectively with the public. It looks in particular at an approach that has been emerging over the last five or so years and that offers a new way for parliaments to think about the question in terms of innovation. Parliaments can innovate in many different ways: internally, through ICT and business transformation, and externally, via commercially developed projects. But there is a third kind of innovation, one built around collaboration, where civil society is seen as active participants in the process.

The fourth World e-Parliament Report, in 2016, documented the increasing role of parliamentary monitoring organizations (PMOs) in campaigning for greater openness and accountability, in publishing data from parliaments or about them, and increasingly, in working proactively with parliaments to achieve better public access to and understanding of the parliamentary process. The practical aspects of how citizens can be truly active participants in the digital innovation process within parliament will also be explored. The aim for parliaments is to become more open, transparent, connected and collaborative.

The need for innovation

As this series has shown, parliaments do not tend to be early adopters of new technologies; they have lagged behind in adopting, first, digital tools, then the social tools and finally open data and data sharing. Yet society has changed, and with it, societal expectations; the public now expects ready access to parliament, just as it has to commercial brands and increasingly other public services as well. Parliaments must innovate or be left behind.

How would not investing in new technologies impact the future of parliaments and democracy? It is encouraging that a series of innovative experiments in this regard are under way in a number of parliaments. They are described below, not for replication, but as a source of inspiration and lessons for others looking to develop new processes and practices. What follows is intended to serve as a reference for persons working or intending to work on innovation in parliament. That includes legislators and parliamentary staff but also PMOs and other external organizations. The case studies discussed here are real-life examples of collective intelligence applied to modernizing parliaments and strengthening their connections with citizens.

Cases studies

This section looks at a range of case studies and examples to showcase six different methods of participatory innovation, namely:

- Hackathons
- Civic challenges
- Collaborative residency
- Legislative commons: online collaborative work
- Smart crowdsourcing
- Data visualization

Hackathons

The very word "hackathon" is symptomatic of the new character of this type of gathering, formed as it is from abbreviating and combining "hacker" and "marathon". As the name suggests, a hackathon is an interactive and intense event of definite and brief duration that brings together a range of technical and business skills in one place.

Once perceived negatively and portrayed as radicals trying to steal or damage information from corporate and government websites, many hackers now are active technological innovators, driving real change for both the public and private sectors. In such parliaments as the UK House of Commons, the Brazilian Chamber of Deputies and the US National Congress, staff have been learning how to tap into hackers' intelligence, versatility, creativity and boldness by collaborating through hackathons.

A novel inter-parliamentary event, the 1st Global Legislative Hackathon 2016, was held in June 2016 during the World e-Parliament Conference in Valparaiso, Chile. A partnership between the IPU, the National Democratic Institute, the Chilean Chamber of Deputies and the Brazilian Chamber of Deputies, this event gathered together hackers, programmers, developers and inventors from nine countries (Argentina, Brazil, Canada, Chile, France, Italy, Peru, the United Kingdom and the United States) to produce nine projects to promote social participation and transparency in parliaments.

Figure 24. 1st Global Legislative Hackathon 2016, Chile.

© Chamber of Deputies, Brazil

The nine projects presented during the event were largely about making parliamentary work easier for citizens to understand by reinterpreting information in a different way and developing or improving participation projects. "Socievole", one of the applications selected, makes it easier to visualize UK legal acts by separating them according to topic across a timeline. "X-Ray de la Ley" (X-Ray of Legislation) is an application that allows Quick Response Code (QR code) to be read throughout a city

to give citizens immediate access to the laws as they apply to everyday situations, such as a non-smoking sign or an exclusive parking sign.[7]

Civic challenges

Civic challenges are competitions designed to bring in external talent to help solve specific problems facing institutions or corporations, including parliaments. Unlike hackathons, civic challenge projects do not have to be completed during a single, intense event. One such competition, the "Challenge of the Chamber of Deputies", took place in Brazil in 2017. Brazilian entrepreneurs were challenged to create an application enabling society to better understand the work of the legislature.

The winner was an application called "Câmara dos Deputados – EDO", which enables users to find members with voting profiles most closely resembling their own. It enables citizens to search the profiles of all members of parliament, follow their activities in the chamber and make comparisons between them. Second prize was awarded to "Aprovometro" (Approval Meter), which uses machine learning to help citizens anticipate how likely a parliamentary bill is to become law. Third prize went to "Fala Câmara" (Talk to the Chamber), which uses a "chatbot" to answer citizens' questions on activities relating to MPs and the legislative process.[8]

Figure 25. Civic challenge in Brazil's Chamber of Deputies, 2017

Once the competition is complete, apps are made available to citizens free of charge and developers commit to improve their products for one year, as a condition of receiving their prize. When the year ends, the Chamber of Deputies' technology team can choose to take over project maintenance and enhancement.

Collaborative residency

Collaborative residencies allow for longer periods of intense full-time work. Initiatives such as "Collective Intelligence for Democracy", run by MediaLab Prado,[9] and the Civic Innovation Lab, run by the Ibero-American General Secretariat,[10] stand out as models for collaborative development. The longer duration of these events and the embedding of partners result in more substantial and lasting

innovation than can be achieved through short-term events such as hackathons.

Figure 26. Collective Intelligence for Democracy: Participants work together for two weeks

Generally speaking, a collaborative residency works as follows:

1. Participants submit proposals for projects, which are then reviewed by a multidisciplinary team of mentors.

2. Participants whose projects are selected become the managers of those projects and submit the profile of the team they will need for the residency.

3. Innovators who apply and fit that profile are selected by the same multidisciplinary team of mentors plus the respective project managers.

4. Project managers and their respective teams (multidisciplinary) meet for two weeks to develop the projects with the help of the mentors.

5. After two weeks, an event is held to present the results. The resulting products are then made available to users free of charge.

Because of the time and resources made available, projects developed in collaborative residencies tend to be more substantial. Projects developed through these initiatives, such as "Mapa Participativo" (Participatory Map)[11] and "Consul" (a portal for citizen participation in public policies in Spain)[12] have demonstrated the potential of such an approach for parliaments.

Smart crowdsourcing

There are several ways parliaments can use collective intelligence, including events that bring people together to work on legislative data, develop technologies or participate in the legislative process. Collective intelligence can also be used for advanced innovation. Smart crowdsourcing consists of on-site events or projects that harness the collective intelligence of relevant experts, similar to such traditional techniques as the Delphi method, although less formal.

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7   See: pad.w3c.br/p/parlhack.

8   More information on apps and the challenge on the official website: desafio.leg.br/desafios/app-legislativo/index.html.

9   See: medialab-prado.es/article/collective-intelligence-for-democracy-2017.

10 See: www.ciudadania20.org/en.

11 See: ciudadania20.org/laboratorios/portfolio/mapa-participativo.

12 See: consulproject.org/en.

New York University's GovLab[13] has coordinated a research initiative known as Crowdlaw, where parliamentary staff, academics, jurists, technology experts and others have developed an initial methodology involving a range of cases. CrowdLaw uses technology to tap the intelligence and expertise of the public in order to improve the quality of law-making[14].

There are also examples of parliaments using the Internet to involve the public in legislative drafting and decision-making. Since 2008, the Brazilian Chamber of Deputies has been developing a digital platform for citizen participation in the legislative process, known the e-Democracia portal.[15] As part of a recent effort to update this project, experts were convened to design a new portal based on a smart crowdsourcing process. Brilliant minds from Brazilian civil society as well as parliamentary officials took part.[16]

Figure 27. Smart crowdsourcing the new e-democracia project, Brazil

© Chamber of Deputies, Brazil / HackerLab

Initiatives such as this show that the public can often make significant contributions well beyond simply expressing opinions or signing petitions. Examples in Brazil, Chile, Finland and Estonia show that citizens can constructively crowdsource proposed legislation, write texts and amendments in legal format, monitor policy implementation and provide relevant data to deepen knowledge about the legislative matters being discussed. Through this type of experience, citizens become real partners and co-creators in the law-making process.

Data visualization

Several parliaments have been promoting gatherings, meetings and workshops with PMOs, academics and citizens aimed at developing increasingly collaborative forms of work, to modernize and improve the openness of their institutions. Some of the most interesting results from the standpoint of immediate impact include what are called data visualizations. These are creative ways developed by MPs, parliamentary officials, data analysts, programmers, activists and academics to measure a member's performance and legislative work by offering interactive and game-like elements that encourage more accessible and friendly communication with citizens.

One example of this is the data visualization created in Hungary by K-Monitor,[17] which shows the issues most commented upon by Hungarian parliamentarians since 1990.

Figure 28. K-Monitor's visualization of Hungarian parliamentary topics
When and what topics were being discussed in the parliament?

© k.blog.hu

Legislative commons: online collaborative work

In late 2016, while leading the Open Government Partnership (OGP), the French Government conducted a series of collaborative events and initiatives aimed at supporting the development of civic technologies that open governments and parliaments to greater accountability and transparency.

This effort led to the creation of a hub of tools, developed and organized on a collaborative basis and reusable by other public bodies and civil society. This initiative is noteworthy for creating an online space to support and encourage the further development and sharing of civic tools and technologies.

Parliaments in such countries as Brazil, Chile, France, the United Kingdom and the United States, as well as the European Parliament, have the resources to invest in digital innovation and have thus been able to explore more radical participatory and collaborative projects. As this series shows, however, many legislatures struggle with inadequate resources, even for fairly basic processes, such as maintaining a parliamentary portal.

Any legislature, PMO or citizen can use this free repository of open government tools and applications.[18] The varied application of these tools in different contexts is expected to facilitate their ongoing evolution. This is an example of a simple but effective way to share digital tools and resources. It shows the potential of exchanging open parliament projects and experiences between parliaments and PMOs. Such a model could also make better use of international resources for legislative openness, a goal of both the IPU and the OGP's Legislative Openness Working Group.[19]

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13 See: thegovlab.org.

14 For more information on the Crowdlaw project, see: bit.ly/2EbDlEr.

15 See: edemocracia.leg.br.

16 Watch the Nós do Lab event online (in Portuguese): youtube.com/watch?v=H8_-hi5daR0 or read more about it: bit.ly/2seVu8j.

17 See: k-monitor.hu and k-monitor.github.io.

18 Access the OGPToolBox portal here: ogptoolbox.org/pt/tools?tagIds=10041.

19 The Legislative Openness Working Group, comprising MPs, experts, parliament officials, activists and members of international organizations, promotes parliamentary openness worldwide as part of the OGP. See opengovpartnership.org/about/working-groups/legislative-openness-0.

Figure 29. Open Government Partnership toolbox for civic technologies

Key factors leading to effective innovation

The previous section has given some examples of how innovation and innovative engagement methods are driving improvements in parliamentary data, openness and accountability. They have focused on the process and the participants in that process. To succeed, however, they need to be situated within a parliament's wider context and culture. And if parliaments are to adopt a more innovative and open culture, they must themselves adapt to new ways of working, including partnering with third parties, and, in some cases, creating new legislative environments. The following section looks at the underlying systemic factors that affect parliamentary innovation.

Support within parliaments

Parliaments often struggle with innovation for lack of an innovative culture. This stems from the deep historical roots that are particular to parliaments as well as the controls that are common in many public agencies. In short, parliaments are seldom designed to be agile and innovative, but this is changing.

Accountability

Accountability procedures are indispensable but can stifle the creativity and experimentation needed for innovation. Innovation means taking risks, something politicians and parliamentary officials, subject to strict control processes, are often loath to do.

Hierarchy and centralized management

The traditional hierarchical administrative system hampers innovation in parliaments. The better-resourced parliaments tend to have separate departments for their ICT, communications and legislative support functions, yet innovation, especially in complex organizations, requires a multidisciplinary, decentralized approach, without

the silos that characterize slower, less flexible decision-making processes.

Collaborative and experimental spaces

Innovation requires specific tools, processes and methods, characterized by collaboration, experimentation, agile development, prototyping, user testing and ongoing research, the kind of organizational culture or structure parliaments tend to lack. Some parliaments have therefore been investing in spaces specifically designed for innovation within the existing hierarchical structure.

Examples include the Brazilian Chamber of Deputies' "HackerLab"[20] and the French National Assembly's "Lab d'Innovation". The latter is an open space for innovation-related discussions and projects intended to make it easier for French citizens to understand how their parliament works and interact with their representatives.[21]

Political will and public pressure

It is impossible to ignore the fact that political will among members is essential to successfully embedding digital innovation within parliaments, especially where parliamentary openness is affected. Successful cases often combine the political will of a parliament's leaders with pressure from civil society. The UK House of Commons has instituted a Commission on Digital Democracy, composed of MPs, experts and civil society representatives. Its aim is to understand what is needed to turn the UK Parliament into a digital parliament by 2030.[22] Similarly, the President of the Colombian Senate has taken steps to open the way for a new app called "Mi Senado" (My Senate), which allows citizens to follow law-making activities and participate in surveys on

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20 For more information, please visit http://labhackercd.leg.br..

21 See: forteza.fr/index.php/2017/10/26/bureau-ouvert

22 See: bit.ly/VSV5mj.

bills being discussed in the Senate.[23] Such political will is not enough in itself to ensure the sustainability of innovative projects: without ongoing support, innovation will eventually fizzle out. It is a living, dynamic thing that must be attended to and nurtured over time.

Internal skill sets and technological resources

MPs, parliamentary officials and technical teams need new skills to work with innovation processes, such as collaborative technology development, digital participation and design thinking.

Parliaments often provide internal training for staff and MPs, on a sporadic or ongoing basis, but few such programmes have focused specifically on innovation. International organizations such as the IPU, ParlAmericas and the National Democratic Institutehave tried to fill that gap in recent years with workshops and training events on the subject.

International organizations and collaborative networks have been supporting efforts to overcome another factor hampering innovation – the scarcity of technological resources – by developing a greater variety of technological tools for use and adaptation by parliaments.

New legal frameworks

New legal frameworks and legislative changes can contribute to greater and more effective innovation, especially when the goal is to make parliament more interactive, transparent and accessible to citizens. Legislation giving citizens easier access to public information is one example of this.

Traditional law-making processes are increasingly being modernized and made more participative. The Brazilian Senate, for instance, has passed regulations on the participative channels available through its institutional portal for citizen interaction, the "Portal e-Cidadania".[24] Specific responsibilities connected with innovation can also be assigned to existing parliamentary departments. The Library of the Chilean National Congress, for instance, generates innovation for both houses.

Partnerships with civil society and others

In facing the challenges of making parliamentary processes more open and innovative, many parliaments have found it critical and increasingly valuable to partner with civil society organizations, such as PMOs.

The format of such partnerships varies significantly. The parliaments of Ukraine, Georgia, Chile and Mexico have more formal, institutionalized arrangements. The Serbian parliament has partnered with a PMO to produce an online version of its parliamentary record.[25] Partnerships between activist networks, technology developers, hackers and other contributors have also contributed to innovation. Such relationships are often essential to the open data culture in

many parliaments, since PMOs generally have a better sense of what information the public wants to see.

Brazil's *"Operação Serenata de Amor"* project is an example of this kind of collaboration. It is a group composed of activists, journalists and hackers who use data on government funding for MP meal allowances to trigger automatic alerts on Twitter whenever evidence of misuse is found.[26] ICT teams in Brazil's Chamber of Deputies contributed to the project on a collaborative basis to ensure the accuracy of the data.

Kenya's *"Mzalendo"*,[27] Argentina's *"Directorio Legislativo"*,[28] and Colombia's "*Universidad de los Andes Congreso Visible"*[29] are similar efforts to curate information on parliamentary activities while cross-checking data and adding value to knowledge about parliamentary work.

In Kenya, *"Dokeza"*, a tool offered by the *Mzalendo* project, allows citizens to comment on legal texts in a collaborative way. In Brazil, the Chamber of Deputies ran an experiment in 2017 allowing citizens to participate in setting the plenary agenda, the so-called *"Pauta Participativa"*. The project coordinating team invited three academic experts to serve as observers and evaluate the experiment on an independent basis. The results were published in full through the chamber's portal.[30]

Partnerships with universities and research centres are critical for parliamentary innovation. Innovation depends on constant experimentation and research, so parliaments should engage with researchers in assessing the effectiveness of their innovation projects.

Summary

Parliaments need to gain new skills in rapidly evolving areas if they are to become truly open and transparent institutions and meet the demands for timely data and greater accountability. This can be achieved through traditional means but there are many benefits to working collaboratively with others. Innovation is not inevitable, as parliaments have historically shown: if they are to accept more innovative practices, their institutional culture must change. Public pressure for and political commitment to openness and transparency will be required. In many organizations innovation is hampered by centralization. Parliaments allowing freedom for staff and partners to experiment have reaped positive results.

Ultimately, the parliaments that recognize the need to evolve and develop new and more open ways of working are the ones where innovation is happening. This is as much a cultural shift as a technological one and it requires a commitment at all levels of the institution to work with others, to see parliament from different perspectives and to be prepared to take risks with new and often untried ideas. Fortunately, the parliaments that choose this path will not be alone.

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23 See: bit.ly/2muRAo6 and bit.ly/2nIP7W0.

24 See: bit.ly/2C2oyQ7.

25 See: otvoreniparlament.rs.

26 See: serenatadeamor.org/en.

27 See: dokeza.mzalendo.com.

28 See: directoriolegislativo.org.

29 See: congresovisible.org.

30 To read the observers' opinion on the Pauta Participativa project, see: bit.ly/2C2w4Ks.

Findings and conclusion

The trend towards more open, publicly accountable parliaments continues to be seen throughout this report; more parliaments are using open data and more are turning to the communication channels that the public uses. On the other hand, financial constraints, staff and member knowledge and capacity and member doubts about the reliability of these new technologies are challenges for many parliaments, regardless of their national income or level of economic development.

Parliaments have reported progress in the management of information and the accessible publication of data. At a more strategic level, the trends seen in previous reports persist. Strategic planning is commonplace, but there is sometimes a disconnect among three things: a parliament's vision for what ICT can achieve, its strategy to achieve that vision and the process for monitoring, measuring and reviewing implementation of the strategy. The advancement of ICT into the "business" of parliament has been apparent from the first report, in 2008. But in this 2018 report, what can actually be achieved with modern digital tools comes vividly into focus: the first reports of remote voting for plenary sessions. Parliaments are better connected to the outside world, as well, and on an increasingly two-way basis, with citizens given more opportunities to connect and get involved. A notable strengthening of ties with civil society is evident in various parliaments too.

The 2018 survey finds progress in the timely publication of information on parliamentary websites. There has also been progress, although limited, with open data and publishing. Thirteen per cent of parliaments have some form of open data feed and 24 per cent issue reusable documents that can be downloaded from their websites. It is also pleasing to see open data repositories making inroads into lower-income countries. Parliaments continue to favour social media in their communications with the public. The report identifies significant growth in the use of instant messaging applications and a trend towards broadcasting digitally and online rather than through traditional media.

The 2016 report identified emerging technologies as the area with the greatest unmet demand for support. This 2018 report shows that parliaments require support right across the spectrum of digital tools, from planning and back-end systems to open data and citizen engagement. These findings strongly support evidence from 2016 that more and better coordinated efforts to share ideas and good practices among parliaments would be welcomed by many. This is about more than providing support, it is about developing a structured, clear and coordinated way to share support knowledge.

The key trends identified for parliaments in this report are as follows:

- Digital technologies are now firmly embedded with **clearly identified governance and technology practices in most parliaments**. In parallel, while MPs remain politically committed to the use of these technologies, their role is diminishing as ICT is operationalized and embedded.

- **The rise in XML adoption has levelled off,** suggesting it is now a mature technology for parliaments.

- **The use of instant messaging has increased significantly,** while social media use also continues to rise.

- **Digital broadcasting and video streaming have overtaken traditional broadcasting,** while the use of radio has shown the first signs of shrinking.

- Barriers to greater use of ICT include training and skill deficits for staff and members and growing concerns over **security and trust** among members. **Knowledge of how parliaments** work is seen as the biggest barrier to greater citizen engagement.

- Over a third of the parliaments now **collaborate directly with PMOs**.

- **Inter-parliamentary support is needed in many areas of ICT,** with strong demand in areas ranging from new media and social tools to traditional ICT functions.

Given how extensively parliaments now use ICT, it is no surprise to see the wide use of digital tools by their members to support their own particular work in parliament and to communicate with citizens. Mobile technologies are ubiquitous; all members surveyed who are under 30 use them, as do 96 per cent of those over 60. The legislators in our sample see themselves as highly competent communicators. Most are comfortable with the concept of digital publishing, although fewer feel as confident in more interactive spaces. The broadcast model of communication is still prevalent, but members are increasingly turning to newer, more interactive spaces to engage, and in doing so, will need support and training.

Consistent with the findings of the survey of parliaments, individual MPs identify e-mail, Facebook and WhatsApp as the tools they use most. And where members are present on social media they are more likely to post content themselves than rely on their staff to produce blogs or website content.

The survey of parliamentarians shows that:

- Members now increasingly use digital technologies as core tools in their work, as do their offices and constituents in the process of public engagement. **Ninety-six per cent of the members surveyed use a mobile device and 80 per cent expect their digital communication with the public to increase.**

- Three quarters of the respondents regard **e-mail as the most important digital tool, followed by Facebook and WhatsApp**.

- **Seventy-one per cent of members write their own social media content,** while content for their websites tends to be written by their staff.

- Almost all members claim ability to publish information, and **three out of five consider their knowledge of online communication to be advanced**. Conversely, one out of five members claims to lack the skills needed to take part in online chats and events.

- **One quarter of the members have no support** or assistance for digital content and communication, while a third (33%) have one FTE or less.

Parliaments today are starting to become more innovative, gain new digital skills and work more often with external partners to achieve greater openness and transparency. They have historically been risk-averse, so their institutional culture must change if they are to accept more innovative practices. Public pressure and political commitment can help to improve openness and transparency. Centralization, on the other hand, hampers innovation for many organizations: parliaments allowing freedom for staff and partners to experiment have reaped positive results.

Ultimately, parliaments that recognize the need to evolve and develop new and more open ways of working are the ones where innovation is happening. This is as much a cultural shift as a technological one and it requires a commitment at all levels of the institution to work with others, to see parliament from different perspectives and to be prepared to take risks with new and often untried ideas. Fortunately, the parliaments that choose this path will not be alone.

- **Innovation does not happen by itself.** Parliaments have not been seen as good innovators historically; their institutional culture has to change before more innovative practices are likely to be accepted.

- **Change can be driven by public pressure for openness and transparency and political commitment within the institution.**

- Too much management stifles innovation; **the parliaments that have been successful in this area have learned to let go.**

- **Working with external partners, such as PMOs, can bring in fresh thinking and new solutions,** resulting in tools and applications that can help engage the public.

