World
e-Parliament
Report 2020

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Foreword

Publication of the 2020 World e-Parliament Report, the year of Covid-19, comes at a time of great disruption. Democratic ideals and practices have been challenged by the pandemic and again demonstrated their resilience. Like other institutions of governance, parliaments have had to adapt to a rapidly changing situation, simply to keep operating. In documenting the experiences shared by parliaments over the past year, this year's Report will include lessons learned about parliamentary modernization, but also resilience.

The report continues a series started in 2008 to track how parliaments use information and communications technologies (ICTs). Successive reports have shown parliaments harnessing the potential of ICTs to make their working methods more effective, accountable and transparent. Covid-19 has only accelerated this shift towards digital ways of working, but importantly, many parliaments face challenges in joining it. It is the task of the IPU to support them in building their ICT capacity as an essential prerequisite for modern parliaments today.

A strong message from previous reports has been the importance of inter-parliamentary collaboration. We have therefore been pleased to see the IPU Centre for Innovation in Parliament contributing to that process, especially in supporting parliaments during the current crisis.

Parliaments are more open today to innovative ideas. They are more likely to work remotely, rely on cloud-based technologies and follow innovation strategies. The mission of their technical staffs is changing to support new working practices, and the role of parliamentarians everywhere continues to evolve in exciting and challenging ways.

The importance of ICT to parliaments has been highlighted throughout this series. Continuing to gain effectiveness in their use of digital tools remains an imperative for them today, both to enhance parliamentary practice and to expand public participation. Building the necessary infrastructure, capacity and knowledge, and learning from the experiences of other parliaments, will require continued vision, leadership and investment.

Martin Chungong
Secretary General
Inter-Parliamentary Union

Acknowledgements

Executive summary

This sixth World e-Parliament Report is the continuation of a series that began in 2008, documenting and reporting the relationship between information and communications technologies (ICTs) and parliaments. This report is published by the IPU's Centre for Innovation in Parliament (CIP) at a unique time, and the dynamic period of upheaval and enforced innovation brought on by the Covid-19 pandemic cannot be ignored. It contains two parts. The first examines in depth how parliaments have responded to the pandemic and discusses the lessons they learned in doing so. Next is a detailed analysis of ICTs as used in parliaments for governance, management, systems and infrastructure, increased transparency and public engagement, among other purposes. The report's findings are based on a survey of 116 parliaments and focus groups involving 49 parliaments.

There are signs that, as challenging as this time has been, it is acting as a catalyst for new and transformational digital practices. The challenge now is to consolidate a new baseline and build from there. Parliaments continue to become more digitally connected and reliant on ICTs to support their core functions. One year on from the pandemic's first wave, parliaments have started applying some of the strategic insights gained from this period of enforced innovation.

Enforced innovation in response to the pandemic

Parliaments have been challenged and changed by the sudden, disruptive shock of this pandemic. ICT has become far more visible, moving from a back-office function to centre stage in in the daily operations of parliaments. A surge in the innovative use of new technologies has transformed both their culture and places of work, with such additional benefits as less printing and more-flexible working arrangements. Digital technologies embraced in the response to Covid-19 have facilitated remote work and remote sittings of parliament. And the innovation has come at a pace rarely witnessed in parliaments.

Picture 1. The hybrid chamber

© Chamber of Deputies, Argentina

Bold steps towards the modernization of parliaments

The pandemic has been an opportunity for bold steps to modernize parliaments, with digital innovation moving through three phases:

- **Enforced innovation,** as parliaments have responded quickly, experimented, deployed and revised quickly.

- **Iterative improvement** and second-stage innovation to develop working solutions.

- **Consolidation of the new approach,** with the adoption of processes and tools to embed the new ways of working into the day-to-day fabric of parliamentary life.

One year on, having made years' worth of progress in months, many parliaments now look and feel different and function in new ways, with digital tools driving change. The transformation can be a lasting legacy if parliaments are prepared to continue innovating in bold ways.

Key findings

The Covid-19 pandemic has crystalized the importance of ICT. Parliaments often think more radically now, looking beyond ICT at more holistic and integrated digital strategies and embracing the full potential of a digital-first approach to work in parliament. Here are some headline findings in this report:

1. By the end of 2020, 65% of the parliaments surveyed had held virtual or hybrid committee meetings and **33% a virtual or hybrid plenary meeting.**

Figure 1.   Percentage of parliaments holding remote sittings in 2020 (n=116)

33%

65%

■ Plenary
■ Committee
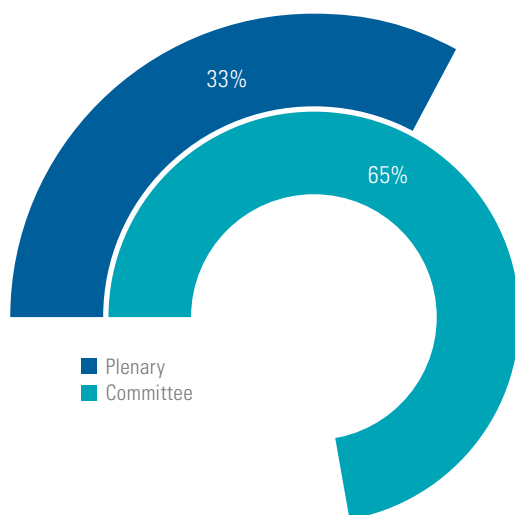
2. **The way parliaments work has changed**: remote working practices, greater reliance on cloud-based tools and digital solutions have placed ICT at the centre of parliamentary operations.

3. **Parliamentary modernization has accelerated**: modernizing programmes have long existed, but parliaments now move more quickly with solutions never previously considered, or once considered long-term prospects only.

4. **Regulations have evolved to support remote working**, allowing more flexible work arrangements and strengthening institutional resilience.

5. **Parliaments are gaining trust in processes and technology**, built through greater user involvement, user-centred solutions and increased training and support.

6. **Parliaments have become more agile,** finding iterative solutions, adopting new tools and practices and pivoting quickly to address emerging problems.

7. **The implications for planning, infrastructure and support are significant:** demand for bandwidth has increased; systems are now cloud-based (posing security issues) and users are more inclined to work with their own equipment.

Recommendations

Parliaments need to continue embracing this opportunity to modernize their core operations, reviewing their strategic and business continuity planning in the light of their experiences and those of others. As supported by this research, parliaments should consider a number of ways to build on the innovations made and realize their advantages:

1. **Permanently amend their regulations** or governing legislation so that parliaments can function seamlessly, unconfined to a single physical location.

2. **Continue or expand flexible participation for members and the public,** particularly in committees;

3. **Proactively maintain and adapt efficiency gains.**

4. **Approach ICT more holistically through an institution-wide digital strategy** mainstreamed into the wider fabric and culture of parliament.

5. **Review and update business continuity plans** to capture and embed lessons learned the previous year through enhanced knowledge management practices.

6. **Develop flexible work arrangements for staff and remote participation for members,** determining the ICT infrastructure needed to support them.

7. **Promote inter-parliamentary collaboration** to accelerate innovation, save time and money, share good practices and increase mutual support between parliaments.

The state of technology in parliaments in 2020

Responses to the survey conducted for this report indicate how far parliaments have progressed, setting a new baseline for further modernization and innovation. Below are the survey's 10 key findings.

Strategy and planning

1. **The percentage of parliamentary budgets allocated to ICT continues to increase**. As reported, the number of parliaments spending at least 9% of their budgets on ICT rose this past year. Only 16% reported spending less than 1%, compared to 23% in 2012.

2. **Innovation is encouraged and supported by formal methods in 20% of the parliaments and by informal methods in 59%**. A formal innovation strategy has been adopted by 26%, and in 35%, at least one staff member has a formal role in innovation.

Figure 2. Formal and informal innovation strategies (n=100)
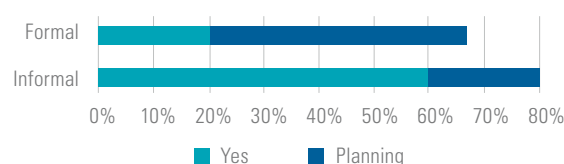
3. **The most important innovations are systems that transform the core processes of parliament,** with 10% of parliaments reporting use of artificial intelligence (AI)-based technologies, and 6% reporting use of legislative drafting applications.