This report has painted a picture of how digital tools, in their broadest sense, are changing and transforming parliaments; it explores how they are managed and how new media are helping parliaments connect with a wider audience. The e-Parliament has come a long way in the ten years since the first World e-Parliament Report. The revised definition proposed here sets out a "technology vision for parliaments", but it is far from merely technical. Inherent in any e-Parliament today is good governance and a strategic sense of how digital tools and services can improve representation, law-making and oversight, and increase parliament's openness, accessibility and accountability.

- **An e-Parliament places technologies, knowledge and standards at the heart of its business processes and embodies the values of collaboration, inclusiveness, participation and openness to the people.**

Detailed findings of the survey of parliaments

This section presents the detailed findings of the survey of parliaments summarized above, which was completed by a diverse range of parliaments around the globe. As illustrated by Figure 30, 39 per cent of the 114 parliamentary respondents are unicameral (single chamber), compared to 60 per cent of parliaments worldwide.[31] The remainder of the responses come from bicameral parliaments, with 20 per cent of those coming from lower houses, 26 per cent from upper houses and the remainder from both, as combined responses (e.g. from parliaments with shared management and services). These combined responses have been separated into two entries, one for each chamber.

Figure 30. Respondents by type of chamber (n=114)
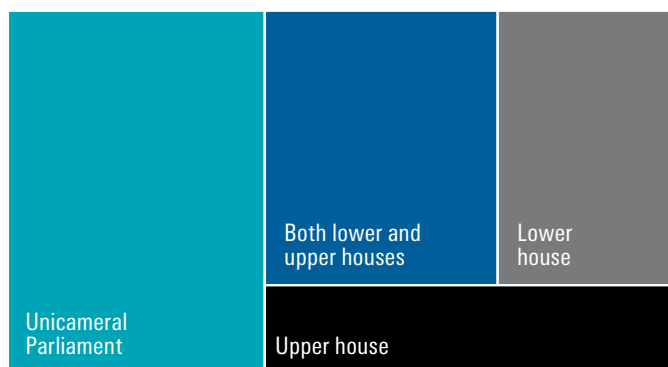
The sample takes into account the size of each chamber so as to be broadly reflective of the typical parliament, but with small parliaments (fewer than 50 members) slightly over represented and medium to large ones (between 100 and 199 members) underrepresented, as shown in Figure 31. From an evidential point of view, this slight bias is useful in that previous reports in the series have tended to underrepresent smaller parliaments, many of which struggle for resources.

Figure 31. Relative size of parliamentary chambers by number of members (n=114)

A geographic breakdown (Figure 32) shows that one third (39%) of the respondents are European, 19 per cent African and 11 per cent Latin American. Caribbean respondents continue to account for 3 per cent, as in 2016, while respondents from the Pacific region now account for 6 per cent, up from 2 per cent in 2016.

Figure 32. Break down of respondents by region (n=114)
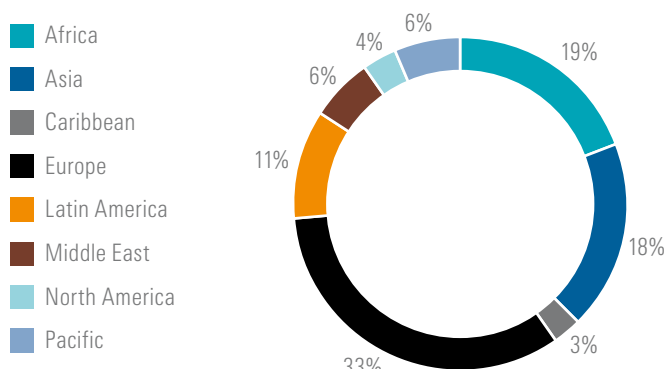
The participating parliaments span the entire range of income bands as defined by the World Bank[32]. As shown in Figure 33, 44 per cent of the parliaments are in high-income countries, up from 42 per cent in the last survey; the World Bank's comparison of all countries globally ranks only 32 per cent as high-income. Lower-middle-income countries are slightly underrepresented (19% of the respondents versus 26% in the World Bank rankings). The representation of low-income and higher-middle-income countries closely follows OECD rankings. This suggests that the data, and therefore the findings presented here may be slightly skewed towards higher-income countries.

Figure 33. Level of political engagement by income (n=114)

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31 See: www.ipu.org/parline-e/ParliamentsStructure.asp?REGION=All.
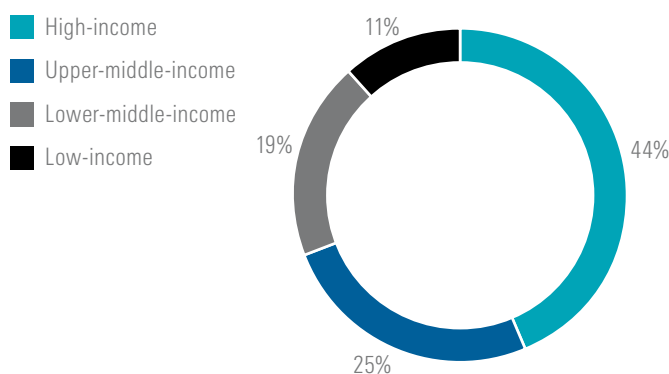
32 See: data.worldbank.org/country.

Oversight and management of ICT

As previous reports have noted, ICTs are increasingly critical to the work and mission of parliaments. Since parliaments are built around their members, it is important to consider how engaged parliaments consider their members to be in the institution's use of digital tools. The results of the survey on that point are promising and suggest that, compared to previous reports in 2012 and 2016, more members are "very highly engaged" than before. Overall member engagement, however, has remained fairly constant: 78 per cent of the parliaments responding to the 2018 survey report their members to be "somewhat", "highly" or "very highly" engaged, compared to 80 per cent in 2012.

Table 13. Political engagement with oversight and management of ICT (n=113)

	2018	2016	2012
Very highly engaged	13%	5%	7%
Highly engaged	28%	26%	31%
Somewhat engaged	36%	44%	42%
Engaged very little	19%	15%	16%
Not engaged at all	4%	9%	4%

The level of engagement varies across different income levels and tends to be lower in low-income countries. This is significant, because for ICT to be transformative for parliaments, as the 2016 report noted, MPs need to understand the value digital tools bring to their work and to act as enablers of greater openness and citizen participation. The strength of political engagement varies little across geographic regions.

Figure 34. Break down of respondents by income (OECD) (n=114)
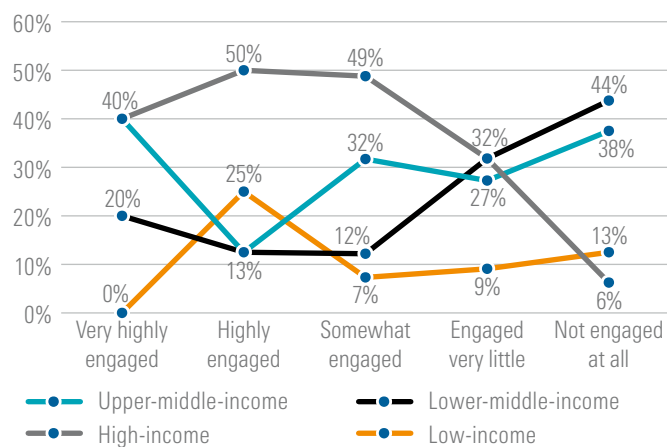
Most ICT spending within parliaments (86%) is allocated from the parliament's own budget (down from 91% in 2016). However, only 68 per cent of that ICT spending is funded solely by the parliaments themselves; 18 per cent of them also receive funding for ICT from the government, and the same percentage receive it from donor agencies. Four per

cent receive ICT funding from their internal budgets, from government and from donor agencies.

Table 14. Source of budgeted funding for ICT (n=114)

	2018
Parliament only	68%
Government only	11%
Parliament and government	2%
Parliament and donor agencies	12%
Government and donor agencies	1%
Parliament, government and donors	4%

Ninety per cent of the parliaments allocate ICT funding on a per-project basis, and some of those (19% of the sample) also make funding directly available from their overall budget. The data shows a sharp rise in the number of parliaments allocating more than 10 per cent of their overall budget to ICT, virtually double the number in 2016 and 2012. It also shows, however, that 46 per cent of the parliaments make no more than 2 per cent of their budget available for ICT expenditure (compared to 37 per cent in 2016 and 47 per cent in 2012). The typical budget allocation appears to remain in the 1–4 per cent range: where 50 per cent of the parliaments were situated in 2016, 47 per cent in 2012 and 56 per cent in 2018.

Figure 35. Percentage of parliament's budget allocated to ICT (n=109)
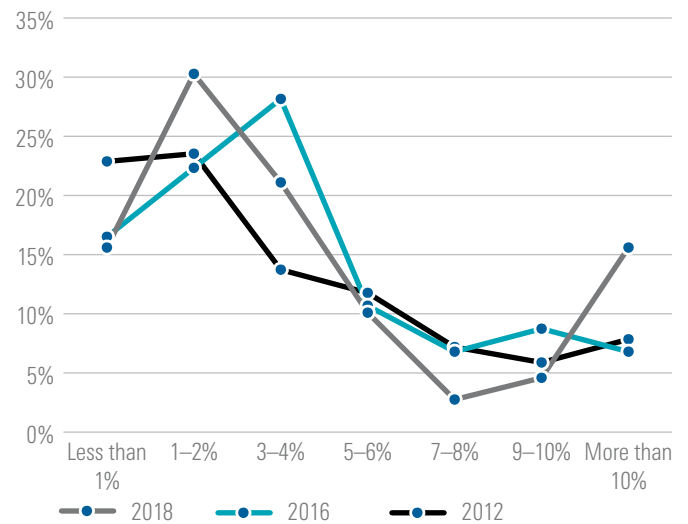
Even when the percentages are small, the budget for ICT is significant. Previous reports have made clear the connection between good planning and effective use. It is therefore important that there be clear and purposeful oversight of ICT; the persons involved and the format determined for the decision-making bodies will affect how ICT is planned, implemented and followed up.

Table 15. Responsibility and oversight for ICT objectives (n=112)

	Develops objectives and plans	Approves objectives	Participates oversight
President/Speaker of parliament or chamber	12%	40%	27%
Parliamentary committee	11%	18%	23%
Members	4%	5%	25%
Secretary General	28%	75%	49%
Chief information officer, director of ICT or equivalent	84%	45%	54%
Senior ICT leadership	55%	25%	37%
Special group or committee	17%	21%	26%
Internal ICT experts	52%	8%	24%
Library/research staff	16%	2%	16%
Contractors (external)	13%	3%	14%
Members of the public	2%	0%	6%

As shown in Table 15 most of the parliaments (84% in both 2016 and 2018) include their senior ICT person, such as the chief information officer or director of IT or ICT, in the formulation of the parliament's ICT objectives.

The survey suggests once again that ICT is seen as a largely technical function, in which ICT management or technical staff predominate. The objectives themselves, however, usually require high-level sign-off from parliamentary management. For 75 per cent of the respondents this happens at the level of Secretary General, up from 74 per cent in 2016. Forty-five per cent of the parliaments require sign-off from the senior ICT management person and 40 per cent from the President or Speaker of the parliament.

The 2016 survey showed library and research staff to be largely uninvolved in the planning and approval of plans, but in 2018, 16 per cent of the parliaments report the involvement of such staff in development and oversight. The oversight role usually rests with the senior ICT person in the parliament (58%) or the Secretary General (48%).

It remains unusual for the public to be involved in this process. As in 2016, 6 per cent of the parliaments report public involvement in the oversight of their ICT strategies, but only 2 per cent report involving others in developing those plans (up from 1% in 2016).

Another continuing problem is that the importance of the most senior ICT persons is not always reflected in their rank within parliament. As Figure 36 shows, the senior ICT person is part of the senior management group in only 58 per cent of the parliaments and takes part in departmental and lower-level decision-making in only 35 per cent.

Figure 36. Strategic role of most senior ICT staff member (n=109)
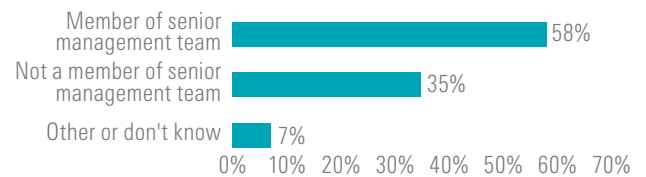
In terms of the ICT strategic planning process, 63 per cent of the parliaments report having a vision in place for their overall strategic direction, notably less than the 73 per cent so reporting in 2016 (see Table 16). That means that there is no vision in place for about a third of the parliaments, most of which (75%) say they intend to develop one. The number of parliaments reporting a strategic plan in place, on the other hand, has increased from two thirds in 2016 to three quarters in 2018. About 80 per cent of those without such plans intend to develop one. For now, therefore, the overall result is that 52 per cent have both a vision and a strategic plan, and 15 per cent have a strategy but no vision statement to guide it.

Table 16. Formal vision and strategic planning processes (n=108)

	2018	2016
Has a vision statement	63%	73%
Has a vision statement and a strategic plan	52%	56%
Has a vision statement and intends to create a strategic plan	9%	13%
Has a strategic plan without a vision statement	15%	14%
Has a vision statement, strategic plan and a process to update it	44%	40%

Overall, 62 per cent of the parliaments have a process in place for regularly updating their strategic plans, a significant increase from the 46 per cent reporting this in 2016. Forty-three per cent of the parliaments have both an updating process and a formal project management methodology for ICT projects. Another 46 per cent have no such methodology at present but are planning or considering the adoption of one.

The effective use of ICT requires good planning, so it remains a concern that too few parliaments have vision statements and that only around half have both a vision and a plan in place to implement it. The lack of formal project management methodologies is also a concern, although the data suggests that good project management practices are seen as important, even where not formally in place. With respect to the process for strategic decision-making, there is a potential disconnect in cases where senior ICT staff do not have reliable access to senior management decision-making levels. ICT is clearly embedded in modern parliaments and critical to their missions, something parliaments would be expected to recognize in their management structures and planning.

Supporting ICT access and use within parliament

Parliaments have long recognized the need for well-trained and experienced ICT staff to operate effectively. This presents a dilemma, however, as technologies are changing rapidly, and parliaments face a challenge in recruiting and retaining key staff. For smaller parliaments, appropriately trained staff are often in short supply; for larger ones, particularly in the more developed economies, demand for the needed skills can outstrip supply, pricing parliaments out of the market. This means that parliaments need to hire external contractors, instead of relying on staff, to perform ICT functions.

Five parliaments employ more than 200 staff for ICT functions: Brazil, Canada, Germany, the United Kingdom and the United States. At the other end of the spectrum, chambers in Andorra, Bhutan, Malta, Tuvalu and Vanuatu employ only one full-time equivalent (FTE) person for ICT support. Altogether, 34 per cent of the parliaments have fewer than ten FTE staff performing ICT functions. The average number of such staff for all respondents is 41, and the average number of FTE contractors is 15 (which generally includes those providing ongoing ICT support to the chamber, not ad hoc contractors brought in for specific short-term projects). The average ratio of full-time staff to contractors across all respondents is 3:2, but 12 per cent of the parliaments employ fewer staff than contractors (some of the latter are government ICT staff seconded to or supporting parliament). Forty-two per cent of the parliaments make no use of regular contractors.

Figure 37. ICT staff and contractors (n=96)
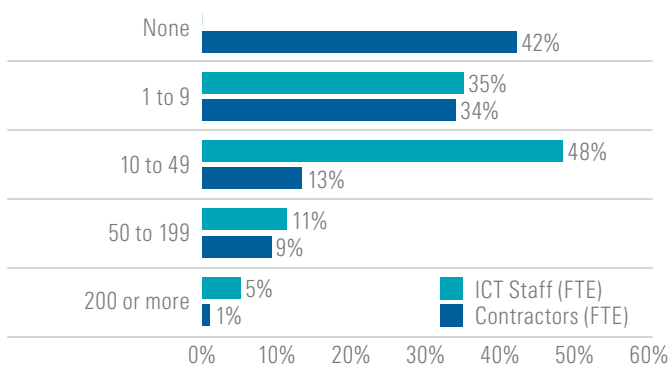
As shown in Table 17, parliaments are heavily reliant on contractors. While 96 per cent of the respondents have some form of internal ICT capacity, three quarters also use contractors regularly, if perhaps reluctantly: the proportion saying they *prefer* to use contractors is considerably less: just over half.

The latest survey data shows that only one area of ICT, software development, tends to be covered more by contractors (in 63% of the parliaments) than by internal staff (in only 61%). Those percentages are much closer than those previously reported; in 2016 it was 79 per cent for contractors versus 53 per cent for staff, which seems logical given the specialized and temporary nature of software development. This contrasts sharply with the management of social media tools, which is clearly seen as an in-house function where possible (78% staff versus 10% contractors). The same goes for other core skills, namely project management (87% vs 16%) and business analysis (85% vs 18%). These particular functions require a deeper understanding of parliament and

how it works, and thus entail a steep learning curve. Covering such functions internally is a challenge for many parliaments.

Table 17. Internal staffing versus external contracting for key ICT functions (n=112)

	Current		Preferred	
	Internal	External	Internal	External
IT project management	87%	16%	69%	6%
Business analysis and requirements management	85%	18%	59%	11%
Testing	84%	30%	50%	21%
Software development	61%	63%	49%	34%
IT infrastructure management	82%	37%	53%	23%
Web services	72%	45%	43%	32%
Management of social media tools	78%	10%	58%	4%
Management of open data repositories	66%	12%	61%	11%
All	96%	75%	77%	57%

How ICT is improving parliaments

Previous World e-Parliament Reports, in 2012 and 2016, showed an increase in the breadth of ICT tools, services and platforms used by parliaments. The top three improvements between 2012 and 2016 were increases in the publication, dissemination and accessibility of information and documents, for the benefit of members, staff and the public. The rise of open access and publishing methods contributed to those improvements. As shown in Table 18, the same improvements, relating to the timely and efficient publication of data, were indicated in the 2018 survey.

Table 18. Top three improvements made (n=111)[33]

	2018	2016	2012
1	More information and documents on the website **73%**	More information and documents on the website **89%**	Increased capacity to disseminate information and documents **49%**
2	Increased capacity to disseminate information and documents **66%**	Increased capacity to disseminate information and documents **86%**	Better management of documents **28%**
3	Existing online documents presented in a more accessible way **56%**	Existing online documents presented in a more accessible way **69%**	More timely publication of reports of plenary proceedings **23%**

33 Note that the wording of this question changed slightly in the later versions of the report.

Responses to the 2018 survey, however, differed on one point: as shown in Table 18, the importance of improvements in all of the uses indicated was rated lower this time around, with only minor variations in the rankings – nothing conclusive and no emerging pattern. The only inference possible, based on other data in this and the previous survey, is that the overall importance of publishing as an issue has diminished because more parliaments now do it, and do it better.

Figure 38. Most important improvements over last two years (n=111)

	2012	2016	2018
Exchange of information with other parliaments	14%	36%	30%
More communication with young people	5%	33%	34%
Increased capacity to publish open data		46%	40%
More efficient preparation of legislation	22%	47%	43%
More timely publication of reports of committee proceedings		46%	45%
More timely publication of reports of plenary proceedings	25%	59%	50%
Increased capacity to disseminate information to citizens	19%	55%	52%
More interaction with citizens	23%	48%	54%
Better management of documents	28%	58%	55%
Existing online documents presented in a more accessible way		69%	56%
Increased capacity to disseminate information and documents to members and staff	49%	86%	66%
More information and documents on the website		89%	73%

There are some notable variations according to income level in the areas of improvement considered most important between 2016 and 2018. As shown in Figure 39, parliaments in lower-income countries tend noticeably more to cite document management as the most important area of improvement and significantly less to cite open data, which these parliaments appear to offer less than those in higher-income countries do. Interestingly, better management of documents within parliament and increased capacity to disseminate information to citizens rank as important for all parliaments, regardless of income level.

Figure 39. Most important improvements over last two years by income level (n=111)[34]

Legend: Upper-middle, High, Lower-middle, Lower, All
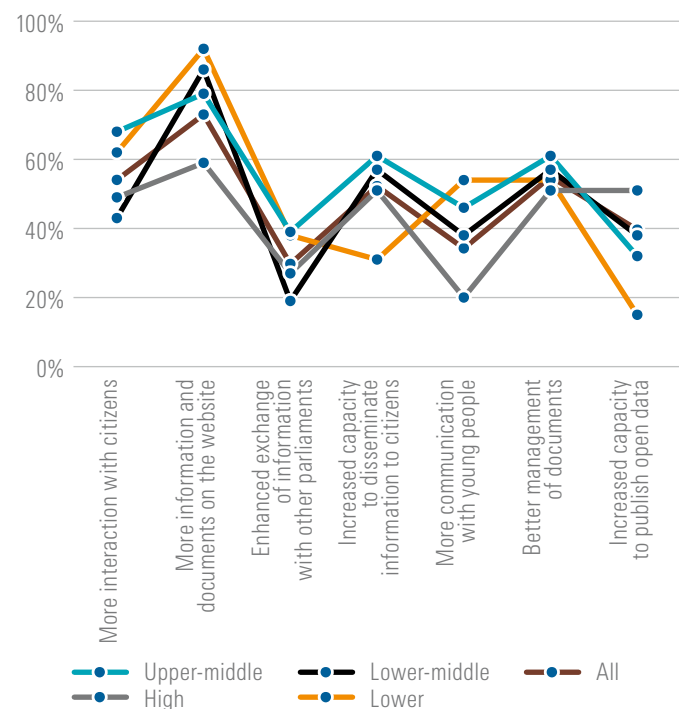
Parliaments were also asked what improvements they expected to be the most important in the next two years. Curiously, the area identified most often is open data publishing, which has seen few significant achievements in the last two years. Seventy per cent of the parliaments want to increase their open data publishing capacity, 61 per cent their capacity to disseminate documents to citizens and 60 per cent their interaction with citizens. This suggests a strong commitment among parliaments to openness and transparency.

Table 19. Most important improvements expected in next two years (n=111)

	2018
Increased capacity to publish open data	70%
Increased capacity to disseminate information to citizens	61%
Better management of documents	61%
More interaction with citizens	60%
Enhanced exchange of information with other parliaments	56%
Existing online documents are presented in a more accessible way	56%
More communication with young people	54%
More efficient preparation of legislation	51%
Increased capacity to disseminate information and documents to members and staff	43%
More timely publication of reports of committee proceedings	43%
More information and documents on the website	43%

34 Some categories have been removed from this chart to make it more readable.

A few individual parliaments expect improvements in such specific areas as the number of open XML documents available to the public, the use of crowdsourcing, information aggregation and profiling techniques and increased digital mobility for members.