4. Owing in part to the pandemic, **parliaments are reporting accelerated use of cloud-based applications and data storage**, the latter having increased by 86% since 2018.

Resourcing

5. ICT is a significant resource for parliaments; they employ **one ICT staff person for every three members.**

6. **Parliaments face challenges in recruiting and retaining key ICT staff.** In smaller parliaments, the availability of appropriately trained people may be limited, while in larger ones, the demand for qualified staff may outstrip supply.

7. **Parliaments have moved from work at a single location to remote working.** In large part reflecting the pandemic, 55% of parliaments report that members can now work remotely and 69% report that staff can as well. The shift is changing how parliaments, their members and staff work. In the years ahead this movement from physical to digital environments will impact the use of parliamentary office space, and the work of committees in particular.

Public engagement

8. **Parliaments are exploring innovative ways to engage the public.** 63% of those surveyed have systems in place for outreach and engagement; the same percentage work collaboratively with civil society.

9. **Social media are used by 76% of parliaments and 56% of their members.** Out of the parliaments surveyed, 39% use instant messaging (which has continued to increase rapidly for both staff and members) and 30% have mobile apps providing access to parliamentary business and information.

Collaboration and support

10. **Most parliaments (62%) wish to receive additional support** from other parliaments, development partners and civil society in developing their use of ICT.

Figures

Tables

About this report

This research was based on a survey of parliaments sent to all IPU members in the late summer of 2020, as well as on input from focus groups conducted with members and participants in CIP hubs during early 2021 and background research by the CIP on parliamentary responses to the pandemic. As always in this series, analysis of the survey data is central to this report. Responses were received from 116 parliamentary chambers in 91 countries, and the focus groups, held in January and February 2021, involved 49 parliaments.

In describing the pandemic's impact on parliaments, their responses and lessons learned, the report includes recommendations to improve their resilience.

Baseline data is presented providing an up-to-date analysis of the state of parliamentary technology. Following an overview of the parliamentary survey, its detailed findings and analysis will be presented in subsequent sections organized according to the survey's structure, as will be familiar to regular readers of the series. They start with data on the oversight and management of ICT followed by discussion on the infrastructure, services, applications and related training now in place, with one section devoted to analysis of the systems and standards being applied to legislative documents and related information. The report then moves on to discuss the use of digital technology and services by library and research services, parliamentary websites, engagement and communication with citizens, and work with external partners, with emphasis on openness and transparency. Following sections examine inter-parliamentary cooperation, and assess digital maturity across parliaments.

The final section summarizes the findings of five previous reports in this series to provide background, historical context and a narrative on the development of parliamentary technology over time. The appendices describe the sampling and methodologies used in the report, a list of participating parliaments and background information on the series.

Introduction

Welcome to the sixth World e-Parliament Report. Continuing the series started in 2008, it describes and maps the relationship between parliaments and information and communications technologies (ICT). This 2020 report is published at a unique time of dynamic change and often enforced innovation as a consequence of Covid-19. Throughout the year, parliaments have reeled from the pandemic's rapid onset. One year on from the initial wave, parliaments are adapting and developing new strategies, with gains suggesting that the situation, however challenging, is acting as a catalyst for new and transformational digital practices. The new baseline being drawn must now be consolidated and built upon.

This trend within parliaments towards greater digital connection predates the pandemic. Parliaments have for years been taking ICT from a behind-the-scenes process to a much more visible and central part of day-to-day life, for plenaries as well as committees. Better processes are improving efficiency and transparency and bringing the public closer to parliamentary work. As the report shows, the use of social media and instant messaging, more open publishing and engagement with external partners continue to increase. It is important to start seeing digital technology as the holistic solution that it has become, to be addressed strategically – in contrast with traditional ICT strategies, more driven by process issues than transformative change. Such a vision is now emerging in the digital transformation programmes of various parliaments.

When first launched, the first World e-Parliament Report represented a pioneering attempt to identify and describe parliamentary efforts to utilize the latest ICTs available at that time to strengthen democracy and institutions. Then as now, the research conducted aimed not at simply understanding the transformations under way but at building knowledge within parliaments about them and promoting international debate and cooperation about their use. The 2008 report was the first to establish an authoritative baseline and narrative for parliamentary use of digital tools and technologies. Parliaments could then start to measure and evaluate their own use of ICT against an international set of data, identifying strengths and opportunities for improvement. Like its predecessors, this latest report measures and tracks how ICT is being adopted by parliaments and their members to improve transparency and accountability towards the wider public. As clear by the fifth edition, in 2018, and clearer still in this latest report, the e-Parliament concept is as much about governance and strategy as technology and communications.

A narrative running through earlier reports concerns the importance of formal procedures for parliaments as well as the increasingly information-intensive environments they were becoming. The 2008 report found a significant gap between the potential of ICT and what parliaments were achieving. But it also found parliaments "acutely aware of the strategic importance of ICT". The 2018 edition provided evidence that the gaps between use and aspiration remained but were finally starting to close. This 2020 report finds ICTs still evolving within parliaments and across societies. Like earlier reports it highlights a range of challenges and opportunities for their use in parliament, with the potential, though limited by funding constraints and knowledge deficits, to greatly enhance parliamentary openness and communication with the public.

The state of technology in parliaments in 2020

The pandemic has proven a unique opportunity for bold modernization of parliamentary procedures, building on rapid changes in institutional culture by retaining and fine-tuning what has worked and embracing continued innovation. By the end of 2020, one-third of the parliaments surveyed had held a virtual or hybrid plenary sitting and 65% remote committee meetings. The crisis has appeared to make parliaments more agile as they react naturally to new problems, surrounding uncertainties and fast-changing needs through innovation, more flexible and responsive ICT departments and a stronger focus on user needs. Over the course of the pandemic, digital innovation within parliaments has gone through three phases:

- **Enforced innovation**, as parliaments have reacted quickly to change by experimenting, deploying resources and adjusting practices as needed.

- **Iterative improvements** and second-stage innovation to develop working solutions.

- **Consolidation of new ways of working,** with the adoption of processes and tools to embed them into the day-to-day fabric of parliamentary life.

The progress stands to prove a lasting legacy. Having made years' worth of progress in months, many parliaments now look and feel different and function in new ways – with digital tools driving the transformation:

1. **The way parliaments' work has changed:** remote working practices, greater reliance on cloud-based tools and digital solutions have placed ICT at the centre of parliamentary operations.

2. **Parliamentary modernization has accelerated:** modernizing programmes have long existed, but parliaments now move more quickly to adopt solutions never previously considered, or once seen as long-term prospects only.

3. **Regulations have evolved to support remote working,** allowing more flexible work arrangements and strengthening institutional resilience.

4. **Parliaments are gaining trust in processes and technology,** built through greater user involvement, user-centred solutions and better training and support.

5. **Parliaments have become more agile,** finding iterative solutions, adopting new tools and practices and pivoting quickly to address emerging problems.

6. **The implications for planning, infrastructure and support are significant:** demand for bandwidth is increasing, systems now run via cloud and users want their own equipment.

Parliaments are encouraged to look forward and review their strategic plans, to consider what can be learned from their own and others' experiences and to look at strengthening their resilience for the future. There is an opportunity to build on the innovation that has occurred and embed real advantages. For this to happen, this research suggests that the following actions need to be considered by parliaments:

1. **Permanently amend governance provisions** so that parliaments can function seamlessly, unconfined to a single physical location.

2. **Continue or expand flexible participation for members and the public,** particularly in committees.

3. **Proactively maintain and adapt recent efficiency gains.**

4. **Approach ICT more holistically through an institution-wide digital strategy** mainstreamed into the wider fabric and culture of parliament.

5. **Review and update business continuity plans** to capture and embed lessons learned the previous year through enhanced knowledge management practices.

6. **Develop flexible work arrangements for staff and remote participation for members,** determining the ICT infrastructure needed to support them.

7. **Promote inter-parliamentary collaboration** to accelerate innovation, save time and money, share good practices and increase mutual support between parliaments.