The importance of open publishing and communication with citizens is also clear in the technologies parliaments have either adopted or started using in new ways since the last survey. In the 2016 report, and again in 2018, parliaments have identified web-based publishing, audio and video capture of proceedings and the use of social media as the top three new technologies, although the order is slightly different in 2018. As mentioned earlier, open standards such as XML have been slower to take off in the last two years but are seen as an area of important change over the next two, with 45 per cent of the respondents intending to introduce open standards or use them in new ways.

Table 20. Technologies that have been introduced or used in new ways (n=110)

	Previous 2 years	Next 2 years
Social media like Facebook or Twitter	67%	15%
Audio and/or video capture of proceedings	65%	18%
Systems for putting information and documents onto websites	64%	15%
TV broadcasting of plenary sessions	55%	18%
Mobile communication devices	53%	23%
Document repositories	50%	29%
Systems for creating and editing documents	43%	30%
Webcasting	40%	35%
Systems for ensuring the preservation of documents in digital formats	40%	42%
Open source software	39%	28%
Systems for managing e-mail from citizens	36%	28%
Mobile communication applications for members	36%	44%
Radio broadcasting of plenary sessions	33%	25%
Open standards such as XML	32%	45%
Mobile communication applications for citizens	31%	42%

Beyond the list in Table 20, parliaments have identified a wide range of recent innovations, including paperless parliaments, cloud storage with remote access to data and documents for staff and members, digital recording of parliamentary sessions and the introduction of enterprise-based content management systems (CMS). The key improvements identified for the next two years relate to cloud and mobile services, document workflow and management, and systems for automatically capturing the official record.

Summary

Strategic barriers highlighted in the 2016 report included inadequate funding and staff capacity. Funding was as likely to be an issue in high-income countries as low-income ones, and that pattern continues in 2018. The challenges reported two years ago, which were strategic and systemic in character, also continue in 2018. Respondents to the earlier report recommended improvements in the management of information and publications on the systems and tools needed to support parliamentary processes and interaction with the public. Those improvements are now under way, although delivery may be proving slower than respondents to the earlier survey would have liked. Parliaments continue to focus their use of digital tools on improving the publication of data and information and continue to recognize the importance of public accountability and transparency.

ICT is a significant expense and a major infrastructural investment for parliaments, typically accounting for between 1 and 4 per cent of a parliament's overall budget. The extent to which ICT is valued within the parliaments' management structure, however, remains unclear. In fewer than half of the parliaments are the most senior ICT staff members held responsible for developing or signing off on these investment plans or overseeing their implementation. And while most of the parliaments now have some form of ICT-related vision statement, barely half have it connected to a strategic plan. Fifteen per cent have a vision statement but no plan for achieving it. On a more positive note, the extent to which parliaments are politically engaged with ICT appears high: 80 per cent report positive engagement and only 4 per cent report none. There are two outliers in this data set, however: members in high-income parliaments tend to be much more engaged and those in low-income parliaments much less so.

Parliaments generally appear to prefer having their own staff to carry out key digital roles. This is particularly the case where knowledge of parliament matters most: in leading projects, defining business requirements and communicating with the public about the work of parliament. For other roles, contractors can give parliaments greater flexibility. The typical parliament employs 41 FTE staff for ICT functions (the largest team is over 600, the smallest a single person). While 96 per cent of the parliaments employ their own staff, 75 per cent employ both staff and contractors for these functions (although some of the contractors are seconded government staff).

As shown by the 2018 survey, parliaments clearly want to publish more information online. They want to increase their capacity to disseminate documents and make them more accessible. This emphasis on publication, openness and accountability is no surprise: it continues the pattern seen in 2016 as parliaments have shifted their perspective from internal document management to external publication and access. It should be noted that low-income countries report a desire to use open data but appear to have fallen short in realizing it.

Infrastructure, services, applications and training

Moving on from the strategic aspects of ICT deployment, this next section examines how parliaments deliver and manage their ICT capabilities – the systems and infrastructure as well as the software and services needed to support their deployment and use, such as user support, project planning and project management.

A problem identified by 6 per cent of the parliaments is a lack of reliable electric power, a fundamental requirement for effective and reliable ICT. This figure does represent an improvement, however: the share of parliaments reporting reliable power supply has steadily increased, from 86 per cent in 2010, to 88 per cent in 2012, to 90 per cent in 2016.

All of the parliaments responding in 2018 report having an Internet connection, 4 per cent more than in 2016. The reliability of their Internet connection is considered adequate or better by 99 per cent of the parliaments (better than adequate by 52%), and Internet speed is considered adequate or better by 90 per cent (better than adequate by 37%).

Wi-Fi networks have become nearly ubiquitous: only 3 per cent of the parliaments lack such networks for members; 8 per cent lack them for staff. Two thirds of the parliaments (65%) provide Wi-Fi access to public visitors.

Table 21. Wi-Fi networks within parliament (n=113)

	For members	For staff	To the public
Yes	97%	92%	65%
No, but planning	1%	4%	2%
No	2%	4%	13%

Moving on from the discussion about staff vs contractors for ICT functions, this section examines the extent to which key ICT functions are provided as formal services. The absence of a formal service does not mean the function goes unperformed – it may still be part of a parliament's ICT capability in some cases. Unsurprisingly, the breadth of functions covered by such a service is in some part determined by a parliament's size: of the parliaments with 500 or more members, 93 per cent cover all seven of the functions listed in Figure 40 below; of those with 50 or fewer members, only 38 per cent do so. Income level also has a bearing: parliaments in high-income countries cover an average of 6.2 of the 7 services shown; those in low-income countries cover only 5.5. The average number of services for all parliaments is 6.1.

Figure 40. ICT services available in parliament (n=114)
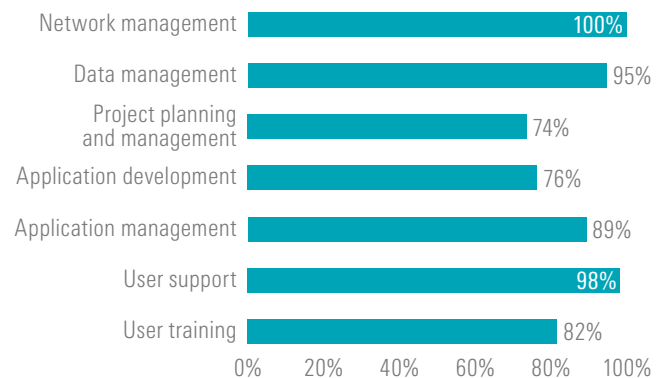
All of the parliaments surveyed have dedicated services to manage their networks, which include IT and telecommunications infrastructure, and 99 per cent have a service to manage their servers. Only 2 per cent of the respondents have no user support service while 18 per cent have no dedicated user training. These figures are broadly comparable with the 2016 survey findings.

Almost all parliaments (99%) provide Internet access to members (up from 96% in 2016 and 86% in 2012) and 95 per cent provide it to staff. Likewise, vast majorities provide e-mail service to members (96%) and staff (94%). Over half of the parliaments surveyed (52%) now provide some form of remote access for staff; 41 per cent do so for members. Very few parliaments provide web-based assets for their members: 21 per cent provide them with some kind of website functionality and 15 per cent directly support their use of social media. Seven out of ten parliaments (69%) now provide identity management systems for both members and staff.

Figure 41. Services provided to members and staff (n=114)
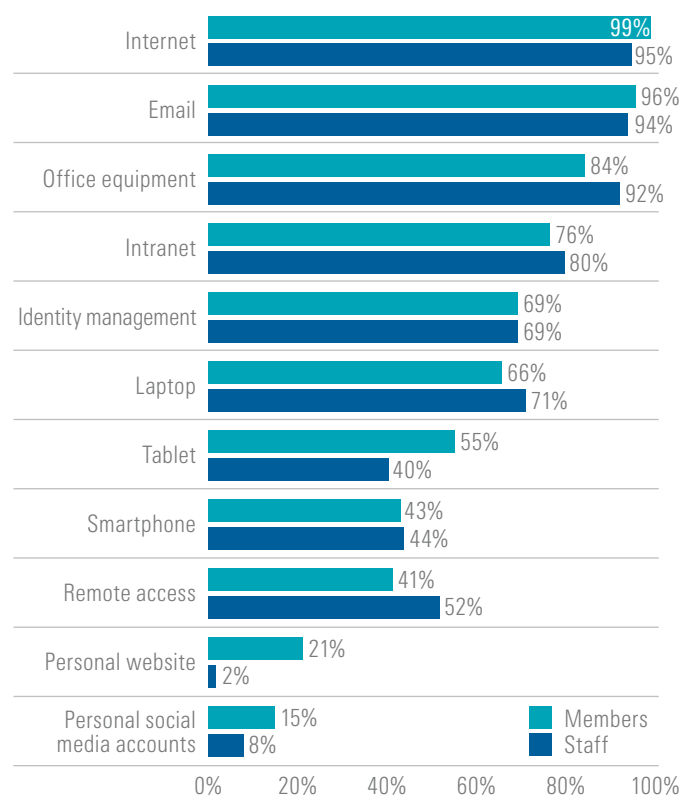
As in 2016, office equipment (computer hardware and telephony systems) is provided to staff by almost all parliaments (92%) but to members by only 84 per cent (in both 2018 and 2016). The supply of equipment to members remains similar to the level recorded in 2016, as shown in Figure 42.

Figure 42. ICT equipment available in the parliament for members (n=114)
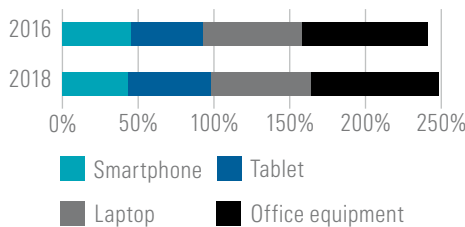
The 2016 report noted that parliaments were starting to adopt cloud-based storage technologies but appeared to be lagging behind other commercial users in doing so. In terms of document storage strategies, most members (77%) were focusing in 2016 on internal capacity, with only 12 per cent using external cloud storage. The 2018 survey shows an increase in external cloud storage, to 21 per cent, in what appears to be a normal maturing of the technology, i.e. acceptance (or understanding) of the risks entailed. Little else has changed significantly in the way that parliaments store and share documents; there has been a slight rise in the number of parliaments using dedicated electronic document and records management systems (EDRMS) (from 47% to 51%) and a similar rise in the use of intranet for document sharing (from 52% to 60%).

The adoption of cloud computing does not appear to follow any clear pattern, except that African parliaments tend to store data online less than do their European counterparts (10% and 20%, respectively).

Table 22. Access to shared documents (n=114)

	2018	2016
A shared drive provided in the internal network	77%	75%
A shared drive provided through cloud storage	21%	12%
A web-based intranet	60%	52%
Electronic document and records management system (EDRMS)	51%	47%
(Most) files are stored on local workstations, and shared via e-mail and/or thumb drives (USB)	14%	16%

Information and communication technology is a complex and highly technical area for any organization to manage. As this report has shown, parliaments are reliant on a broad range of internal and external resources to support their ICT infrastructure and ensure operational efficiency. Service-level agreements (SLAs) are considered a good way to manage operational (and often mission-critical) systems. They provide a clear and measurable understanding of how technology platforms are to be managed, and the service-response times and system-down times that can be expected. Almost nine out of ten parliaments (89%) have SLAs in place for some

of their external suppliers and 59 per cent have them for all their major suppliers. This represents a slight increase relative to 2016 and 2012, when 58 per cent and 31 per cent, respectively, had SLAs in place for all suppliers.

It is also increasingly common for large organizations to use SLAs for their internal ICT departments. Thirty per cent of the parliaments surveyed in 2016 had such internal SLAs in place for some or all of their ICT-related departments; 13 per cent had them for all such departments. These proportions have risen to 35 per cent and 21 per cent, respectively, in 2018.

Figure 43. Use of service-level agreements (n=112)
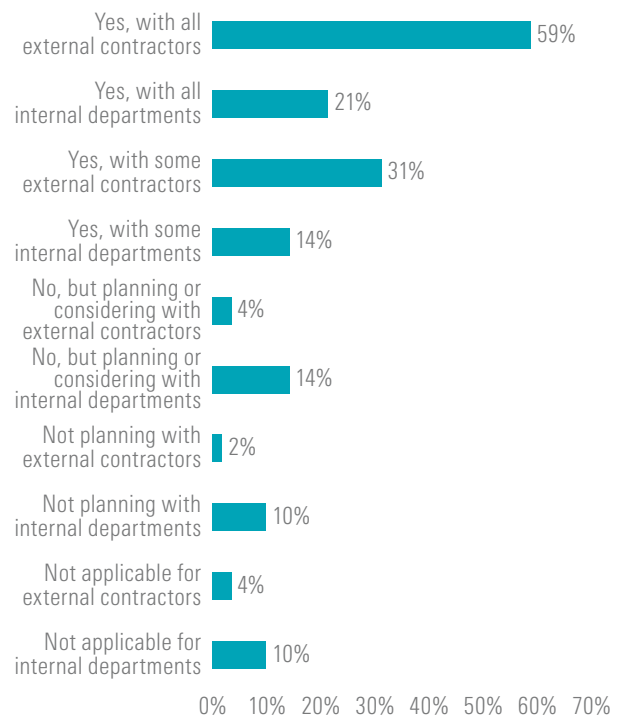
Size might be expected to be a significant factor in the use of SLAs, but the data shows otherwise: 64 per cent of the parliaments with 50 or fewer members have SLAs in place with all their external contractors, as do 70 per cent of the parliaments with more than 400 members.

Commercial software and services continue to dominate the parliaments' ICT infrastructure. As shown in Table 23, 91 per cent now use commercial software for their servers and 94 per cent do so for their desktop and laptop PCs. As in 2016, open source software continues to make its biggest inroads as a server operating system: 57 per cent of the parliaments surveyed in both 2016 and 2018 have used it for that purpose.

A total of 78 per cent of the respondents now use open source software in some form or other, a level consistent with that found in 2016 (75%) and 2012 (80%). And yet, as shown in each of these surveys, commercial software continues to prevail for core "office" functions as well as publishing and back-end technologies. Apart from operating systems, the ratio of commercial software to open source software drops below 2:1 in three areas only: content management, web publishing and database technologies.

Table 23. Use of commercial and open source systems (n=113)

|	Commercial	Open source
Operating systems for servers	91%	57%
Operating systems for virtual servers	84%	31%
Network operations	81%	30%
Security	90%	34%
Operating systems for PCs etc.	94%	17%
Content management	58%	38%
Document management	60%	27%
Database	87%	45%
E-mail	81%	25%
e-Learning	33%	15%
Word processing	96%	14%
Spreadsheets	94%	13%
Presentations	95%	11%
Publishing (print)	73%	10%
Publishing (web)	62%	33%
Electronic resource management	47%	14%
Online library catalogue	50%	24%

As observed in the 2016 report, open source software can be particularly attractive to parliaments where funding is limited. The parliamentary community is very familiar with attempts at open source solutions for parliamentary workflow and document management issues. The cost of purchasing or licensing commercial software and related hardware, whether in-house or on the cloud, are well known. But there are other considerations too. Parliaments, like all end-users of digital tools, must also consider support and maintenance costs. As the 2016 World e-Parliament Report noted,

> 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.

Where open source software is in use, it is primarily being supported in-house. Two out of every five parliaments using open source software retain nationally based contractors; one in ten retain international contractors. Parliaments in low-income countries tend to make greater use of open source applications or platforms and to do so across a broader range of areas. But they also tend to support those systems internally, or using local contractors. The use of international contractors to support open source systems tends to be concentrated in larger parliaments in higher-income countries. As seen in 2016, about one in five

parliaments has made ad hoc arrangements for supporting their open source systems. Such arrangements can consist of working informally with local contractors or using online community resources.

Figure 44. Supporting open source software (n=96)

	2018	2016
Internal staff	85%	86%
National contractor	40%	48%
International contractor	10%	7%
Informal arrangements	17%	18%
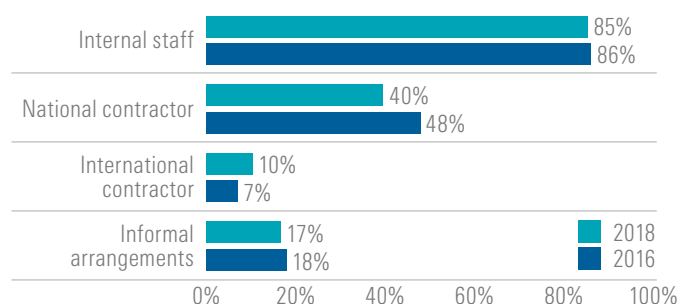
How ICT supports parliamentary functions

Few of the parliaments surveyed provide support for their members' websites (19%, down from 21% in 2016) but 90 per cent have systems in place to manage and support the parliament's website. Apart from websites, the parliamentary process most likely to be supported by an ICT platform in the preparation of minutes for plenary sessions. This is now the case in 84 per cent of the parliaments, up from 79 per cent in 2016.

Overall, the 2018 survey shows a gradual movement towards the digitization of parliamentary functions. There has been little change in the use of digital technologies to draft and track legislation and amendments and only a modest increase in their use to support plenary functions. According to the first World e-Parliament Report, published in 2008, 70 per cent of the parliaments surveyed at that time had an application for the production of plenary minutes and 65 per cent had one to manage plenary voting. As shown by the 2018 survey, those with applications for plenary voting now account for 69 per cent of the total. However, these figures do not reflect the complexity or increased functionality of all the solutions adopted over those ten years.

For some of the functions identified below, including oversight of government budgets and databases on active legislation, there may be systems in place that do not fall under the responsibility of parliaments.

The 2018 survey introduced a question on committee voting, which 30 per cent of the respondents have a system in place to manage. There has also been a noteworthy increase in the use of systems to support communication between parliament and the public, up from 56 per cent in 2016 to 63 per cent this year. One parliament (one of the smallest in the sample) claims to have no systems in place for any of the parliamentary functions listed.

Table 24. Parliamentary functions, activities or services covered by IT systems (n=113)
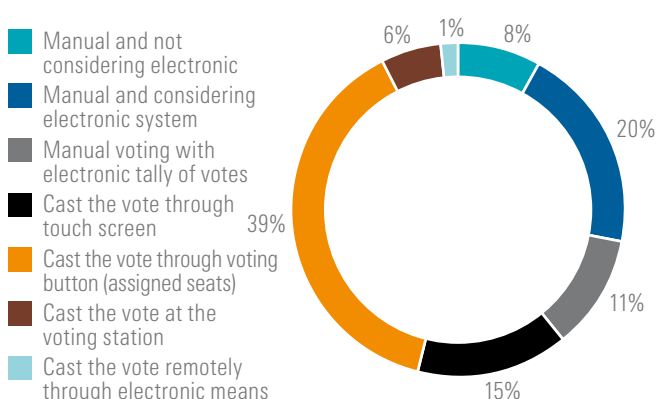
	2018	2016	2008[35]
Plenary Functions			
Minutes of plenary sessions	84%	79%	70%
Plenary calendars and schedules	75%	78%	59%
Plenary speeches and debates	75%	78%	70%
Database of laws passed by parliament	69%	74%	-
Plenary voting	69%	67%	65%
Bill status/tracking	65%	64%	-
Questions to the government	58%	50%	52%
Amendment status/tracking	55%	55%	64%
Amendment drafting	46%	45%	-
Bill drafting	44%	42%	-
Other scrutiny documents	34%	31%	11%
Analysis of budget proposed by the government	32%	22%	-
Committee Functions			
Committee reports	71%	72%	64%
Committee calendars and schedules	70%	70%	-
Minutes of committee meetings	67%	68%	63%
Committee websites	55%	52%	-
Committee voting	30%	-	-
Administration and Support Functions			
Management and support of website for parliament	90%	91%	84%
HR system	78%	77%	70%
Financial management system	78%	76%	-
Management of library resources	71%	59%	-
Digital archive of parliamentary documents	71%	68%	-
Online library catalogue	65%	57%	-
Systems for communicating with constituents	63%	56%	36%
Financial disclosure	36%	38%	-
Management and support of member websites	19%	21%	34%
None of the above			
None	1%	-	-

Having looked at the broad sweep of ICT support for various parliamentary and administrative functions, we now examine in more detail how these technologies are being used to support parliamentary activity, starting with plenary and committee work.

Plenary and committee room systems

Just over half of the parliaments surveyed still use manual methods of voting in the plenary chamber or hemicycle, but at the same time, 67 per cent use electronic voting methods, either exclusively or in conjunction with manual methods. The most popular voting method, used by 51 per cent of the parliaments, is electronic, with voting buttons at assigned seats. Only two parliaments, those of Paraguay and Spain, have systems enabling members to vote remotely during plenary sessions. The most popular method of verifying a member's identity is a voting card or token, used by 46 per cent of the parliaments. Thirteen per cent use Biometric data (up from 8% in 2016) and 10 per cent use a password system. Eleven per cent of the respondents have manual voting in their plenary sessions but use digital systems to tally and record the vote.

Voting in parliamentary committees continues to be a manual process in 73 per cent of the parliaments, although 31 per cent are planning or considering electronic voting tools for their committees. Voting buttons, the second most popular method, are used by committees in only 11 per cent of the parliaments. No parliaments have reported the use of remote voting for committees.

Figure 45. Methods of voting in the plenary room (n=102)

- Manual and not considering electronic
- Manual and considering electronic system
- Manual voting with electronic tally of votes
- Cast the vote through touch screen
- Cast the vote through voting button (assigned seats)
- Cast the vote at the voting station
- Cast the vote remotely through electronic means

Parliaments have long been renowned as an orator's domain, and still are. Digital communications, however, now play an increasingly important part of their proceedings as well, in both plenary sessions and committees. New technologies allow members access to text, data and even people not otherwise present. As shown in Figure 48, plenary rooms are now equipped for text display in 65 per cent of the parliaments, for video streaming in 54 per cent and for video conferencing in 22 per cent (the same as in 2016). Committee rooms have been equipped for video conferencing by even more parliaments (38%), and for video streaming by 47 per cent, allowing input from persons unable to attend physically.

Members are becoming increasingly familiar with the use of digital tools in plenary chambers. They now have Wi-Fi access in the plenary rooms of 83 per cent of the parliaments and mobile Internet access in those of 72 per cent. Thirty-one per cent equip their plenary rooms with wired Internet access through the parliament's local area network (LAN). Wi-Fi intranet access is provided in the plenary rooms of nearly half the parliaments (47%).