Apart from the response to the pandemic, the main body of this report assesses where the e-Parliament concept stands as of 2020. It offers unique insights into the shifting trends in parliamentary technology and how it is planned and managed. The report provides a useful baseline across a range of areas illustrating the importance of ICT in supporting parliaments and improving their openness and transparency. While the Covid-19 pandemic has crystalized the importance of ICT, placing it at the centre of parliamentary work, the findings reported here are intended to help parliaments take stock of their own ICT investments and plans more effectively. The report's key findings are as follows:

Strategy and planning

1. **The percentage of parliamentary budgets allocated to ICT continues to increase.** More parliaments report spending 9% or more of their budget on ICT, with only 16% spending less than 1%, compared to 23% in 2012.

2. **Innovation is encouraged and supported** by formal methods in 20% of the parliaments and by informal methods in 59%. A formal innovation strategy has been adopted by 26%, and in 35% at least one staff member has a formal role in innovation.

3. **Systems that support process transformation in the core work of parliament remain the most important innovations,** with 10% of the parliaments reporting use of AI-based technologies and 6% using legislative drafting applications.

4. Owing in part to the pandemic, **parliaments are reporting accelerated use of cloud-based applications and data storage,** which has risen in the latter case by 86% since 2018.

Resourcing

5. ICT is a significant resource in parliaments; on average, **parliaments employ one ICT staff person for every three members.**

6. **Parliaments face challenges in recruiting and retaining key ICT staff.** In smaller parliaments, the availability of appropriately trained people may be limited, while in larger ones, the demand for qualified staff may outstrip supply.

7. **Parliaments have moved from work at a single location to remote working.** In large part because of the pandemic, 55% of parliaments report that members can work remotely and 69% that their staff can do so. This shift is changing how parliaments, their members and staff work. Over the next few years, the movement from physical to digital environments will impact the use of parliamentary office space and the work of committees in particular.

Public engagement

8. **Parliaments are exploring innovative ways to engage the public,** 63% having systems in place for that purpose; the same percentage work collaboratively with a civil society organization.

9. **Social media are used by 76% of parliaments and 56% of their members.** Out of the parliaments surveyed, 39% use instant messaging, with rapid growth continuing among members and parliaments generally; 30% have mobile apps providing access to parliamentary business and information.

Collaboration and support

10. **Most parliaments (62%) wish to receive additional support** in developing their use of ICT.

Lessons from the pandemic

The onset of the Covid-19 pandemic in March 2020 took most countries by surprise. Governments around the world struggled to understand what was happening and grasp the urgency of taking action. Confusion about the virus, how it spread and what to do about it was widespread. It soon became obvious to most observers that urgent steps were needed. Reactions varied significantly, with some countries more successful at coping than others. It was in any case the job of all governments to respond with appropriate measures, such as social distancing, lockdowns and ramped-up medical services. Business, culture and socializing as usual were put on hold everywhere. Containing the pandemic became virtually the sole focus for many public institutions.

Parliaments were certainly among them. Measures were urgently required to ensure a safe workplace for members and staff and deal with the absences of affected staff. It quickly became clear, owing to travel restrictions and lockdowns, that work from home would be required on a large scale. Parliaments had to pass emergency legislation to regulate their responses to the pandemic and hold governments to account for their actions during this time. They could not simply close. No one knew how long the pandemic would last, how catastrophic its impact would be or how long the temporary arrangements would be required. New practices were clearly needed to accommodate remote work and, for those not working remotely, adapt chambers and committee rooms for safe use. The response witnessed is testament to the professionalism and dedication of parliamentary staff around the world.

While the past year was challenging, the impact of the pandemic was not entirely negative. Parliaments accelerated innovation and digitization to an unprecedented extent, transforming their culture and working practices in the process. This special section of the report details that process. It describes the barriers parliaments encountered, their efforts to overcome them and the lessons learned. The report then recommends measures parliaments should consider, in modernizing their operations, to strengthen their resilience. Time will tell what long-term impact the pandemic may have on the quality of their legislative and oversight work, but there are grounds for cautious optimism. A lasting shift towards hybrid and remote working could ultimately prove a boon to the effectiveness, transparency and accountability of parliamentary work

Picture 2. Canada's House of Commons meets in hybrid setting

© House of Commons of Canada

The text that follows is based on data from a special section of the World e-Parliament Survey covering parliaments and the pandemic (n=116). It also draws from the findings of earlier research and monitoring by the Centre for Innovation in Parliament and its network of parliaments. Valuable qualitative input was received from focus groups involving 49 parliaments. Highlighted below also are micro-case studies from parliaments taking part in the research, describing their experiences in responding to the pandemic.

The challenges posed by Covid-19

Starting in March 2020, the ability of parliaments to operate was suddenly thrown into question, challenging democratic processes across the globe. To keep functioning, many parliaments looked to digital technologies and new ways of working. The parliaments of Brazil, Spain and Chile were early adopters of digital tools for remote sittings. The initial response of other parliaments was initially hampered by the social distancing requirements and the dramatic reduction in staff availability. In some parliaments over 90% of ICT staff were working remotely. A vital requirement for remote working is secure access to the systems used. Parliaments that had already invested in remote access and cloud-based solutions prior to the pandemic were at an early advantage. The Parliament of the Maldives, a pioneer in holding virtual plenary sessions, is an excellent example of prior investment in strategic planning and ICT making it easier to adapt when conditions require. One year on, the full impact of the pandemic on how parliaments work is coming into clearer focus.

For many parliaments, the modernization of processes and systems has accelerated significantly: years' worth of innovation has happened in only a few months. This has not been without its challenges; the pressure to keep parliaments working has been immense and ICT departments have found themselves at the forefront of this. Staff have been absent, systems have been reconfigured to allow remote working, new systems have been developed iteratively and normal

project management and procurement practices have been side-lined in favour of agile methods of working. Training has been paramount and parliaments have mobilized all their resources to train members and staff, support their remote working and manage a new world of Zoom meetings and user's own devices.

Picture 3. Deploying digital tools in the Chamber

How parliaments responded

The sudden move to remote working and social distancing led to a reduction in (and in some cases suspension of) parliamentary sittings. This was followed in some parliaments by a rapid and dynamic process of enforced innovation and their first virtual and hybrid sessions, with digital technologies embraced as the key to remote interaction.

> Parliaments consider it imperative to continue functioning despite the current constraints. They have therefore looked to digital technologies for new ways to work.

Overview

Many parliaments struggled in the early stages of the pandemic, a new and unforeseen situation. It was often unclear how to respond, or how long the situation would last. By the end of 2020, however, 65% of the parliaments surveyed had held virtual or hybrid committee meetings, and 33% a virtual or hybrid plenary. Many parliaments made it through the enforced innovation stage by responding quickly to events. As the situation grew clearer, they improved iteratively on their initial solutions and started to apply their experiences. They then began to embed the new working methods, processes and tools into parliamentary practice. The innovation detailed in this report has lifted ICTs to new levels of prominence in many parliaments. All parliaments – the 40% choosing to continue with physical sittings and those using digital tools to work remotely – can learn from what happened during this pandemic and apply the experiences shared in this Report to optimally leverage their own ICT capacity. It is noteworthy that among the parliaments adopting remote working practices, 76% expect at least some of those practices to remain in place.

Changes to procedure

For many parliaments, the introduction of new working practices – whether alternative ways to meet physically or new ways to work remotely – required amendments to parliamentary procedure and rules, to national laws or even to the country's constitution. As shown in Table 1, the fewest such changes were necessary for remote committee meetings. Remote plenaries required the most. For the plenaries, updates to parliamentary procedure were required in 44% of the parliaments; legal or constitutional changes were required in 16%. For remote committee meetings, legal or constitutional changes were required in only 8% of the parliaments.

Table 1. Changes required to introduce remote working (n=73)

	Plenary	Committee
Constitutional/legal changes were required	16%	8%
Parliamentary procedure was updated	44%	32%
No formal changes were required	30%	48%

From a procedural perspective, adapting parliaments to new ways of working has required a balance between maintaining protocols where possible and adopting new ones where necessary. Managing remote plenary debates has been a challenge: speaker lists must be organized and speakers can be cut off unexpectedly, requiring technical support. Voting, too, has been an issue for many parliaments: the video-conferencing tools available may not offer sufficient functionality, requiring other solutions to be found and workarounds arranged. One of the biggest continuing concerns for parliaments is the verifiability and security of plenary voting in virtual space.