35 The wording of this question has changed quite substantially since 2008 as technology has been adopted and has matured, so only a limited number of data points can be compared accurately.

Figure 46. Access to the Internet from the plenary room (n=114)

Internet connection via Wi-Fi — 83%
Internet connection via LAN (wired) — 31%
Intranet services (via either Wi-Fi or LAN) — 47%
Basic mobile services (such as text messaging) — 63%
Mobile Internet — 72%
None of the above — 8%
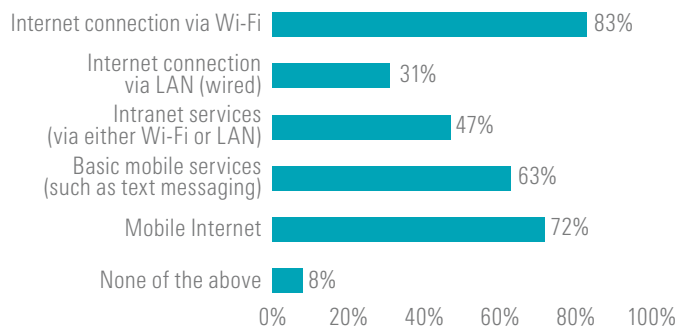
Members are allowed to use devices as follows: smartphones in the plenary rooms of 84 per cent of the parliaments (up from 74 per cent in 2016); laptop computers in the plenaries of 73 per cent (up from 63 per cent in 2016); and desktops (their own or provided by the parliament) in those of 17 per cent. Overall, four out of five (82%) allow members to use Internet-enabled devices and others are planning or considering such an option (only 6% are not). Far fewer parliaments (34%) allow members to live-stream directly from their own devices in the plenary room, with 60 per cent neither planning nor considering such an option. A reason given for not doing so is that the plenary rooms are already equipped for automatic video recording and/or live-streaming and that allowing members to duplicate these functions would be a distraction. Attitudes towards the use of social media within the working areas of parliament are clearly becoming more lenient: three quarters of the parliaments (73%) now allow members to post and respond to social media comments while present in the plenary room.

Figure 47. Rules and practice regarding the use of mobile or other Internet-connected devices in the plenary (n=114)

Members can use Internet-enabled devices
Members can post and respond to comments using social media
Members can take (and post) photographs
Members can record and later post sound or video
Members can live stream video

Legend: Yes | No, but planning or considering | No, and not planning or considering
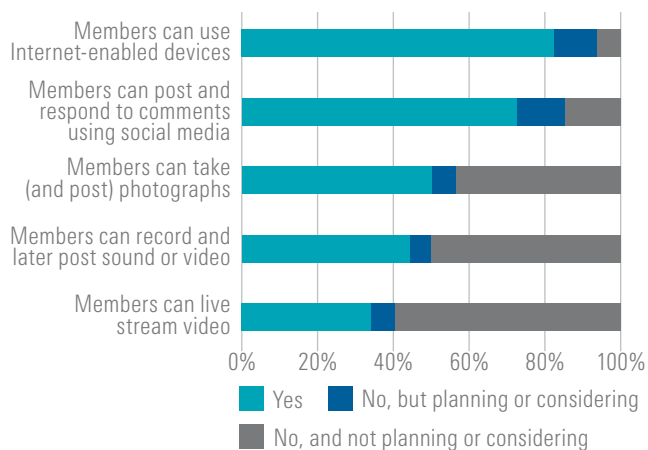
Parliamentary broadcasting is now commonplace: 81 per cent of the parliaments record their plenary proceedings automatically; 80 per cent live-stream their parliamentary business and over two thirds (67%) have both automatic recording and live-streaming capacity. Only two have neither the capacity for automatic recording nor plans to develop it: one is an upper house in Latin America, the other a lower house in Europe. Neither chamber of that parliament in Europe has plans to start live-streaming. Nor does the parliament of one African country.

Figure 48. Use of audio visual equipment in plenary and committee rooms (n=105)

Plenary:
Video streaming
Text
Graphics
Still images
Video conferencing

Committee:
Video streaming
Text
Graphics
Still images
Video conferencing

Legend: Planned | Using

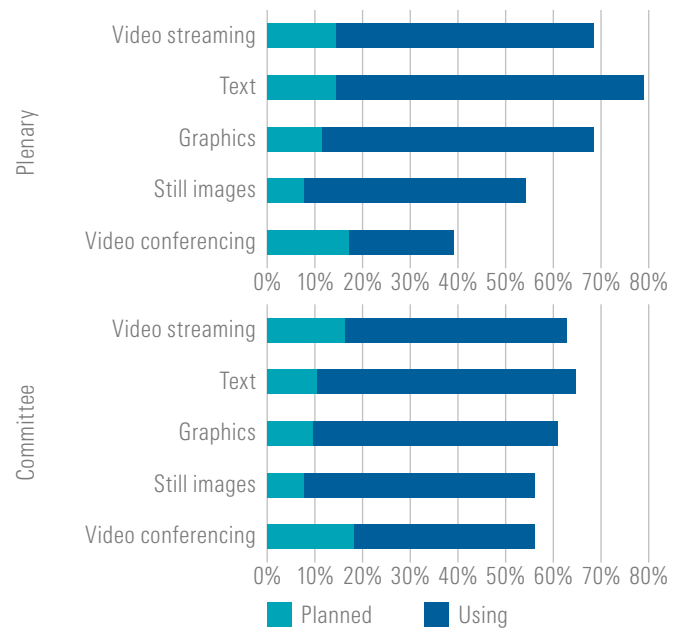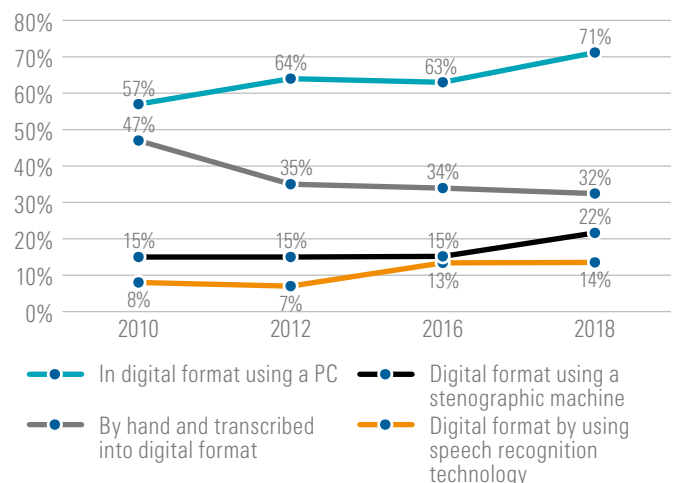For the chambers that broadcast their meetings the official record continues to be text-based, and parliaments use a variety of digital methods to capture it accurately and efficiently. The most popular method is direct capture through a PC-based system, used by 71 per cent of the parliaments (up from 57 per cent in 2010). The use of manual note-taking followed by transcription into digital format remains popular but increasingly less so as technological solutions improve: 47 per cent of the parliaments reported using that process in 2010 compared to 32 per cent in 2018. The use of speech recognition software for direct digital transcription is slowly increasing, from 8 per cent in 2010 to 13 per cent in 2016 and to 14 per cent in 2018. The use of such software is not confined to wealthy or large parliaments: only 42 per cent of the parliaments using it are in high-income countries and fully half (50%) have fewer than 200 members. In terms of geographic spread, Africa, Asia, Europe, the Middle East and the Pacific all have parliaments that use speech recognition for this purpose. The Caribbean, Latin America and North America do not.

Figure 49. Use digital tools to capture plenary records (n=111)

In digital format using a PC: 57% (2010), 64% (2012), 63% (2016), 71% (2018)
By hand and transcribed into digital format: 47% (2010), 35% (2012), 34% (2016), 32% (2018)
Digital format using a stenographic machine: 15% (2010), 15% (2012), 15% (2016), 22% (2018)
Digital format by using speech recognition technology: 8% (2010), 7% (2012), 13% (2016), 14% (2018)

Legend:
In digital format using a PC
Digital format using a stenographic machine
By hand and transcribed into digital format
Digital format by using speech recognition technology

ICT training for members and staff

Effective and efficient use of the new digital tools has become a vital part of the job for many members and staff, as reflected in the training parliaments increasingly provide. In 2018, 75 per cent of the parliaments are providing ICT training for their members, compared to 70 per cent in 2016. The number for staff has held constant at 87 per cent. These numbers are broadly similar across income levels with the exception of the lower-middle-income countries, where parliaments are considerably less likely to offer members such training (57% of those parliaments provide it, compared to 84% in high-income countries and 75% overall).

Table 25. ICT training for members and staff by income (n=113)

	Members	Staff	Neither
High-income	84%	88%	8%
Upper-middle-income	74%	89%	11%
Lower-middle-income	57%	83%	13%
Low-income	77%	85%	15%
All parliaments	75%	87%	11%

The training requirements parliaments consider most important going forward are the same as in previous reports, with minor variations. As shown in Figure 50, there has been a notable drop in the priority assigned to training in office automation, document standards and Internet access, perhaps because these areas are now well established and more of the staff joining parliaments have prior knowledge. The biggest shift in priority concerns training in voice communications, but the numbers are small: an increase from 2 per cent in 2016 to 7 per cent in 2018. One parliament now requires international-level certification for all ICT staff .

Figure 50. Variation in training priorities between 2016 and 2018 (n=114)
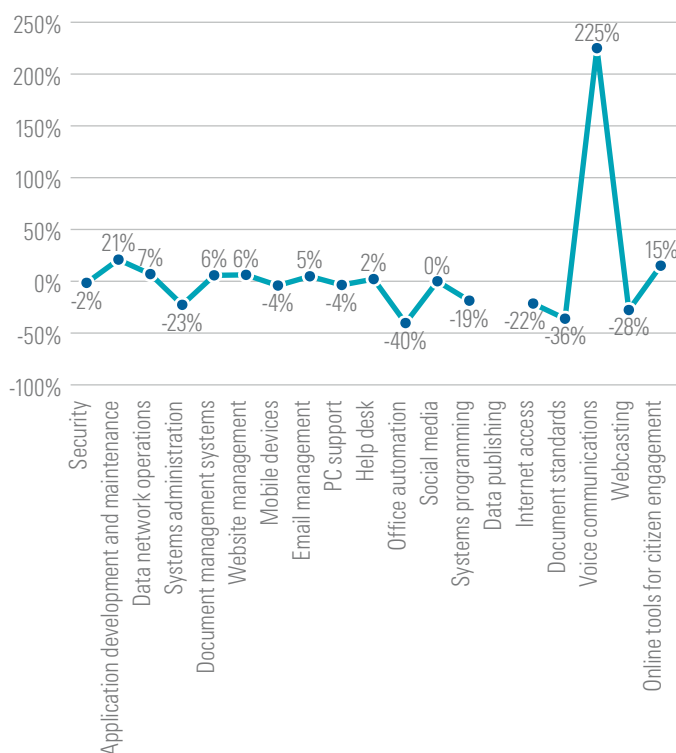
The top six training priorities in 2018 remain the same, although in slightly different order. Number one, as in 2016, is "security", identified by 63 per cent of the parliaments. "Application development and maintenance" has jumped from 46 per cent to 56 per cent since the previous report. A new category introduced in the 2018 survey is "data publishing", which was identified as a priority by 10 per cent of the parliaments. Surprisingly, training in the use of online tools for citizen engagement, at 5 per cent, is the lowest-ranking priority in 2018, although up from 4 per cent in 2016.

Table 26. ICT training for members and staff by type (n=113)

	Members	Staff
Security	63%	64%
Application development and maintenance	56%	46%
Data network operations	42%	39%
Systems administration	42%	54%
Document management systems	37%	35%
Website management	36%	34%
Mobile devices	28%	29%
E-mail management	24%	23%
PC support	24%	25%
Help desk	19%	19%
Office automation	17%	28%
Social media	13%	13%
Systems programming	13%	16%
Data publishing	10%	-
Internet access	10%	13%
Document standards	8%	13%
Voice communications	7%	2%
Webcasting	7%	9%
Online tools for citizen engagement	5%	4%

Summary

The 2016 report detected a stronger focus on the technical aspects of ICT than on its business purposes, and this continues in 2018, with parliaments emphasizing "hard" systems over accompanying "soft" communication processes. This might stem in part from the nature of the survey or from the fact that completing it has often fallen to IT or similar departments. Even so, it strongly emerges from the entire series of these World e-Parliament Reports that external communication matters, and increasingly, that parliaments are focused not just on managing and preparing information but on ensuring that it can be openly published and shared with a wider public audience. Parliaments are more connected to the outside world than ever and this relationship is increasingly two-way, with parliaments recognizing the importance of both publishing for outside consumption and adopting systems to bring external digital content into their plenary and committee rooms. Even so, digital tools for citizen engagement remain a distinctly low priority for parliaments, with only five per cent citing them as important. This may

indicate that parliaments are more focused on improving their accountability than on widening who can actively participate in parliamentary processes.

As initially glimpsed in the 2012 and 2016 reports, it now appears clear that inadequate human and financial resources remain the most important challenges for legislatures seeking to use ICT effectively. These and other challenges impede the adoption of new tools and technologies, and in turn, the transformation of underlying processes.

Systems and standards for creating legislative documents and information

Digital technologies allow parliaments to create and modernize the systems that underpin their legislative, representative and oversight functions. They allow parliaments to do simple things, such as providing digital copies of the official parliamentary record, and to manage more complex activities, such as shepherding legislation through parliament and between parliament and government. The more advanced systems can add and track amendments, enabling members, staff and the public to closely follow legislative processes.

Systems for managing parliamentary documentation, such as legislative texts or plenary proceedings, are designed to help parliaments be more efficient, improve the quality of their information and better manage the increasing scale and complexity of information and documentation. More modern document management systems can be a starting point for efforts to improve transparency, since they can be applied to the full lifecycle of different parliamentary processes, can support publication and can increasingly use open standards. Parliaments without such systems often find it difficult to manage information, track such things as bill amendments and make sense of how they relate back to the original draft. The modern e-Parliament benefits greatly from documentation management systems and the workflow practices they permit.

Document management systems

More than half of the responding parliaments (53%) have systems for managing legislative texts in digital format as they move through the law-making process, up from 49 per cent in 2016. Another 37 per cent are planning or considering the introduction of such systems, down from 39 per cent in 2016, suggesting slow but sure progress overall. The parliaments planning or considering these systems are predominantly in low-income countries, and that has been the case since the question was first asked, in 2010. While not entirely evident from the data, it is fair to assume that the complexity and cost of adopting and maintaining legislative management systems are daunting challenges for these parliaments. Only 3 per cent of the parliaments in low-income countries surveyed for this report have adopted them so far, compared to 64 per cent of those in high-income countries. And the difference is even greater in the case of legislative workflow systems: 77 per cent of the parliaments in high-income countries have them; 85 per cent of those in low-income countries don't. Five per cent of the parliaments answered "not applicable", usually

because the process is managed within the executive branch, or in some instances (such as Canada and the UK) shared between parliament and the executive, to create an end-to-end process.

Figure 51. Correlation between income level and the use of legislative management systems (n=105)
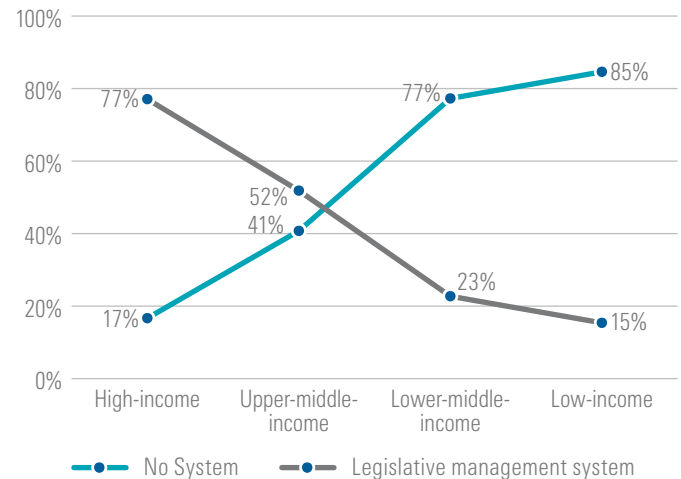
A small number of parliaments use commercial software solutions for their legislative management systems, such as IBM Domino/Notes, IBM Connections and Microsoft Sharepoint, or more dedicated document management and workflow products, such as XMetal. Most of the parliaments that have these systems report that they are heavily customized or custom-built. The Senate of Brazil plans to retire its legacy management system in favour of "lighter-touch" tools, as the quantity of its document processing has diminished.

Parliaments were asked about the functionality of their legislative management systems. Five per cent report their systems as having no ability to handle plenary or committee amendments directly. Seventy-seven per cent say their systems can track and manage all of the actions they need to take on draft legislation. Four out of five (82%) have systems that can handle all stages of a bill, and 70 per cent have systems with workflow capabilities. Just over half of the respondents (51%) have systems able to exchange data with external systems.

Table 27. Features of legislative document management systems (n=57)

	2018	2016
Has workflow capability	70%	75%
Exchanges data with systems outside the parliament	51%	49%
Handles all possible versions of a bill	82%	79%
Handles committee amendments	72%	83%
Handles plenary amendments	79%	83%
Shows changes that the amendment would make	60%	40%
Includes all actions taken by parliament on a bill	77%	83%

Two thirds of the parliaments with legislative management systems (67%) report at least some XML functionality. Previous surveys saw rapid and significant growth in the use of XML for document management systems. It rose from 35 per cent in 2010, to 47 per cent in 2012 and again to 69 per cent in 2016. The latest survey suggests that this growth has levelled off and that the adoption of XML-based systems has reached a maturity not previously seen. There has been a particular increase between this and the previous survey – from 27 per cent to 40 per cent – in parliaments reporting the ability to use XML to provide open access for external users.

Table 28. Use of XML within document management systems (n=39)

	2018	2016
Exchange and/or integration with other systems	60%	60%
Presentation on the web	46%	44%
Providing open data for external users	40%	27%
Make documents available for downloading	37%	33%
Preservation	35%	29%
Printing	19%	23%
Provide accessibility for persons with disabilities	14%	12%
Other	11%	2%
None, but planning or considering	21%	23%
None, and not considering	14%	8%

An analysis of where XML is being used to support outputs from the plenary and committee processes confirms the slower uptake of XML-based functionality detected in 2016, with largely similar numbers. According to the 2018 survey, the percentage of parliaments using non-XML-based systems to support the functions shown has fallen while that of parliaments considering the adoption of systems to support those functions, whether XML-based or otherwise, has increased.

Table 29. Committee and plenary document management systems (n=106)

	XML based system	Non-XML based system	Considering	No
Minutes of committee meeting	14%	30%	47%	9%
Committee reports	14%	33%	49%	4%
Verbatim record of committee hearings	12%	28%	53%	7%
Minutes of plenary sessions	25%	22%	47%	6%

	XML based system	Non-XML based system	Considering	No
Plenary speeches and debates	24%	23%	50%	2%
Plenary votes	24%	27%	42%	8%

XML has been highlighted in previous reports as an important development in the advancement of parliamentary openness. While not the only way to release data, XML does provide an easy-to-understand and standardized way of describing and sharing it. The 2016 report described challenges to the adoption XML, which are broadly identified again in 2018, although the challenge of "finding or developing appropriate software" has moved from second to first place, with 39 per cent of the respondents identifying it as the main challenge. It is notable too that more parliaments now highlight the complexity of using XML and the difficulty of developing a schema among the challenges listed. Most notable, however, is the jump in parliaments identifying user resistance, from 14 per cent in 2016 to 25 per cent now. Fewer parliaments (9% in 2018 versus 15% in 2016) report experiencing no problems when implementing XML-based systems.

Figure 52. Challenges in using XML for document management systems (n=88)
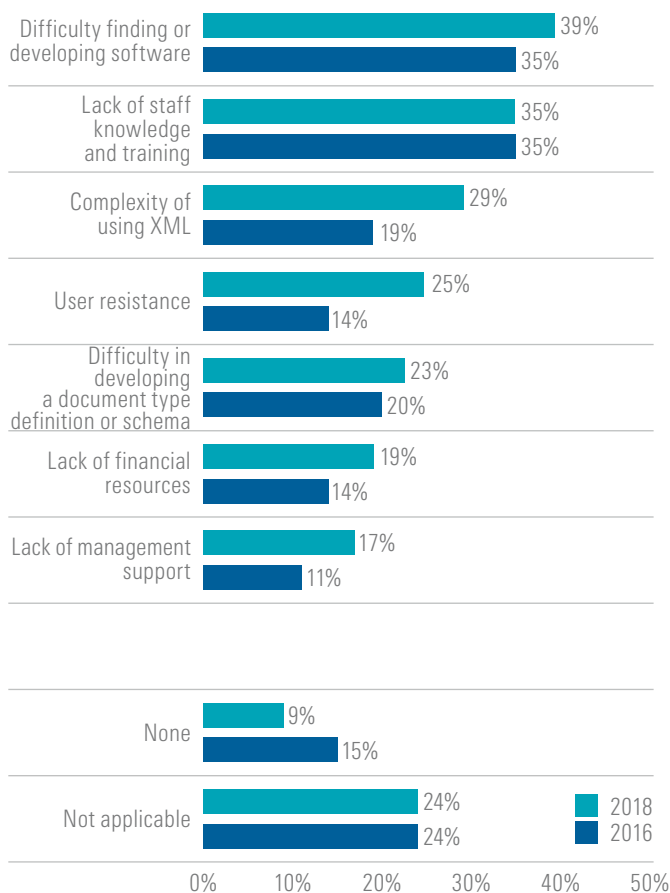
The disparity in the use of XML-based systems between parliaments in high- and low-income countries does not stem from a single cause. Financial resources were noted as a

factor in 2016 but do not figure prominently in 2018. "Lack of staff knowledge and training" is clearly a factor, identified in 2016 by 50 per cent of the parliaments in low-income countries, compared to 23 per cent of those in high-income countries. The 2018 figures for this factor are lower: 42 per cent and only 12 per cent, respectively. The difficulty of finding or developing XML-capable software was an issue for a quarter of the parliaments in low-income countries (25%) but a far lower share of those in high-income countries (12%). These findings suggest that technical complexity remains a barrier to greater uptake of open systems. Data elsewhere in the survey also suggests high but declining awareness about the importance of open systems.

## Making parliamentary documentation available to the public

About the different document formats

PDF This is a proprietary, pre-defined format intended to lock in users. It is designed to be human-readable but can be difficult or impossible for computers to read.