Parliamentary sittings

In June 2020, according to their survey responses, 14% of the parliaments were not sitting while 36% were holding limited or reduced meetings. Another 14% were meeting normally. Virtual or hybrid meetings were being held for plenaries by 17% and for committee meetings by 47%.

Figure 3. Parliamentary responses to the pandemic as of June 2020 (IPU data; n=64)
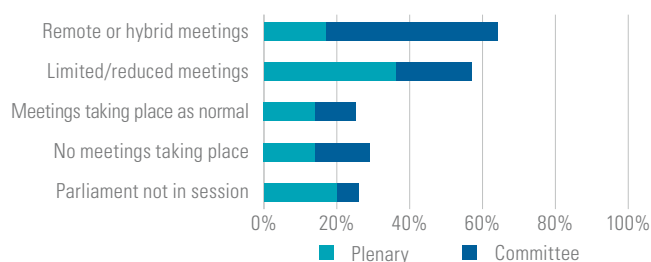
Picture 4. A hybrid plenary session in the Argentinian Chamber of Deputies

© Chamber of Deputies, Argentina

By late 2020 the proportion of parliaments having held virtual or hybrid plenaries had risen to 33%. In hybrid sittings, the most common, some members and staff are present in the chamber while others (usually most) participate via video conference. Five per cent of the parliaments held entirely virtual sittings, though possibly with a few staff or the Speaker physically present.

Figure 4. Hybrid and fully virtual sittings (n=116)
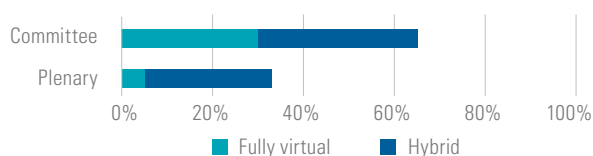
As shown in Figure 4, most parliaments (65%) held virtual or hybrid committee meetings; 30% held fully virtual ones. Parliaments not holding either gave a variety of reasons: 44% considered virtual plenaries unnecessary, either because they planned to continue with physical sittings, though socially distanced, or because the parliament was not sitting; another 10% did not know the reason.

Brazilian Chamber of Deputies

The Brazilian Chamber of Deputies moved quickly to address the effects of the pandemic. On 25 March 2020, it introduced a hybrid plenary format via Zoom, hosting 513 MPs in direct connection with their broadcasting platforms. The Chamber's existing "Infoleg" app, adapted for the purpose, was rolled out to provide support for members participating virtually, with regard to attendance, registration, speakers lists, leadership voting orientation, alerts and secure voting. Subsequent enhancements to the app allowed members to introduce bills. The Chamber anticipated the immensity of the changes required but had to implement them with almost 95% of its staff working from home. It also had to coordinate collaboration among more than 150 staff persons across different parliamentary units.

On the strength of this experience, the Chamber emphasized agility in its development teams, changing procedures and business processes and transforming security protocols to ensure security for mobile systems. One outcome of the experience has been stronger member appetite for innovation and less concern about the risks.

Where remote plenaries did not take place, 37% of the parliaments cited legal or constitutional impediments (although, as noted elsewhere, several countries amended their laws precisely to allow the practice). While 12% gave security reasons for not allowing remote sittings, it is significant that 27% attributed the decision to lack of available technology, and 10% to lack of financial resources. Far fewer parliaments felt constrained in holding remote committee meetings than in holding remote plenaries, although a few (16%) cited legal restrictions and 14% lack of technology. The reason given by 22% was simply that remote committee meetings were unnecessary.