XLS A Microsoft Excel spreadsheet format

CSV An open spreadsheet format using Comma Separated Values

XML eXtensible Markup Language. A set of rules for encoding documents in a format that is both human-readable (for example, in a web browser) and machine-readable (usable by other software and applications). The aim of XML is to make information reusable and to keep the process of describing it simple, without requiring any prior knowledge (it is self-contained).

API Application Program Interface. 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 JavaScript Object Notation. An open-standard file format that uses human-readable text and that represents another way to access data or documents in a programmatic way. Where XML is a markup language describing the data, JSON tools are designed to transmit data "objects".

Since the inception of this series, parliaments have seen a radical change in terms of being able – and very often expected – to share data with the public. Early World e-Parliament Reports focused on internal systems for managing the preparation and workflow of parliamentary documentation. These are still important, but parliaments are now being asked, more than ever before, to share the data they capture with the public, directly and through intermediaries. The 2016 report included a second survey about the work of parliamentary monitoring organizations (PMOs) and their increasing role in creating meaningful information from parliamentary data and sharing it with a wider, and in many ways new, audience. As the 2016 report

observed, parliaments and PMOs were collaborating to that end, and parliaments were becoming more aware of the importance of not only publishing information but making data available quickly and openly.

Figure 53. How documentation is made available to people outside parliament (n=111)
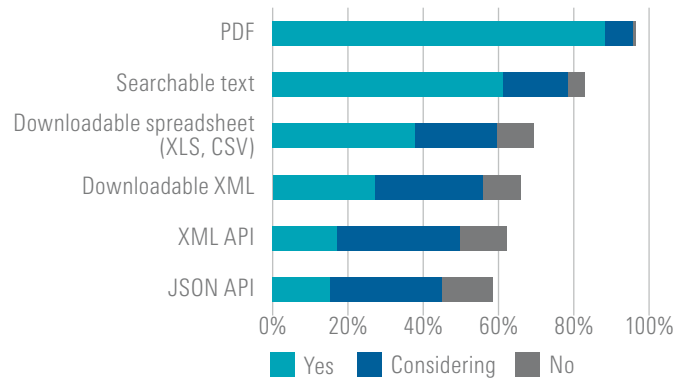
This is a relatively fast-moving area for parliaments. The 2016 survey captured their early steps into open and transparent publishing, steps that had hardly registered in 2012.

According to the 2016 report, 80 per cent of the parliaments surveyed were publishing PDF documents and another 10 per cent were considering that possibility, making it the most popular publication format. However, as the 2016 report highlighted, PDFs are not the best format for open sharing, since they are not machine-readable. Some content is published not in text but as a single image, which creates problems for reuse. More open formats include CSV spreadsheets or live downloads, using either XML or JSON. In 2016, spreadsheets were being published by 39 per cent of the responding parliaments, while XML and JSON interfaces were being provided by only 12 per cent and 7 per cent, respectively.

According to the 2018 report, PDF remains the most popular publishing format, used by 88 per cent of the parliaments with another 8 per cent planning to use it as well. Roughly the same proportion of parliaments (38%) continue to publish spreadsheets, but the data shows a notable increase in the number of parliaments supporting live-data APIs. Seventeen per cent now have an XML-based API and 15 per cent a JSON-based one. A further 32 per cent of the parliaments are planning or considering the use of an XML-based API and 30 per cent a JSON-based one. This suggests a rise in the publication of live machine-readable data and consistent growth in open data publishing. There remains a consistent record of PDF-based publications, which are more suitable for direct human readership.

For parliaments in low-income countries there are clear barriers to more open publication, as shown in Table 30. Some of their reasons for not using XML-based systems were discussed above, and as a consequence of those, no low-income countries were recorded in the 2016 report as publishing parliamentary data in a live, machine-readable format. By way of comparison, 18 per cent of the parliaments in high-income countries and 28 per cent of those in upper-middle-income countries were providing XML-based APIs at
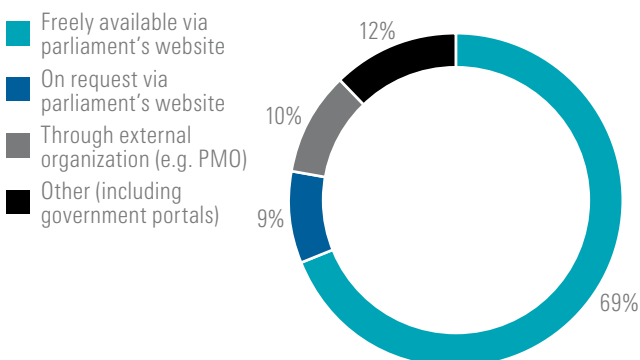
that time. JSON-based APIs were being provided by 20 per cent of the parliaments in high-income countries and 10 per cent of those in upper-middle-income ones. The 2018 report records a decline in the number of low-income parliaments publishing documents in PDF format (from 94% in 2016 to 77%) and a significant drop in those publishing spreadsheets. The change may be more attributable to the sample than to any significant change in behaviour, but the evidence from both recent surveys suggests that smaller and low-income parliaments are finding it challenging to implement open data policies and systems.

Table 30. How documents are made available, by income level (n=111)

	High-income	Upper-middle-income	Lower-middle-income	Low-income
Searchable text	68%	59%	55%	38%
Spreadsheet	40%	38%	41%	15%
PDF	92%	79%	86%	77%
Download XML	42%	21%	14%	0%
XML API	18%	28%	9%	0%
JSON API	20%	10%	5%	0%

The 2016 report discussed PMOs as primary users of parliamentary data and key intermediaries between citizens and their elected representatives. PMOs were at that time focusing on three primary functions: monitoring, informing and connecting. The timely availability of high-quality open data from parliaments was considered vital if they were to play that role effectively. The report noted that many parliaments and PMOs were to some extent collaborating in making data available: 66 per cent of PMOs considered their collaboration with parliaments "adequate" or better. So it was refreshing to see parliaments report greater use of live-data sources that would allow for enhancement, blending and aggregation with other data by third parties. Since much of what parliaments do is complex and difficult for ordinary citizens to grasp, providing open data to intermediaries who can interpret as well as monitor it for the public is critical to ensuring an open and transparent institution.

Figure 54. How open data can be accessed, when available (n=102)

- Freely available via parliament's website
- On request via parliament's website
- Through external organization (e.g. PMO)
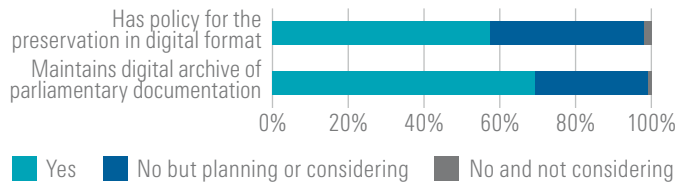- Other (including government portals)

12%
10%
9%
69%

As shown in Figure 54, 10 per cent of the parliaments are making their data available through external organizations,

such as PMOs. The National Assembly of Serbia, for instance, has partnered with a local PMO, the Centre for Research, Transparency and Accountability (CRTA), to provide access to the parliamentary record. This is an example of effective partnership between a parliament lacking sufficient resources to act alone and a local non-governmental organization (NGO) willing to collaborate.[36] Figure 54 shows the extent to which parliaments directly supply data to PMOs or support their use of it. Many PMOs not reflected in the figure, however, work from publicly available feeds. Sixty-nine per cent of the parliaments make open data available directly from their own parliamentary websites, and a mere 9 per cent allow access only on request. In the latter case this can be because the parliament uses API keys to ensure that those who use the data can be managed and kept up to date with changes in data structures and definitions.

Archiving and preservation

Sixty-nine per cent of the parliaments maintain some form of digital archive of parliamentary documentation and almost three out of five have a formal policy in place to manage how this is done and what the archive contains. A number of parliaments, depending on how far they date back, can now draw on a complete digital archive of their plenary proceedings and bills. Many others have established digital archives only recently, to support their physical archives, and some have begun to digitize their physical archives..

Figure 55. Policies and practice for digital archives (n=107)

Has policy for the preservation in digital format
Maintains digital archive of parliamentary documentation

0%   20%   40%   60%   80%   100%

- Yes
- No but planning or considering
- No and not considering

Based on the parliaments' responses, the average age of their digital archives, in the case of bills, is 40 years, and in the case of plenary proceedings, 50 years.

Figure 56. Age of digital archives (n=81)

	Less than 5 years	5–10 years	11–25 years	26–50 years	51–100 years	101–150 years	151–200 years
Plenary proceedings	1%	15%	29%	15%	27%	5%	5%
Text of bills	3%	21%	35%	12%	25%	2%	4%

— Plenary proceedings   — Text of bills
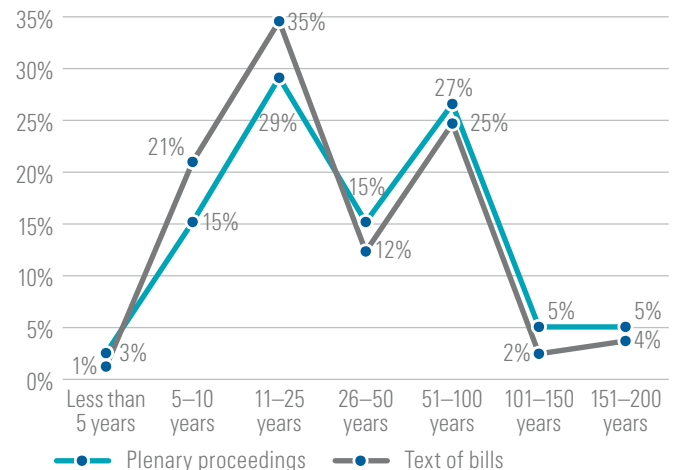
36 It must be noted that the arrangement described, at the time of this writing, has been suspended due to disagreements over parliamentary process, a reminder that the relationship between parliament, its members and civil society cannot be taken for granted. See: otvoreniparlament.rs.

Summary

The previous World e-Parliament Report described the use of ICT for parliamentary and legislative documents as a story of lack of resources stifling adoption internally but a blossoming in the open publishing of these documents. Based on the 2018 survey, that story line essentially continues: the adoption of XML-based systems has plateaued and user resistance to open systems remains a real barrier. This points to financial and resource challenges but also the need for a change in culture if parliaments are to become more open and transparent.

According to the survey, the number of parliaments with legislative management systems has now passed the half-way mark, having risen to 53 per cent (up four percentage points since 2016). Yet clear disparities remain. It has been obvious in this and earlier reports that parliaments in low-income countries face greater challenges than others when it comes to implementing and supporting complex ICT infrastructure.

The rise of new publication technologies and the rapid uptake of XML noted in 2016 now appear to be plateauing, with the numbers starting to stabilize. There has been an increase, on the other hand, in parliaments providing live-data APIs, using either XML or JSON. Another promising sign is the number of parliaments planning or considering the introduction of such a system in the near future. Once again, however, the statistics belie the gap that is opening between better- and less-well-resourced parliaments.

A number of parliaments identify user resistance and lack of management buy-in as barriers to the adoption of new legislative management systems, which are often designed to support open publishing by default. This has a knock-on effect in terms of transparency. Despite this, parliaments appear to be making a strong commitment to openness and transparency, with the vast majority providing at least some open data to intermediaries and the public.

Library and research services

The critical role of libraries with respect to information and research is supported and enhanced by the use of new technologies, which allow them to offer broader and more responsive service to members and perform a unique role within parliaments. Libraries support members and staff by bringing together parliamentary information and reference material and providing knowledge and analysis on the political, economic and social context of legislation, often in response to committee inquiries. Ninety-nine per cent of respondents to the 2018 survey have a parliamentary library (up from 97%) in 2016. Only one parliament, in a country with a fragile and nascent constitutional infrastructure, reports that it does not have a library but plans to. In the case of bicameral parliaments, just over a third (35%) have a library for each chamber and the remaining two thirds (65%) have a single library for both chambers.

Library management systems

Almost three quarters (73%) of the parliamentary libraries surveyed now provide an online catalogue to their users, up from 65 per cent in 2016. Fifty-one per cent have some form of electronic resource management capability, with another 42 per cent either planning or considering such a facility. Ninety-six per cent of parliamentary libraries in high-income countries have an online cataloguing system, compared to only 42 per cent of those in low-income countries. It is also worth observing that online catalogues are offered by 94 per cent of the parliaments in Europe and 74 per cent of those in both Asia and Latin America – but only 32 per cent of those in Africa.

Figure 57. Automated systems for managing library resources (n=106)
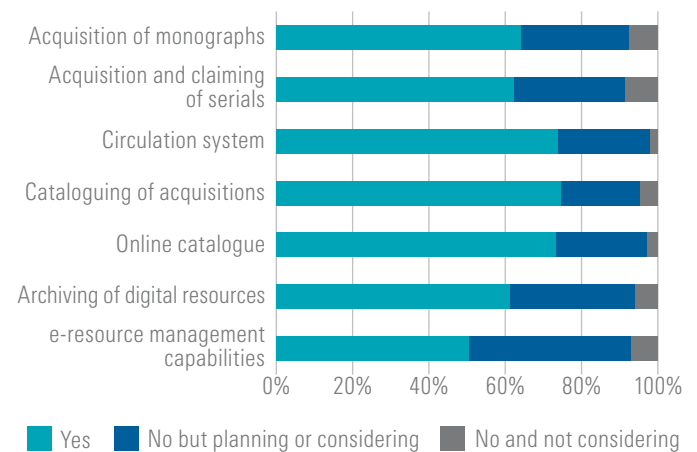
Library services are available to members via intranet in 73 per cent of the parliaments and via websites in 67 per cent (up from 52% in 2016). Two thirds of the libraries have subscriptions for member and staff access to relevant online journals and databases. Forty-eight per cent use an electronic alerting service, (significantly up from 35% in 2016).

Table 31. Electronic networks and tools available to libraries (n=104)

	Yes	Planning	No
Library services are available to members through an intranet	73%	20%	7%
Resources relating to the work of the parliament are provided through a website	67%	24%	7%
There is a library website available to members and committees	55%	27%	7%
The library uses alerting services	48%	41%	7%
The library receives requests and questions from members electronically	64%	30%	7%
The library purchases subscriptions to online journals and databases	66%	27%	7%

Three quarters of the libraries (75%) operate a digital repository to preserve and provide access to parliamentary documents. Sixty-one per cent provide discovery tools to

support user research and facilitate "federated" searches (across multiple sources). Parliamentary libraries are also starting to use more open data sources and linked data, to connect sources and permit further analysis of the data. The libraries' use of cloud storage has also been increasing, to 19 per cent, slightly less than the level observed among parliamentary networks (21%).

Figure 58. Digital tools used by the library to support users (n=86)
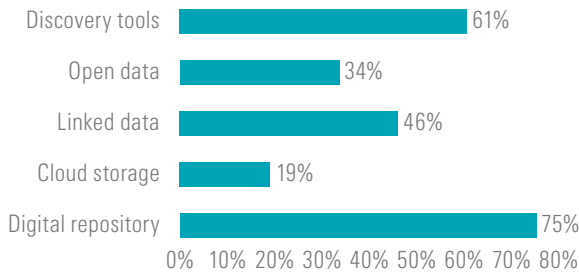
Making sense of the data now available in increasing quantities and complexity is not always easy, and 79 per cent of the parliaments have expert research staff to support members and committees in specific subject areas. A quarter of these experts are based in the parliamentary library; the remaining three quarters work in separate research offices or departments. Twelve per cent of the parliaments do not have such expert research staff, or plans to hire any; another 8 per cent do not but *are* planning or considering the possibility.

Responsibility for supporting the ICT systems used by parliamentary libraries and research departments generally falls to the parliament's ICT staff. Eighty-seven per cent of the parliaments report this to be the case for their libraries and 55 per cent for their research departments. External contractors are the second most common source of support, used by some 26 per cent of the parliaments for their libraries and 6 per cent for their research departments. The next most common source of support is technical staff employed within the libraries and research departments themselves, who support ICT in the libraries of 26 per cent of the parliaments and the research departments of 9 per cent. Given the increasing complexity of digital systems, it is perhaps surprising that in 20 per cent of the libraries the librarians are responsible for their own ICT support, a number similar to that recorded by previous surveys (18% in 2016).

Table 32. Source of ICT support for library and research services (n=110)

|	Library	Research services
Library technical staff	26%	9%
Librarians	20%	7%
Parliamentary ICT staff	87%	55%
Government ICT staff	10%	6%
External contractors	28%	6%

Serving the public

Previous surveys suggested that many parliamentary libraries had a mission to serve the public as well as their parliaments, and most were open to the public: 66 per cent of the parliaments in 2010, 68 per cent in 2016 and 67 per cent in 2018 allowed the public to visit their libraries in person. Levels of public access via Internet have varied only slightly (46% in 2012, 41% in 2016 and 49% in the latest survey, as shown in Table 33).

Table 33. Services available to the public (n=106)

	Yes	Planning	No
Visit the library and request assistance	67%	6%	17%
Access the library website	49%	24%	14%
Ask questions of the library by e-mail	68%	14%	11%
Access internally authored research	54%	17%	17%

Apart from communicating internally, with members and staff, many libraries maintain active channels of communication with the wider public. Almost all (97%) use e-mail for this purpose, and 72 per cent have websites: 33 per cent offer "responsive" designs (i.e. rendering well on different devices and screen sizes); 47 per cent offer non-responsive designs and 7 percent offer both. There have been surprisingly small increases in the percentages of libraries using social media and Twitter since 2016: one percentage point (to 27%), and two points (to 19%), respectively. Their use of messaging applications (such as WhatsApp) rose from 8 per cent in 2016 to 13 per cent in 2018. This year's survey asked for the first time about the new social collaboration tools, such as Slack or Yammer, which help multiple people or groups interact and share information to achieve common goals. Six per cent of the libraries report using these tools with external parties.

Figure 59. Digital tools used by the library to support users (n=86)
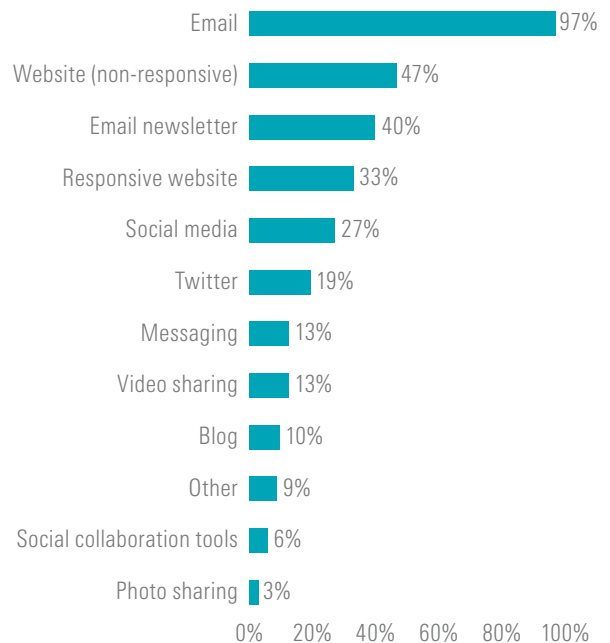
Library networks

Parliamentary libraries have had an increasingly strong track record of inter-parliamentary collaboration and sharing through global and regional networks and partnerships. In 2018, 93 per cent are members of at least one network or association, compared to 80 per cent in 2016, 64 per cent in 2012 and 45 per cent in 2010. As reported in previous editions, the International Federation of Library Associations and Institutions (IFLA) is the leading network for parliamentary libraries, thanks to its active Library and Research Services for Parliaments Section. The data suggests that the value of international collaboration among parliamentary libraries is increasingly being recognized, an area in which parliamentary research departments have for many years provided strong and effective leadership. Collaboration and network membership have consistently been equitable, in the sense of not being greatly affected by size or income level.

Table 34. Membership of formal networks (n=100)

	Yes	Planning or considering
IFLA – International Federation of Library Associations and Institutions	74%	14%
ECPRD – European Centre for Parliamentary Research and Documentation	36%	16%
APLAP – Association of Parliamentary Librarians of Asia and the Pacific	18%	6%
APKN – Africa Parliamentary Knowledge Network	16%	7%
APLESA – Association of Parliamentary Libraries of Eastern and Southern Africa	10%	6%
AFLI – Arab Federation for Libraries and Information	6%	8%
Nordic Parliamentary Libraries	5%	7%
RIPALC – Red de Intercambio de los Parlamentos de América Latina y El Caribe	5%	5%
APLA – Association of Parliamentary Libraries of Australasia	4%	6%
IPRIN – Inter-Parliamentary Research and Information Network	2%	0%
AfLIA – African Library and Information Association and Institution	1%	0%

The number of parliaments belonging to multiple library and research networks has also grown slightly: 76 per cent now belong to at least two (up from 73 per cent in 2016) and 47 per cent belong to three or more. Where parliaments belong to more than one network, one tends to be global (usually IFLA) and the other(s) regional.

Figure 60. Membership of multiple networks (n=100)

At least one — 93%
At least two — 76%
Three or more — 47%
Five or more — 31%
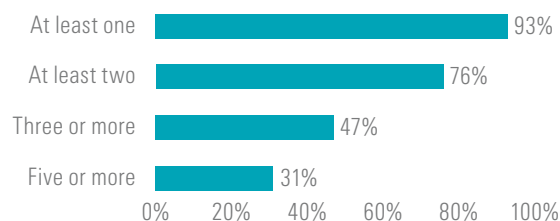
Summary

Previous reports have described how increasing use of ICT has enabled parliamentary libraries to cope with growing demand for information services. By the time of the 2016 report it was clear that libraries were using digital technologies, including management and social or publishing tools, as part of their core function.

There has been growing interest in collaboration, with the proportion of libraries belonging to international or regional networks more than doubling since 2012, from 45 per cent to 93 per cent in 2018. While not showing any dramatic rise in the use of social publishing tools, this year's survey did detect an increase in messaging applications and, for the first time, the emergent use of collaboration tools.

Parliaments online

Parliamentary websites have been a ubiquitous tool for communicating with the public for some time. In the first World e-Parliament Report, in 2008, 90 per cent of the parliaments surveyed had a website. That rose to 100 per cent in 2016 and 2018. What has changed, however, is the nature, content and complexity of the websites. Characterized by static text and limited interactivity in 2008, websites today are responsive to a range of client devices, serving as portals for resources and open data and offering interactive components and smarter, deeper search capacity. Based on the 2018 survey this section explores how parliaments are now operating online, how they think about and plan their online offerings and how the depth and richness of their websites have improved.

Website planning and management

This subsection will examine how parliamentary websites are planned and managed and the types of content they offer. The importance parliaments assign to their websites is reflected by where in their hierarchy the site's strategic goals are set. In 61 per cent of the parliaments that responsibility rests, at least in part, with the Secretary General, a percentage that has been consistent across the latest three editions of the report. It rests with the President or Speaker of the chamber in 38 per cent of the parliaments, down from 46 per cent in 2012. The role of parliamentary committees, groups and individual members have also diminished since 2012. This suggests that the management of parliamentary websites is increasingly seen as "business as usual", a conclusion supported by the increasing delegation of responsibility to senior ICT officers (observed among 53% of the parliaments in 2018) and directors of communications (41%, up from 31% in 2016, when the question was first asked).

Others indicated as having responsibility in this area range from existing parliamentary boards to oversight departments in the executive.

### Figure 61. Responsibility for establishing overall website goals (n=113)
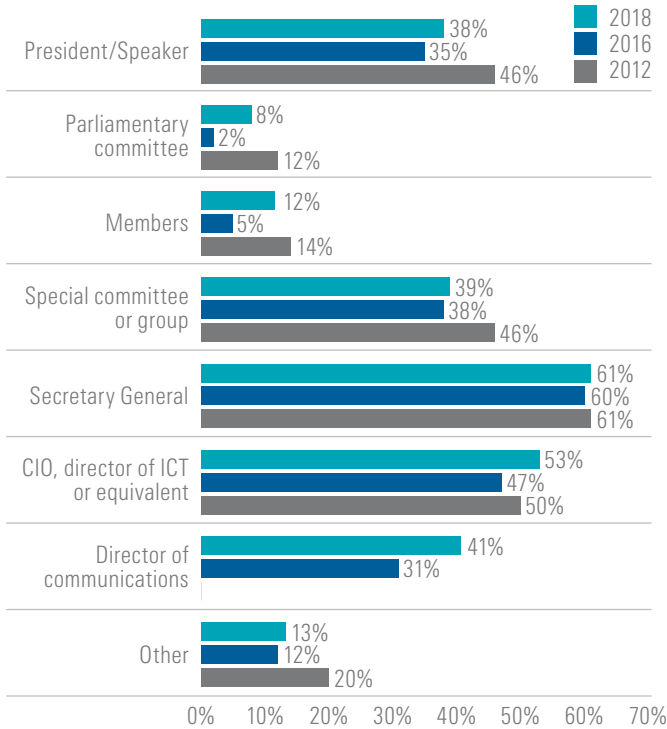
Just over a quarter of the parliaments (27%) involve neither the Speaker nor the Secretary General in setting website goals, down from 32 per cent in 2016. More than a third (35%) indicate the Secretary General but not the Speaker, and just over a quarter (26%) indicate both.

Table 35. Role of Speaker and Secretary General in setting website goals (n=114)

| President or Speaker	12%
Secretary General	35%
Both	26%
Neither	27%

Responsibility for the day-to-day operation of websites falls to different parliamentary departments. Information technology departments remain the most involved, with 76 per cent of the parliaments assigning them a role. Communications departments are the second most involved, assigned a role by 39 per cent (up from 32% in 2016). Fifty-four per cent of the parliaments assign responsibility for their websites to a single department, usually IT (61%) or communications (21%). Ten per cent of the parliaments assign roles to the press office or public relations department.

Figure 62. Responsibility for website (n=114)
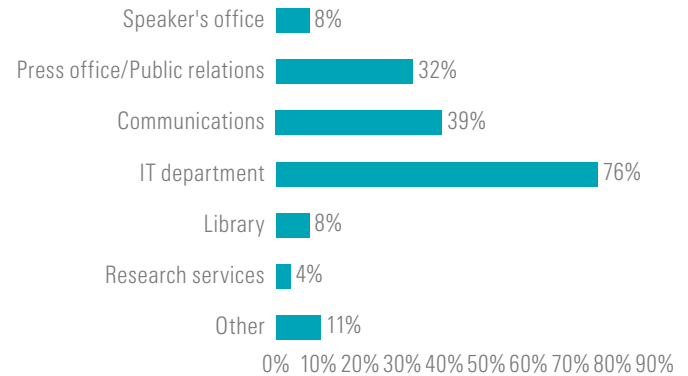
The development and management of actual website content is assigned to a variety of different places, with individual departments most often responsible for managing their own content (as they do in 42% of the parliaments). Where responsibility for content has been centralized, it tends to rest with the communications department (20%) or IT department (17%).

Figure 63. Who manages the website (n=114)
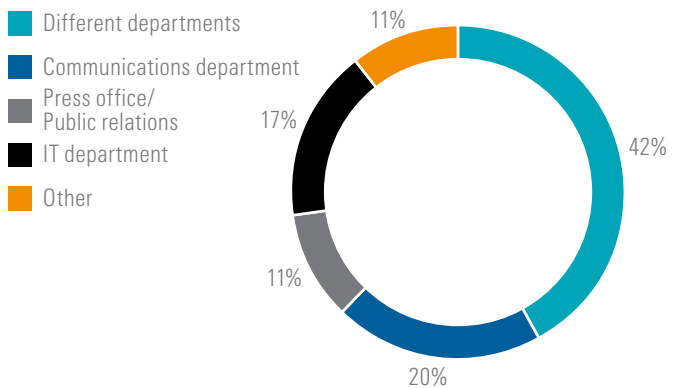
The website is now a primary touchpoint for members of the public wishing to engage with or discover information about parliament, parliamentary business or members. Ninety per cent of the parliaments have policies in some form relating to goals and objectives, but they are formal (written) in only 53 per cent of the cases. Fewer parliaments (38%) have formal plans in place for website development, while 25 per cent have no such plans. These figures are largely in line with those from the 2016 survey but with a notable increase in parliaments with formal privacy policies in place. Sixty-two per cent now have a written policy and 27 per cent appear to be considering one, meaning that in total, 89 per cent of the parliaments with website policies have or plan to have a formal or informal privacy policy, compared to 77 per cent in 2016. There has also been an increase in formalised access and usability policies, from 41 per cent in 2016 to 56 per cent in the latest survey.

Figure 64. Website policies (n=108)

Written · Informal · None
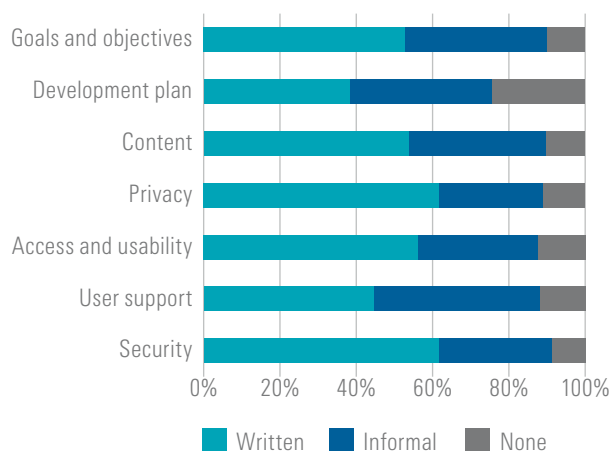
Website content

Only one parliament does not list its members on its website, probably because of that parliament's volatile and highly transitional situation. Almost every parliament (98%) uses its website to inform and educate the public about its history, role, functions and composition. The focus for website content is on the "how" and "why" of parliamentary activity, with fewer parliaments providing information on their administration (83%) or explaining the legislative process (81%). Only half of parliaments provide information to explain the budget and public finance process and their role in that process, but three out of five (58%) provide visual infographics describing how parliamentary business is conducted.

Table 36. Type of information included on website (n=113)

Members of parliament	99%
History and role	98%
Functions, composition, and activities	98%
Parliamentary committees, commissions, and other non-plenary bodies	98%
[Elected] Parliamentary leadership	93%
Full text of the standing orders, rules of procedure or similar documents	88%
Visiting parliament	86%
Explanation of parliamentary terms, procedures and routine order of business	85%
Contact for questions about parliament	84%
Administration of parliament	83%
Contact for questions about the operation of the website	83%
Explanation of the legislative process	81%
About the website	61%
Chart or diagram showing how the business of parliament is conducted	58%
Explanation of the budget and public financing processes	50%

Almost all of the parliaments (95%) provide a schedule of parliamentary business on their website and three quarters (75%) provide the text and current status of draft legislation as it passes through parliament. Nine out of ten parliaments provide information on the activities of their committees, commissions and other non-plenary bodies, but only 68 per cent offer online copies of parliamentary questions and government answers. Eighty-three per cent of the parliaments provide audio or video recordings of their plenary meetings (compared to 61% in 2016), but only 39 per cent provide them in the case of committee meetings, up from 31 per cent in 2016.

Table 37. Information relating to legislation, budget and oversight activities on the website (n=109)

|	
Schedule of parliamentary business	95%
Activities of committees, commissions, and other non-plenary bodies	90%
Audio or video of plenary meetings	83%
Text of all enacted legislation	76%
Text and status of draft legislation	75%
Parliamentary questions and government responses	68%
Audio or video from committee meetings	39%

Most parliamentary information, documents and data are still published in traditional ways; little is published for the purpose of reuse or data sharing. As shown in Figure 65, most parliaments make information available either directly on their web pages or as downloadable but not editable or reusable documents, such as PDFs. Committee Reports are published via a web page or document in 79 per cent of the parliaments but only 10 per cent provide downloadable files such as spreadsheets for reuse, and only 6 per cent allow users to connect directly with an open data source. Again, three quarters of the parliaments provide copies of their plenary records on their web pages or as documents, with only 4 per cent providing an open data feed for such records. Plenary records and plenary voting records are the most likely to be provided in a downloadable and reusable format, as 15 per cent of the parliaments do. As in 2016, this year's survey shows parliaments are focusing this effort more on data from their plenaries than from committees, with the exception of committee reports. Forty-five per cent of the parliaments do not publish committee voting records at all.

The importance of open data is increasingly being recognized as a way for third-party groups, such as PMOs, not simply to duplicate the information provided but to analyse and cross-tabulate it. The point of a modifiable document format is not to change the data but to allow it to be read, reused, linked and analysed. It eliminates 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 can, technically speaking, be modified but is designed primarily to be machine-readable and easily processed by other applications.

Overall, 13 per cent of the parliaments surveyed provide at least some data through an open data feed, and almost a quarter (24%) provide documents like spreadsheets for download and reuse. There has been some progress since 2016 in the number of parliaments in low-income countries offering open data feeds; the latest survey shows that 13 per cent of the parliaments providing open data are in low-income

countries, versus none in 2016. All but one parliament with open data was in a high-income country in 2016, compared to only 53 per cent in 2018. Sixty per cent of the countries with open data feeds are now in Europe, compared to 13 per cent each in Africa and Latin America.

Figure 65. How access to content is provided (n=113)

| | Web page | Downloadable | Open data | Not available |
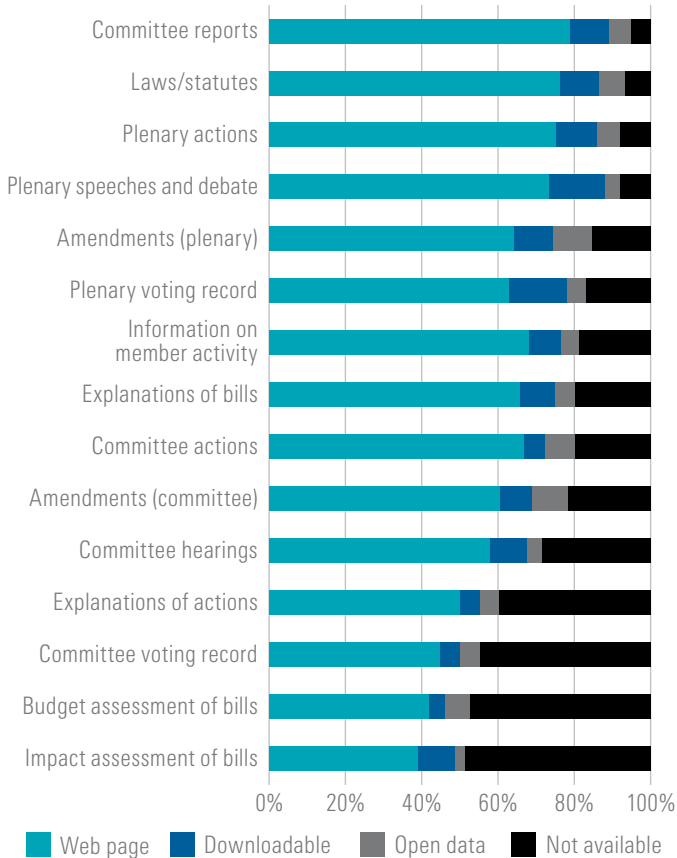
Timely access to information

Keeping the public informed in a clear, timely and efficient way is important if parliaments wish to engage a wider audience and to help more people follow the work their representatives are doing. Publicly announcing parliamentary business as much in advance as possible benefits individuals and groups with interests in particular topics. Ninety-six per cent of the parliaments now provide plenary agendas online in advance of the sitting and 45 per cent do so at least a week in advance, a 77 per cent increase over 2016. In the case of committee agendas, one-week advance publication has increased by the same percentage, while the share of parliaments still not publishing committee agendas remains at 12 per cent, the same as in 2016.

Figure 66. When agendas are published on the website (n=111)

| | At least one week before | At least two days before |
| | Same day | After | Not available |
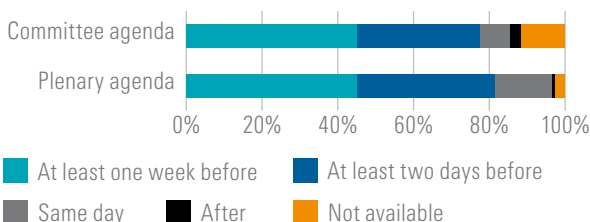
In the case of draft legislation, 51 per cent of parliaments now publish bills online the same day they are introduced, compared to 43 per cent in 2016. Plenary proceedings are now published by 76 per cent of the parliaments, compared to 68 per cent in 2016. The number not publishing plenary proceedings has fallen to 6 per cent. As in the case of agendas, committees again lag behind the plenary in the publication of their proceedings: a total of only 43 per cent of the parliaments publish committee proceedings within a day (up from 35% in 2016), while the number *not* publishing committee proceedings online has fallen to 23 per cent (from about a third in 2016). Taken together, all of these trends indicate progress in the timely publication of parliamentary information.

Figure 67. When documents are usually available on the website (n=110)

| | Same day | One day after | One week after |
| | More than one week after | Not available |
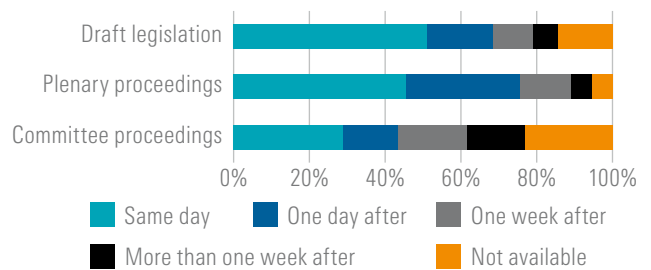
Most parliamentary documentation is now released to the public at the same time as it is distributed to members, with the exception of documents on the impact of legislation (35% of the parliaments answered "not applicable" to this question, and 27 per cent do not publish such documents). Almost three quarters of plenary schedules (74%) are published at the same time that members receive them, as are 64 per cent of committee schedules. These figures show a moderate improvement since 2016 in the timing and parallel publication of data relating to the parliamentary calendar.

Figure 68. Are documents made available to members and the public at the same time? (n=112)

| | Yes | Yes, but with some delays |
| | No | Not applicable |
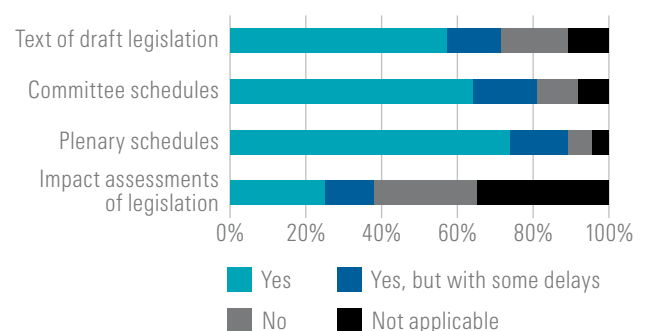
Parliaments also need to ensure that material published on their websites can be found. Ninety-nine per cent of the parliaments surveyed make a search facility available for users of their websites, up from 95 per cent in 2016. Roughly three quarters (73%) provide an audio and/or video archive on their website and 38 per cent a service to alert interested parties about the availability of new documentation, slightly down from the 43 per cent in 2016. Fifty-four per cent of the parliaments provide content designed for mobile devices, up from 36 per cent in 2016, thereby broadening access.

Table 38. Tools for finding and viewing information (n=107)

A search facility	99%
Audio or video archive	73%
Alerting services for documentation	38%
Designed for use on mobile devices	54%

Usability and accessibility

It is important for parliaments to make their documents available and understandable, but equally important to design and deploy search tools so that users can find the documents they need. A range of good practices and standards are now available to ensure website usability, making it intuitively easier to navigate and accessible for users with different needs. The 2012 and 2016 reports both recorded increases in the adoption of usability techniques but no comparable rise in the application of accessibility standards. The 2016 report did, however, identify improvements in both informal and formal usability and accessibility in the design and deployment of websites, with parliaments showing a greater tendency to base their design and content on an understanding of user needs (81% in 2016 versus 72% in 2012). In addition to standards, parliaments have made improvements through user testing and usability methods (employed by 59% in 2016, an increase of 15% from 2012). In 2018, the figure for parliaments basing content design on user needs has risen to 82 per cent, but the number employing user testing and usability methods has declined to 50 per cent.

Table 39. Website tools and guidelines (n=90)

Content and design are based on an understanding of needs of different user groups	82%
User testing and other usability methods employed to ensure that the design and use of the website is understandable by its intended audiences	50%
World Wide Web Consortium (W3C) or other applicable standards are implemented to ensure that the website can be used by persons with disabilities	58%
IPU Guidelines for Parliamentary Websites are used in designing and maintaining the website	52%
Periodic evaluation	60%
Other guidelines are used	9%

Official standards, such as those from the World Wide Web Consortium (W3C) – an international community that develops open standards to ensure the long-term growth of the Web – have been adopted in only 58 per cent of the parliaments, although this is notably up from 38 per cent in 2012 and 53 per cent in 2016. There has also been a steady rise in the number of parliaments implementing the IPU's guidelines for parliamentary websites, up from 46 per cent in 2012 to 53 per cent in 2016 and 52 per cent in 2018. Sixty per cent of the parliaments carry out some form of periodic evaluation of their web content to improve usability and compliance where necessary – less than in 2016 (69%).

The IPU's Guidelines for Parliamentary Websites include recommendations about the use of multiple official languages.

While adding to a website's complexity, providing content in all such languages is an important tool for democratic inclusion. Thirty-six per cent of the responding parliaments have more than one official language, and 7 per cent have more than three.

Fifty-nine per cent of the parliaments with two official languages make all of their content available bilingually, while none of those with more than three languages do so (88% of these parliaments make content partially available in all their languages).

Most important improvements

In 2016, the three areas of improvement to digital services considered most important by the parliaments surveyed were "technical", "content" and "design/usability", all identified by 41 per cent of the respondents. These are also considered the biggest three areas of improvement in 2018, but with "design/usability" now identified by almost three out of five parliaments (59%) and a noticeable decline in the importance assigned to technical improvements, to 32 per cent. Among the other areas of improvement, "openness" (i.e., open data and publishing, accountability and transparency) is now identified by 17 per cent of the parliaments. Unlike in 2016, no parliaments mention support or services for young people. Citizen "participation", which did not register at all in 2016, is now identified by 6 percent of the parliaments.

The 2018 survey shows that the work done by a number of parliaments has improved the usability of their websites, particularly through the use of "responsive" designs that can be used equally well on a wide range of devices. Other improvements mentioned by various parliaments include the use of open data and open publishing through the redevelopment of website architecture.

Figure 69. Most important improvements in last two years (n=63)
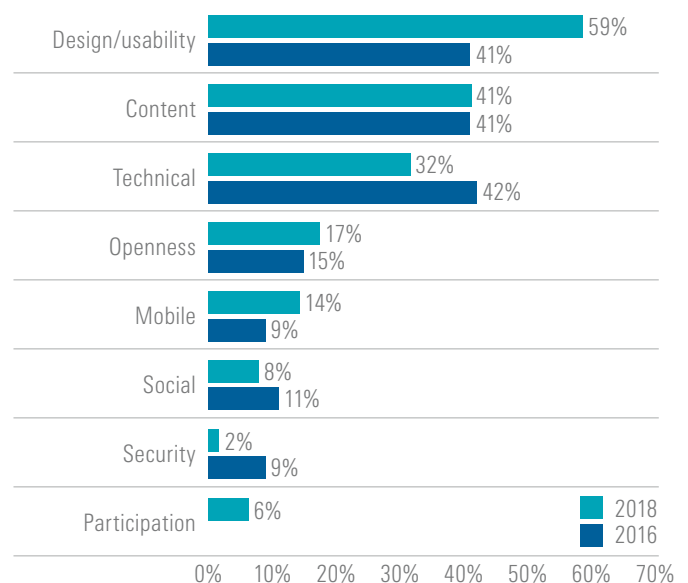
Looking ahead, the website improvements parliaments anticipate over the next two years fall largely in the same three areas of "design/usability", "content" and "technical".

A notable number of the respondents mention video, including live broadcasts as well as archival footage. The redesign of websites, either to be fully responsive or to provide specific mobile applications, is mentioned by 17 per cent of the parliaments, and 13 per cent indicate plans to improve their open data functionality. Seven per cent of the parliaments anticipate important improvements to citizen participation tools and methods. These comments refer to projects already underway or about to start, as well as "wish list" items, as in the following answer: "unfortunately, this is a repetition of topics mentioned in [the 2016 World e-Parliament Report] – but still planned for the next two". This echoes comments made earlier about impediments to the adoption and improvement of digital technologies.

Figure 70. Most important website improvements planned for the next two years (n=60)

Design/usability	52%
Content	33%
Technical	20%
Video	17%
Mobile	17%
Openness	13%
Participation	7%
Social	2%
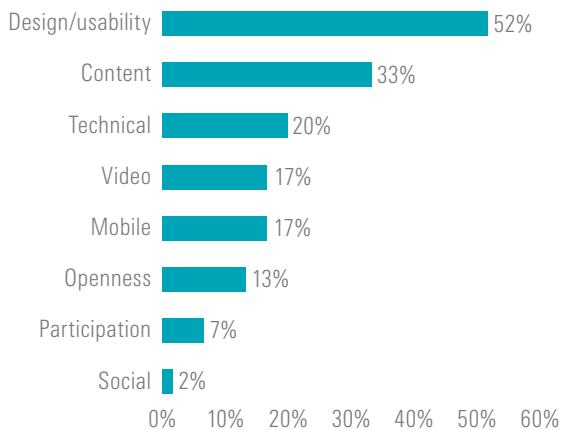
Summary

For the second survey in a row, every participating parliament has a website. In looking at the strategic oversight of websites, there is a perceptible shift away from the role of members (including the President or Speaker as well as committees), and towards the administration. A parliament's Secretary General now has a role in deciding the strategic direction of its website in 61 per cent of the parliaments, and senior ICT staff in over half. There is also a noticeable shift towards communications staff and away from IT departments, which still, however, tend to be the most involved with parliamentary websites overall. In 2018, responsibility for one in five websites is located in the parliament's communications department, although three in five remain in IT. Responsibility for content is shifting too, from central teams to content owners in separate departments. Where responsibility for content rests largely with a single department, it tends to be communications (20%) more than IT (17%).

Much of the content on parliamentary websites remains static, the most popular being general information and educational resources for the public, the history and role of parliament, and information on members, committees and how parliament works. A schedule of parliamentary

business is provided by 95 per cent of the parliaments but their timeliness in providing it varies significantly: only 45 per cent publish plenary or committee agendas a week or more beforehand, while 15 per cent only publish the plenary agenda on the day of the meeting. The survey did not distinguish between draft and final agendas, which can change up to the day of action.

Overall, the 2018 survey records progress in the timely publication of information on websites. There has also been progress, albeit limited, in terms of open data and publishing. Thirteen per cent of the parliaments have some form of open data feed and 24 per cent provide reusable documents for download from their website. The survey also reveals that, while open data repositories are making inroads into lower-income countries, 60 per cent of the parliaments with open data feeds are in Europe and only 13 per cent in Africa.
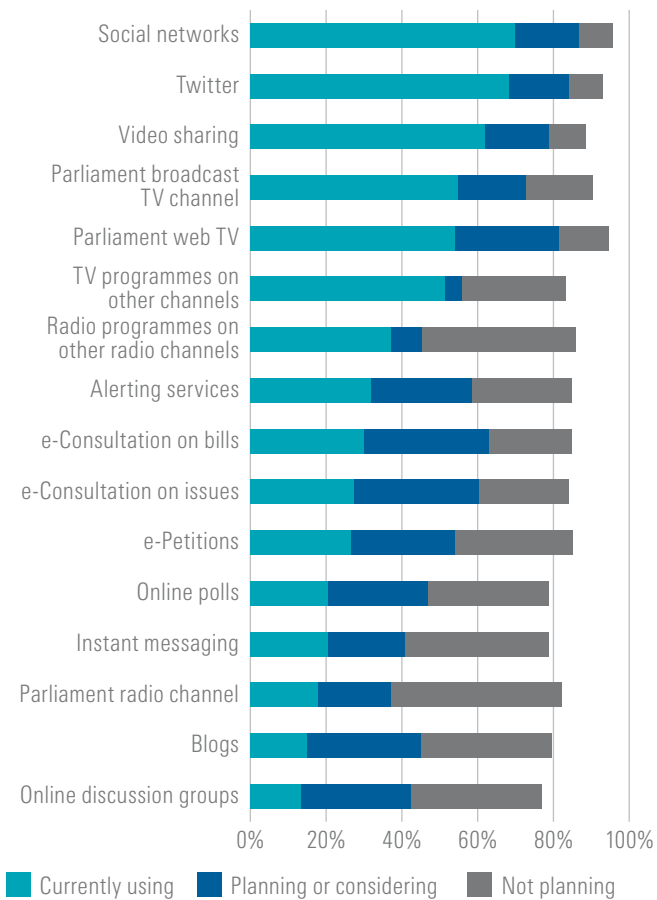
Website design continues to be driven more by user needs than by standards, athough a significant number of parliaments now apply some kind of standard and/or use the IPU Guidelines. "Design/usability" is the area identified as having changed most significantly in the last two years, again followed by "technical" and "content". Young people are not mentioned in the 2018 survey, but greater citizen "participation" figured for the first time as an important development for 6 per cent of the parliaments, and 7 per cent mention it as something that they hope to achieve in the next two years. Future plans focus on usability and improved content as well as responsive design and more video content.

Communication between citizens and parliament

In the previous subsection, this report discussed ways that parliaments are using their websites to make information more widely and efficiently available to the public, focusing largely on website architecture and usability and the delivery of information. This section examines how parliaments and MPs are using digital tools to communicate, engage and directly interact with citizens.

The 2016 report revealed how more established media were being supplemented by a wide range of digital tools to communicate and engage with citizens. Some, such as radio and broadcast television, were well established, important channels, particularly at a time when Internet access was still a challenge for parliaments and citizens alike. According to the 2018 survey over half of the parliaments (51%) report using programmes on regular (not their own) TV channels to communicate with citizens. Fifty-five per cent now have their own broadcast channels and 62 per cent provide video-sharing capabilities via the Internet, a significant increase over the 43 per cent doing so in 2016.
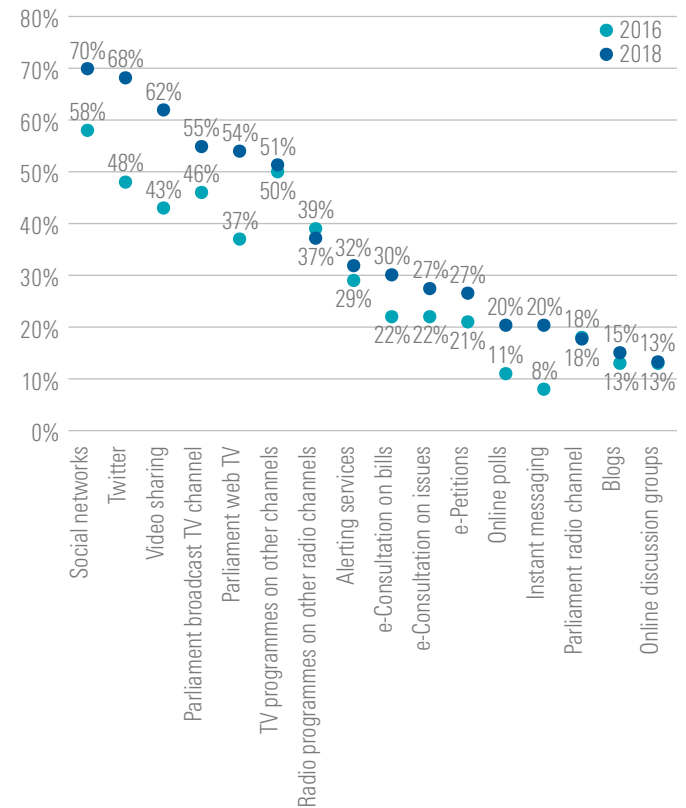
Figure 71. Methods for communicating with citizens (excluding websites and e-mail) (n=113)

Legend:
- Currently using
- Planning or considering
- Not planning

Categories (top to bottom):
- Social networks
- Twitter
- Video sharing
- Parliament broadcast TV channel
- Parliament web TV
- TV programmes on other channels
- Radio programmes on other radio channels
- Alerting services
- e-Consultation on bills
- e-Consultation on issues
- e-Petitions
- Online polls
- Instant messaging
- Parliament radio channel
- Blogs
- Online discussion groups

Figure 72. Change in methods used for communicating with citizens between 2016 and 2018 (n=113)

Legend: 2016, 2018

Data points: 70%, 68%, 62%, 58%, 55%, 54%, 51%, 48%, 46%, 50%, 43%, 37%, 39%, 37%, 32%, 30%, 29%, 27%, 27%, 22%, 22%, 21%, 20%, 20%, 18%, 11%, 8%, 18%, 15%, 13%, 13%, 13%

The 2016 report recorded social media tools for the first time overtaking television and radio as the most widely used media for communicating with citizens. Fifty-eight per cent were using social networks and 48 per cent such tools as Twitter. These numbers have risen significantly in 2018, with 70 per cent now reporting that they use a social network and 68 per cent Twitter. Video sharing, using tools such as YouTube, has for the first time overtaken broadcast television, and use of instant messaging applications like WhatsApp, although still reported by only one in five of the parliaments (20%), has jumped 154 per cent since 2016 (when it was reported by 8%).

Figure 72 shows the reported increase in use of web-based tools to communicate with the public. Web-based TV and video sharing have increased far more than broadcast television, and the use of radio appears to be diminishing. It is notable that 45 per cent of the parliaments neither use radio nor plan to, compared to only 9 per cent not planning to use social media (which 87 per cent now use or plan to use).

There are also small rises in the use of interactive online spaces, where citizens can get directly involved in the work of parliament. These include blogs and online discussion groups, where little change is recorded, as well the increasingly used methods of online consultation, e-petitions and online opinion polling.

Communication from members

In terms of individual MPs, as in previous reports, e-mail is still the digital method most widely used by members to communicate with the public. In 39 per cent of the parliaments surveyed this year all members use e-mail, and in a further 30 per cent, most do so. Only 1 per cent of the parliaments report that none of their members use e-mail for this purpose. Formal e-mail newsletters, on the other hand, are produced by far fewer members and do not represent a significant communications channel for them. Personal websites are maintained by all or most members in almost half of the parliaments surveyed (46%), up from 43 per cent in 2016. As in the case of parliaments themselves, growth in the use of instant messaging, such as WhatsApp, has been faster than for any other digital tool. The proportion of parliaments in which all or most members use instant messaging has risen from 14 per cent in 2016 to 27 per cent in 2018. The rise in social networks is much smaller: all or most members used them in 40 per cent of the parliaments in 2016, compared to 42 per cent in 2018.

Figure 73. What digital tools do members use to communicate with citizens (n=113)
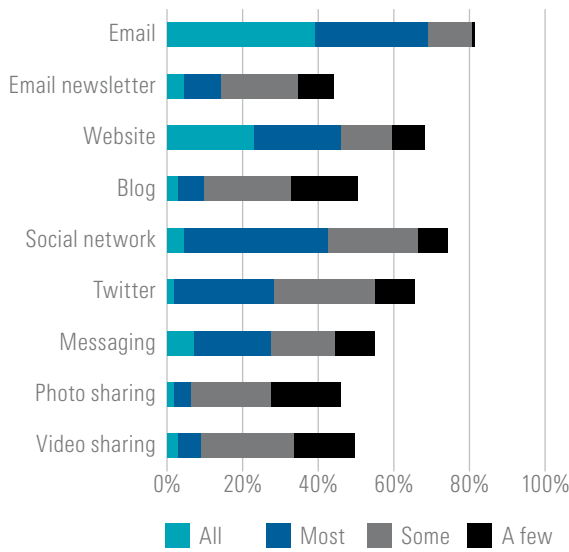
As noted previously, these figures measure the extent to which tools have been adopted, not the quality or effectiveness of their use. The data also highlight a challenge for parliaments in the digital age: knowing how many or how well their members are using digital tools. It is notable that many parliaments feel unable to quantify responses to that question. Seventeen per cent do not know how many of their members use e-mail; 20 per cent have no data on social media use and around a third lack information on how their members use instant messaging applications. Individual members have therefore been surveyed separately for this report on their use of digital tools, revealing that 59 per cent consider their knowledge of digital tools for communication with the public to be advanced.

Turning back to the survey of parliaments, and looking at the barriers that prevent their members from making more effective use of the Internet, lack of skills and training is the most prominent, seen as an issue by 38 per cent of the parliaments. Thirty-one per cent identify security and trust as an issue and 30 per cent cite a sense among their members of being overwhelmed by the quantity of communication. One out of five (21%) highlight problems affecting citizens' access to the Internet as a barrier, significantly fewer, overall, than in 2016 (36%). The improvement, however, is not evenly distributed: Internet access remains a greater issue for low-income countries, particularly those with large rural communities, than others.

Communication from committees

As mentioned earlier, committees tend to be less active in publishing their agendas and other information than parliaments are in publishing plenary agendas and proceedings, but their use of digital tools is nonetheless becoming significant. Online methods are particularly useful for connecting committees with a broader segment of the public and disseminating committee work more widely.

The committees of three quarters of the parliaments (75%) now communicate information via a website about their work,

scope and processes (up from 67% in 2016). As shown in Table 40, almost half (48%) use a website to communicate committee positions on matters being examined. Most committees (in 68 per cent of the parliaments) publish their findings on websites and half use them to seek submissions and comment from the public. Committees use e-mail far less than websites to provide information on what they do, although somewhat more than in 2016. They use social media still less (in 35% of the parliaments). Disappointingly, in only in 20 per cent of the parliaments do committees use social media to seek submissions and comments (with another 7% planning to do so). These figures may reflect a general preference among committees for publication over interaction and engagement. Committees in 41 per cent of the parliaments respond to submissions and comments via e-mail, but this may amount simply to sending out standard replies rather than engagement per se. In only 12 per cent of the parliaments do committees respond via social media.

Table 40. How committees use digital and social tools to communicate with citizens (n=114)

	Website	E-mail	Social media
Communicating information about their work, scope and process	75%	44%	35%
Communicating the committee's position on issues	48%	25%	21%
Seeking submissions, comments and opinions from the public	50%	31%	20%
Publishing the findings or results of the committee	68%	20%	22%
Responding to submissions and comments received	19%	41%	12%

Communicating with citizens

The previous section examines trends in how parliaments and members communicate with citizens and the channels and applications they use. We turn in this section to the reasons for communicating with citizens and the priorities set by parliaments in doing so. As recorded in previous reports, parliaments have identified three clear priorities in that regard:

• Inform citizens about policy issues and proposed legislation

• Explain what the parliament does

• Engage more citizens in the political process

Using digital tools to communicate with citizens is something parliaments must increasingly consider. This survey has revealed a significant upward trend in the use of such tools by citizens to engage with parliament. Over three quarters of the respondents (76%) report an increase in the last two years; 12 per cent report use remaining steady. No parliaments report a decrease in the use of digital tools for such communication or engagement.

Figure 74. Trends in the use of digital tools for citizens communicating with parliament (n=107)

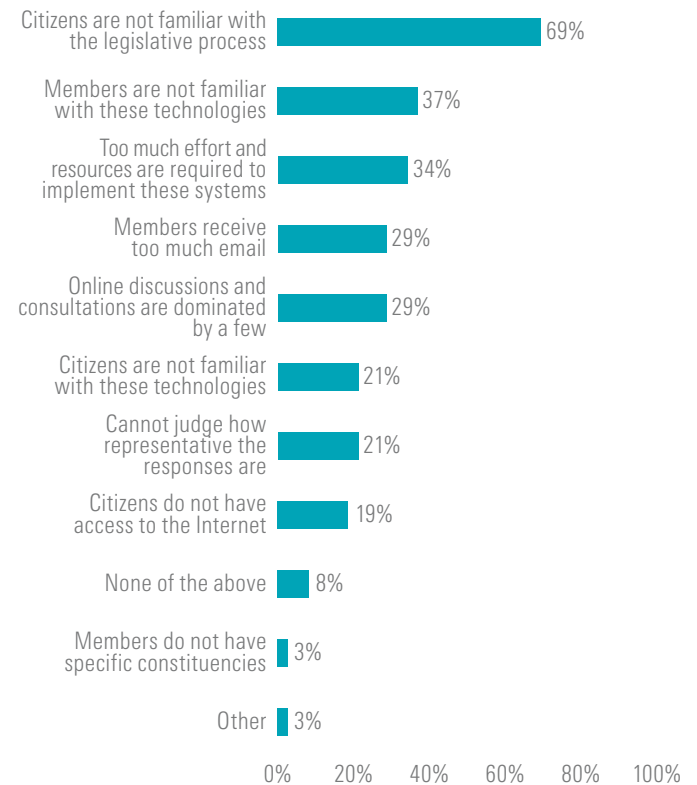|	
Increased	76%
Remained steady	12%
Decreased	
Do not use	12%

0% 20% 40% 60% 80% 100%
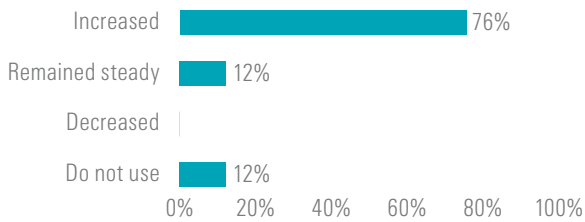
Beyond the top three priorities listed above, assigned roughly equal importance in both 2016 and 2018, there are other, albeit much lower, priorities. Reaching out to minorities is now identified by twice as many parliaments as in 2016 but still only 6 per cent of those surveyed. The number of those assigning importance to the priority of engaging young people has also increased significantly, even though it is not considered an area of notable improvement. Overall, these findings highlight the effort being made by parliaments to inform, explain and engage. They suggest a focus on those core priorities as opposed to changes in actual decision-making, the involvement of often-excluded groups or improvements in parliamentary processes, which appear to be considered of secondary importance.

**Table 41. Most important objectives in using digital-based methods of communication (n=111)**

	2018	2016
Inform citizens about policy issues and proposed legislation	68%	74%
Explain what the parliament does	68%	64%
Engage more citizens in the political process	61%	62%
Include citizens in the decision-making process	29%	26%
Engage young people	22%	14%
Enhance the legitimacy of the legislative process	21%	24%
Explain proposed legislation	18%	13%
Improve policy and legislation	15%	13%
Facilitate an exchange of views	12%	12%
Reach out to minorities	6%	3%
Conduct a poll of citizens opinions on issues or legislation	5%	4%

Barriers to more effective use of digital tools by parliaments were discussed in general terms earlier: lack of skills, security and members feeling overwhelmed by the quantity of communication. Looking more specifically at what impedes parliaments and members from adopting more digital tools in their communication and interaction with citizens, 69 per cent of the parliaments point to a lack of familiarity with how parliaments and the legislative process work, significantly more than in 2016 (57%). The challenge of citizens' knowledge chimes well with the core priorities cited above, but much more work is clearly needed to inform and educate citizens if parliaments are to start resolving this issue. The second-ranking barrier is lack of knowledge among members about ICT, identified as a challenge by 37 per cent of the

parliaments. In third place, the amount of effort and resources required to implement digital systems is identified by 34 per cent of the parliaments, compared to only 27 per cent in 2016. Lower down in the ranking, two challenges were identified by fewer parliaments than in previous years: citizens' familiarity with, and access to, digital tools.

Figure 75. Challenges parliaments face when communicating with citizens (n=108)

|	
Citizens are not familiar with the legislative process	69%
Members are not familiar with these technologies	37%
Too much effort and resources are required to implement these systems	34%
Members receive too much email	29%
Online discussions and consultations are dominated by a few	29%
Citizens are not familiar with these technologies	21%
Cannot judge how representative the responses are	21%
Citizens do not have access to the Internet	19%
None of the above	8%
Members do not have specific constituencies	3%
Other	3%

0% 20% 40% 60% 80% 100%

Forty-two per cent of the parliaments have used digital tools for the specific purpose of communicating with young people (compared to 41% in 2016), and only 19 per cent have not and are not planning to. The number of parliaments offering mobile-friendly technology or responsive websites for the specific purpose of communicating with the public has increased significantly, from 33 per cent in 2016 to more than half in 2018 (53%). This reflects increases seen elsewhere in the use of mobile-ready technologies and the priority given to them.

Figure 76. Parliaments using digital-based methods to communicate specifically with young people (n=109)

- Yes
- Planning or considering
- No, and not planning or considering

19%
42%
39%
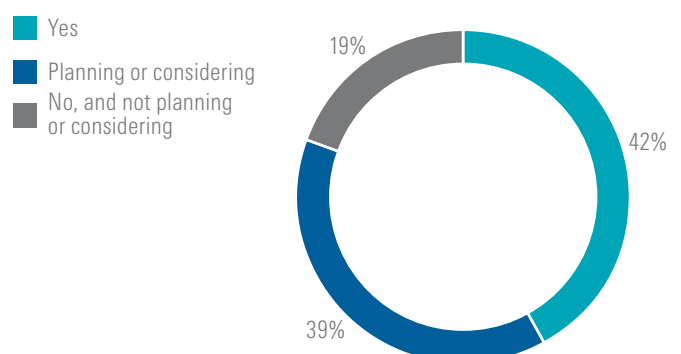
While the level of communication between parliaments and citizens has increased, only a minority of parliaments have developed formal policies regarding the retention of communications received from the public. In 2018, 36 per cent of the parliaments report having such policies and 45 per cent plan to introduce them. These figures are very similar to 2016 (35% and 43%, respectively), suggesting that formal policies on the retention of communications are on many parliaments' radar but remain a low priority in terms of actual implementation.

As discussed earlier, civil society organizations such as PMOs are becoming increasingly important intermediaries for parliaments. Although many PMOs operate autonomously, using data that is otherwise publicly available, parliaments and PMOs are increasingly working together to ensure that data can be understood and used by citizens. As a practice, this aligns closely with the three primary priorities listed above: inform, explain and engage. More than half of the parliaments (53%) either work directly with or informally support PMOs, and another 17 per cent are considering doing so. Thirty per cent of the parliaments neither do so nor plan to but may still provide open or reusable data. This is the first time that a question about external collaboration with PMOs has been included in the World e-Parliament Survey. Coupled with a survey of PMOs conducted in 2016, these findings suggest that interaction with PMOs is becoming an increasingly important consideration for parliaments in determining their communications, outreach and engagement strategies.

Figure 77. Parliaments working with civil society organizations (n=111)

- Works directly with
- Informally supports
- Planning or considering
- No, and not planning or considering

36%
17%
17%
30%
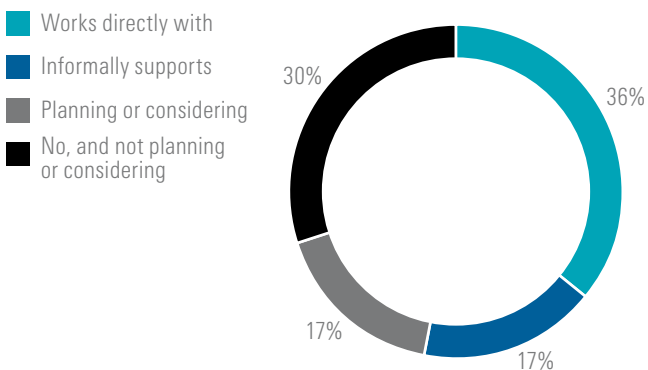
Despite continued growth in the use of digital tools to communicate with citizens, only 28 per cent of the parliaments have formally assessed the value derived from their use, with 47 per cent considering carrying out such an assessment. In terms of learning from their experiences, parliaments observe that new digital tools can be costly and time-consuming but are an effective means to reach new audiences. To use them effectively, however, parliaments need to rethink how they communicate – including the appropriateness of parliamentary language for a wider audience – and find simpler, often less formal ways of doing so. Once they start to use these new channels, many parliaments find citizens receptive to their efforts and keen to learn more about how parliament works. They also see them as a means to provide reliable and trusted information, given the explosion in Internet sources of dubious quality:

Providing timely information about the work of the parliament reduces the risk of the public digesting and re-sharing information from other, potentially questionable, sources.

There are particular challenges for parliaments in countries where the Internet's reach is more limited, and where more traditional communication methods cannot be ignored. Online and offline resources and efforts must be considered together.

Overall, however, digital tools appear to be helping parliaments reach new, previously unengaged audiences. While some parliaments see such engagement as quantifiably positive, others note related difficulties, in terms of resources as well as potential controversy. They observe that interactive spaces can attract an audience but can descend into political bickering far too easily. Parliaments need to be wary of conversations being hijacked or dominated by loud but unrepresentative voices.

Summary

By the time of the previous World e-Parliament Report, in 2016, it was clear that digital and social media had become an established and important part of the communications infrastructure for parliaments. Today more than ever, parliaments are using digital and online applications to fulfil their highest priorities: inform, explain, engage. Having overtaken broadcasting as the most popular medium for citizen communication by 2016, the social media have now pulled further ahead, and Internet-based video (live-streamed or on-demand) has, for the first time, overtaken broadcast programming as well. More parliaments now see digital as the way forward, while radio, although still relevant for many, is diminishing in importance. These digital tools matter all the more as the level of digital communication with citizens increases – as it has: three quarters of the parliaments surveyed report increases in the last two years and none report decreases.

Members still rely on e-mail as their preferred method of digital communication, with all or most MPs in 69 per cent of the parliaments now using it to communicate with citizens. The use of instant messaging applications such as WhatsApp has jumped by over 150 per cent since 2016, more than any other type of media. Twenty-seven per cent of the parliaments now report that some or all of their members use instant messaging, compared to 13 per cent in 2016. It is striking, given their prominence in this report, that the social tools did not figure at all in the first World e-Parliament Report, in 2008, apart from an anecdotal reference to their potential use by prospective members at election time.

Compared to MPs, parliamentary committees rely less on e-mail and more on their websites to communicate. They are also turning to the social media but have still limited ambitions in that direction, particularly for actual engagement purposes.

For MPs, the continuing barriers to greater use of digital tools include a lack of sufficient training and skills, and, for nearly a third, concerns over security and trust. The barriers for citizens, as perceived by the parliaments surveyed, relate to Internet access and digital skills, but even more critically to a lack of knowledge about parliament and parliamentary

process. One way to improve this situation is to support, and in some cases actively work with, PMOs and other civil society organizations to heighten awareness about parliament, how it works and how parliamentary data can be used to benefit citizens. Thirty-six per cent of the parliaments now work directly with PMOs and another 17 per cent support their work informally.

Digital media are now firmly established within the framework for citizen engagement, and parliaments report many benefits in using them. They often require new ways of working and a different approach to engagement, but where parliaments are adapting to those requirements they are drawing in more people who are in turn learning more about their parliaments, making more submissions and in some instances directly contributing to the legislative process.

Inter-parliamentary cooperation

Since their inception in 2008, the World e-Parliament Reports have noted the tradition of bilateral and multilateral cooperation and exchange among parliaments. The benefits of these relationships are well documented, and parliaments continue to exchange staff and ideas and support one another at both member and administrative levels. It is important for parliaments to share ideas and good practice, and venues provided by the World e-Parliament Conference and the Global Centre for ICT in Parliament, established by the IPU and the UN, have enabled them to do so regularly. The previous report in 2016 noted continuing exchange and mutual support in the traditional areas of ICT but inadequate support for new and emerging technologies, far outstripped by demand. No parliaments received support for open data innovation in 2016 but over half (53%) indicated they would like to. While 19 per cent of the parliaments received support in the use of digital tools for citizen engagement, 52 per cent did not but would like to.

The new Centre for Innovation in Parliament has been established as a partnership between the IPU and parliaments to support parliamentary innovation through the improved use of digital tools.

Based on their responses, the parliaments belong to the following formal parliamentary networks, in addition to the IPU:

• Africa Parliamentary Knowledge Network (APKN)

• 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)

The OGP is an intergovernmental rather than an inter-parliamentary network established to promote transparency, empower citizens, fight corruption, and harness new technologies to strengthen governance.[37] It maintains an

active "legislative openness" stream and supports a growing number of parliaments in the development of national action plans. Sixteen per cent of the parliaments are members of the OGP, compared to 11 per cent in 2016.

Sixty-eight per cent of the parliaments report membership of an inter-parliamentary network, continuing the slow but steady rise seen in previous reports.

Table 42. Member of at least one network 2010–2018

2010	59%
2012	62%
2016	65%
2018	68%

This year's survey shows that parliaments in high-income countries are more likely to belong to networks, and especially multiple networks, than others. Seventy-eight per cent of such parliaments belong to at least one, compared to only 54 per cent of those in low-income countries. Membership of at least two networks is claimed by 20 per cent of the parliaments in high-income countries but only 8 per cent of those in low-income ones – and a paltry 4 per cent of the lower-middle-income group. This disparity with respect to multiple memberships can be explained to some extent by the large number of high-income countries in Europe with parliaments belonging to the European Centre for Parliamentary Research and Documentation (ECPRD).

Figure 78. Membership of inter-parliamentary organizations, by income group (n=114)
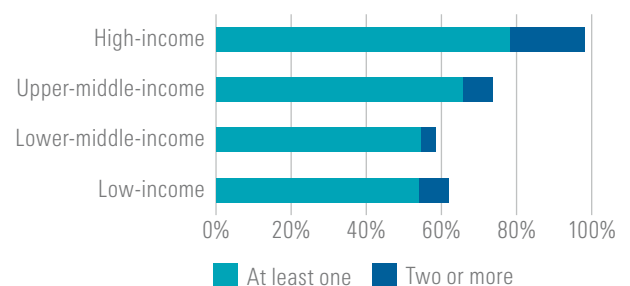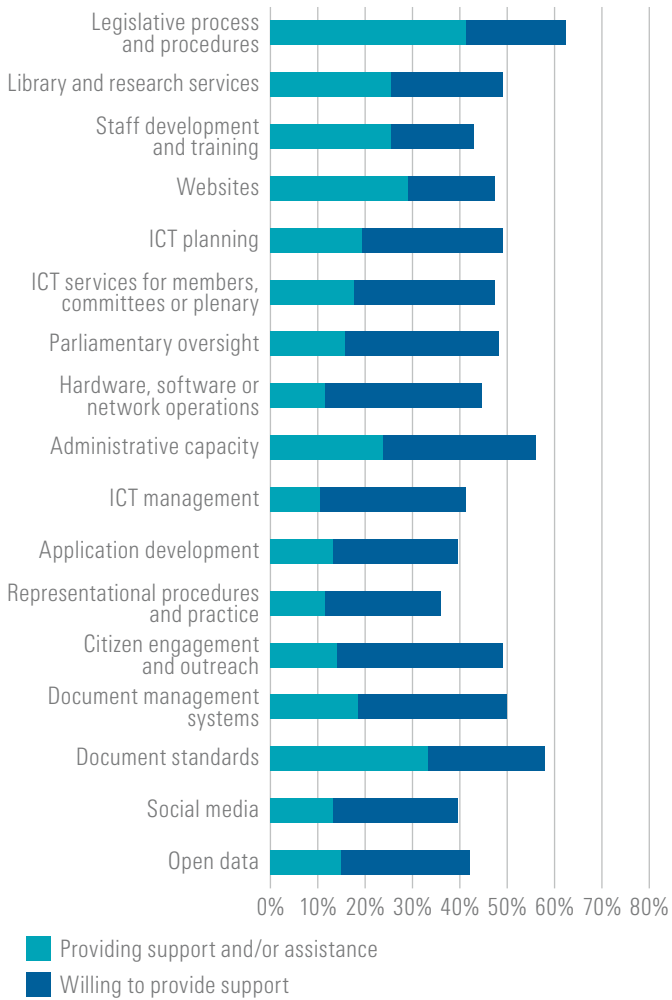

Half of all the parliaments surveyed (49%) provide support in some form or other to another parliament; 26 per cent do not do so currently but would be willing to. This suggests that the culture of inter-parliamentary support is strong and enduring, especially in three leading areas: "legislative process and procedure", "library and research services" and "staff development and training". These are consistent with patterns of support identified in the 2016 report. In any given area, the number of parliaments not providing support, but willing to, far exceeds the number that eventually do. Support for ICT planning, the fourth most popular area, is provided by only 19 per cent of the parliaments, but apart from those, 30 per cent indicate willingness to provide it. This suggests that parliaments are highly willing to support other parliaments but that barriers exist to make that difficult. It points to a need for better coordination of inter-parliamentary support for digital tools and more effective ways of exchanging staff and sharing good practice and case studies. Twenty-three per cent

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37 See: opengovpartnership.org/about.

of the parliaments now have a committee to oversee inter-parliamentary support.

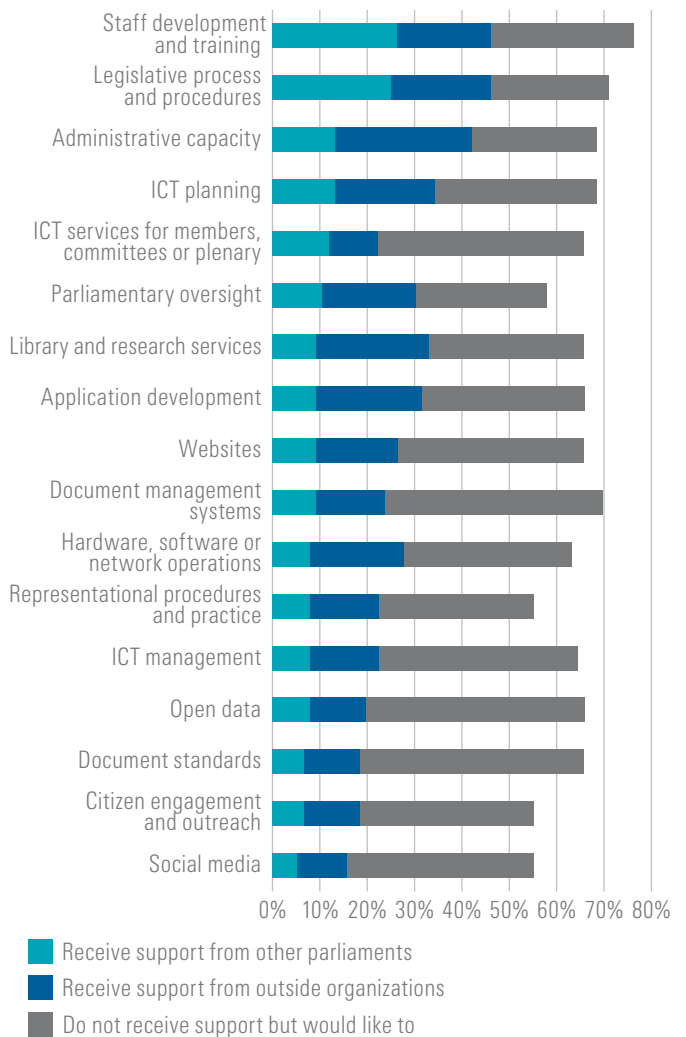**Figure 79. Parliaments providing or willing to provide support (n=96)**

- Providing support and/or assistance
- Willing to provide support

Figure 80. Areas where support is received or wanted (n=73)

- Receive support from other parliaments
- Receive support from outside organizations
- Do not receive support but would like to

Almost half of the parliaments surveyed (47%) receive some form of support, either from other parliaments (28%), other external sources (33%) or both. Forty-four per cent of the parliaments wish to receive support in at least one area but do not receive it currently.

The areas in which parliaments tend to receive the most support are staff development and training, legislative process and procedures, administrative capacity and ICT planning. Thirteen per cent receive inter-parliamentary support for ICT planning and 21 per cent get help from other sources. As Figure 80 shows, fewer than 10 per cent of the parliaments receive support from other parliaments in any but the top six areas.

The data reflects a strong desire among parliaments for additional support that is not available to them. This disparity between demand and supply was recorded in the 2016 report as being strongest in the newer and more emergent areas of ICT – open data, citizen engagement and social media. This pattern is repeated in 2018: parliaments and other organizations are clearly not able to meet parliamentary demand for support in newer and more specialized areas. The 2018 data also makes it clear that parliaments are increasingly looking for support in more traditional areas of ICT as well. Document standards and document management systems are the two areas in which demand for support is greatest, closely followed by open data. ICT services for members and for committee and plenary sessions, as well as ICT management, figure among the top five. Support for websites, social media and citizen engagement is still important and between 37 and 39 per cent of the respondents are looking for it. It is notable that the area in which parliaments most often offer support – "legislative process and procedures" – is the area with the lowest unmet demand, with 25 per cent of the parliaments looking to receive support in this area.

Table 43. Areas where support is most wanted (n=73)

	Receive support from other parliaments	No support received but would like
Document standards	7%	47%
Document management systems	9%	46%
Open data	8%	46%
ICT services for members, committees or plenary	12%	43%
ICT management	8%	42%
Websites	9%	39%
Social media	5%	39%
Citizen engagement and outreach	7%	37%
Hardware, software or network operations	8%	36%
ICT planning	13%	34%
Application development	9%	34%
Library and research services	9%	33%
Representational procedures and practice	8%	33%
Staff development and training	26%	30%
Parliamentary oversight	11%	28%
Administrative capacity	13%	26%
Legislative process and procedures	25%	25%

Summary

There is a long-established tradition of sharing, collaboration and exchange among parliaments, as well documented in previous reports. The latest survey confirms, unsurprisingly, that inter-parliamentary networks remain popular. The growth in OGP membership is interesting to observe, but there is no evidence at this stage to support its effectiveness or value as a platform for parliamentary sharing and exchange. Its value may lie in building relationships with third-sector organizations rather than other parliaments, although this remains to be seen. Excluding IFLA, a topical network for library and research services discussed earlier in this report, the strength of the European ECPRD network somewhat skews this data set in terms of networks and income distribution.

Parliaments have clearly demonstrated willingness to support one another, but those indicating a desire to receive support far outnumber those that actually provide it. As in 2016, there is a mismatch between the availability of support for parliaments and the demand for it. Whether coming from other parliaments or from related organizations working in the sector, the demand for support still strongly outstrips the supply. This is about more than providing support, it is about developing a structured, clear and coordinated way to share knowledge.

Appendices

Appendix A – Research design

This research was based on two surveys, the first for parliaments and the second for MPs. The third section of this report looks at how parliaments and partners are innovating with ICT and using new digital tools to build open and collaborative systems that improve transparency, accountability and participation.

Survey of parliaments

This report presents an up-to-date data set and makes comparisons with data and trends seen in the four earlier World e-Parliament Reports. The reader is advised, however, that the survey questions have changed over time and that there are differences in the participating parliaments and data collection methods. In addition, the surveys supporting the first three reports were carried out every second year (in 2007, 2009 and 2011), while there was a four-year gap between the third and fourth reports. This report restores the biennial cycle.

The survey questions for this report have been largely derived from the 2016 report, with only minor modifications to improve wording or explore emerging findings from the previous survey. Given the rapid maturation and increasing embeddedness of ICTs, and the changing patterns in their use since the series began, caution is advised in comparing survey data across this and previous surveys. Where such comparisons are made, they are intended to be indicative of significant trends rather than a rigorous analytical comparison.

Structurally, the survey consists of eight sections totalling 103 questions. There are open-text as well as multiple-choice questions, and a number of matrix questions with multiple subquestions. Where questions are carried forward from the 2016 survey the wording has been retained as closely as possible but in some instances has been revised for clarification or simplification. Some of the questions have been brought up to date and others expanded to reflect new or emerging technologies. New questions tend to reflect the emergence or growth of tools or technologies since the last survey was carried out.

Table 44. Numbers of questions in 2018 survey of parliaments 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

Survey recruitment and sample

The survey of parliaments was conducted between November 2017 and March 2018 and was distributed to all national parliaments; subnational, regional and transnational parliaments were excluded. A separate response was sought from each parliamentary chamber. The survey was designed primarily to be completed online, directly via the Internet, but was also made available as a downloadable document in Microsoft Word format or, upon request, via e-mail. All formats were made available in English, French and Spanish. Manually completed forms were returned to the project team and entered into the online tool. The survey was promoted among parliaments through the IPU's usual channels, and senior ICT personnel in the parliaments were also contacted to encourage completion. There was subsequent follow-up with parliaments to maximize the sample size.

Responses to the survey of parliaments came from 114 parliamentary chambers in 85 countries. Since the population is small (parliaments around the world), the sample is considered representative rather than statistically significant. This means that the results are valid for the respondents only and not for extrapolation to speak for all parliaments. For example, the fact that 100 per cent of the survey respondents have Internet access does not mean that all parliaments do, nor can any significance or purpose be inferred from their having such access. Where qualitative data is represented it has been interrogated using a process of thematic analysis, in which the data is analysed to identify patterns (themes) which are then organized to give meaning to the topic.

Survey of MPs

The second data source for this report is a survey of MPs. Previous World e-Parliament Reports have surveyed parliaments as a whole, to capture broad trends and gain insight into the ways their members use digital tools. As ICT has matured and become embedded in modern parliaments, it was decided to capture more detail from the members directly. This was done by means of a short, face-to-face survey of MPs attending two IPU events, thus ensuring a broad mix of experience and backgrounds. The sample is too small and self-selective, however, to be considered representative.

Survey recruitment and sample

The primary data source for this research was a survey administered during the 137th IPU Assembly in St. Petersburg, Russia, in October 2017. That event was attended by approximately 600 legislators, 158 of whom responded to the survey. The same survey was administered one month later at the Fourth IPU Global Conference of Young Parliamentarians, in Ottawa, Canada, which produced another ten responses. The total sample for this survey is n=168, all of whom were at the time serving members of their country's national legislature.

Appendix B – Background to the e-Parliament index

The fourth World e-Parliament Report, published in 2016, included a statistical model for assessing ICT maturity within parliaments. It was loosely based on a formal model developed in 2010 and on informal metrics used in the first report, in 2008. The model assigns a numerical score to the six categories covered by the survey:

• 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

By the time of the 2016 report, the original baseline for the survey was no longer considered appropriate – its focus was very much on the technical aspects of ICT, which as shown in this report, are only one way of assessing an e-Parliament. It is also important to assess how digital tools and methods are being planned and managed at a strategic level, and the overall strategic importance given to ICT (and key ICT staff). While the broad categories were retained and various indicators reused, new indicators were added in 2016 concerning the strategic value of ICT, open data and social media. This 2018 report follows that 2016 model with slight variations to allow for changes in the latest survey.

To create the index for this survey, the responses received from each parliament were scored, the scores totalled and a value out of 100 calculated for each section. The six sections were then combined to calculate an overall score, again out of 100. The purpose of the index is not to compare one parliament against another but to assess maturity and confirm previously detected trends. As in the main body of the report, individual parliaments are not identified here. The scores are not directly comparable with those for previous years, so that any comparisons made are indicative only.

Appendix C – Parliaments and members taking part in the survey

🔵 Parliamentary chamber 🟢 Member

AFRICA	
Benin	🟢
Botswana	🟢
Burkina Faso	🟢
Cameroon	🟢
Cabo Verde	🔵
Côte d'Ivoire	🔵🔵🟢

Democratic Republic of the Congo	🔵🟢
Djibouti	🔵🟢
Egypt	🔵
Equatorial Guinea	🟢
Ethiopia	🟢
Gabon	🔵
Ghana	🔵🟢
Kenya	🔵🟢
Lesotho	🔵🟢
Libya	🔵
Morocco	🔵🟢
Namibia	🟢
Niger	🟢
Nigeria	🟢
Rwanda	🔵🔵🟢
Somalia	🟢
South Africa	🔵🔵🟢
Sudan	🔵
Swaziland	🟢
Togo	🔵🟢
Tunisia	🔵🟢
Uganda	🔵🟢
United Republic of Tanzania	🟢
Zambia	🔵🟢
Zimbabwe	🔵🔵🟢
ASIA	
Afghanistan	🔵🔵🟢
Armenia	🟢
Azerbaijan	🔵
Bangladesh	🔵
Bhutan	🔵🔵🟢
China	🟢
Democratic People's Republic of Korea	🟢
India	🔵🔵🟢
Indonesia	🔵🟢
Iraq	🟢
Japan	🔵🟢
Kazakhstan	🟢
Kyrgyzstan	🟢
Malaysia	🔵🟢
Maldives	🟢
Mauritius	🔵
Myanmar	🔵🟢
Pakistan	🔵🔵🟢
Republic of Korea	🔵

Seychelles	●	The former Yugoslav Republic of Macedonia ●●
Sri Lanka	●	Ukraine ●
Thailand	●●●	United Kingdom of Great Britain and Northern Ireland ●●
Turkmenistan	●	

CARIBBEAN	
Cuba	●
Guyana	●
Trinidad and Tobago	●●

EUROPE	
Andorra	●●
Austria	●●
Belgium	●●●
Bosnia and Herzegovina	●●
Bulgaria	●
Croatia	●
Cyprus	●
Czech Republic	●
Denmark	●●
Estonia	●
Finland	●●
France	●●●
Germany	●●●
Hungary	●
Italy	●
Latvia	●●
Lithuania	●
Luxembourg	●
Malta	●●
Monaco	●
Montenegro	●
Netherlands	●●●
Poland	●
Portugal	●●
Republic of Moldova	●
Russian Federation	●
Serbia	●
Slovakia	●
Slovenia	●●
Spain	●●
Sweden	●●
Switzerland	●

LATIN AMERICA	
Argentina	●●●
Bolivia (Plurinational State of)	●
Brazil	●●●
Chile	●●
Colombia	●
Costa Rica	●
Ecuador	●
El Salvador	●
Mexico	●
Nicaragua	●
Paraguay	●
Peru	●●
Suriname	●●
Uruguay	●
Venezuela Bolivarian Republic of	●

MIDDLE EAST	
Bahrain	●●●
Egypt	●
Israel	●
Jordan	●●●
Kuwait	●
Lebanon	●●
Oman	●
Palestine	●
Saudi Arabia	●
United Arab Emirates	●●

NORTH AMERICA	
Canada	●●
United States of America	●

PACIFIC	
Australia	●●●
Fiji	●
New Zealand	●●
Singapore	●
Tuvalu	●
Vanuatu	●

Inter-Parliamentary Union

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