Table 2. Reasons for not holding remote sittings (n=73)

	Plenary	Committee
It was not deemed necessary	40%	22%
It was not legally permitted	37%	16%
Because of security concerns	12%	5%
Technology was not available	27%	14%
For financial reasons	10%	7%
Not known	10%	4%

Providing support for remote sittings

When a parliament operates virtually, the formal procedure and practical processes are different. Members need access to sufficiently reliable and high-speed internet connections, which can be scarce in remote or rural areas. Angola and Zambia used regional public buildings, including constituency offices, to accommodate attendance by MPs lacking sufficient home-based connections. Members of the Argentinian Chamber of Deputies used the facilities of regional legislatures. Members and staff require training for remote sittings, a new way of working for many. In the UK and Canada, MPs were given guidance on the space and configuration suitable for the purpose, including lighting and background. Access to documentation was particularly critical, so parliaments need to deliver it rapidly, remotely and in digital-first format.

The New Zealand Parliament described the steps it took to facilitate remote meetings:

• Established clear roles and responsibilities early on.

• Ensured that the right communications went to all the people participating.

• Ensured meetings were secure and reliable; actively managed video-conferencing accounts; and attended to the different protocols for public and private meetings.

• Preserved anonymity where necessary.

• Live-streamed the meetings to multiple destinations, including internal webcasting and external television and radio channels.

• Tested scenarios, anticipated problems and developed responses before they occurred.

• Constantly applied iterative learning with regular debriefs after each remote session.

Parliaments used the momentum created by the pandemic to further enhance their digital infrastructure for remote meetings. The Hellenic Parliament, for instance, upgraded its cyber-security measures and implemented a speech-to-text recognition system for rapid production of minutes. One point to be determined was how the official record for remote meetings should be managed. In the UK, the Hansard indicates which MPs attend meetings of the House of Commons via video conference. The Chamber of Deputies in Brazil captures proceedings using several cameras and a dedicated PC connected to its Zoom system for plenaries. Another challenge was connecting to a parliament's broadcast system – straightforward in some cases, more complicated in others. Broadcasting procedures were changed accordingly, and parliaments allocated staff to support virtual sittings. In the Israeli Knesset, furloughed staff were re-deployed to that role.

Video conferencing

Committees had used video-conferencing tools in the past to hold remote hearings and take evidence, but remote participation by all (or most) members was a new experience. Remote and hybrid working was entirely new for plenaries, so experimentation was required to find workable solutions. In addition, the video-conferencing platforms available at the start of the pandemic had limitations, and none came close to being right for parliamentary work.

Latvian Saeima

The Parliament of Latvia developed a virtual plenary system allowing it, and each of its 100 MPs, to operate on an entirely remote basis. The local software firm commissioned to develop it found a unique solution for integrating document management, voting and virtual meetings (using the Jitsi open-source platform). A particular challenge with the new application was member security and verification, resolved using Latvia's national identity cards.

Many parliaments already had site licensing in place for access to the Microsoft Teams platform, as part of the Microsoft 365 package, but few used it. Like everyone else, parliaments quickly turned to Zoom, a relatively new and unknown product gaining traction at the time. Such products were then being developed quickly to meet demand in an uncertain environment. Microsoft Teams had limitations from the start that hampered its use by parliaments. Other products, such as Cisco's WebEx, proved even less popular with users. Zoom itself had experienced security breaches. The South African Parliament became one early victim when a private Zoom link was accidentally shared. The incident demonstrates how, even with the right technical infrastructure in place, the weakest point in any video conference is often the same: the end user who accidentally shares a password or sensitive details from the meeting. Other early impediments included discomfort (or uncertainty) over where the data captured by these applications was being stored and what the effect of a country's data protection laws might be.

Thirty-seven per cent of the parliaments using video-conferencing for their plenaries, and 45% of those doing so for committee meetings, chose Zoom as their platform. Cisco's WebEx product and Microsoft Teams roughly tied as the next most popular. Such choices are explained in many cases by previous licensing – as well as experience, though limited – with the products concerned. Jitsi, an open-source, user-customized video-conferencing platform, was used for plenaries in 2% of the parliaments and for committees in 7%. Several parliaments have employed multiple video-conferencing tools for committee work. Kudo, which appears to be a niche product for multiple language interpretation, is less widely used given its unique functionality[1].

Picture 5. The National Assembly of Angola meets using Zoom

© National Assembly of Angola

Figure 5.   Video-conferencing platforms (n=52/74)
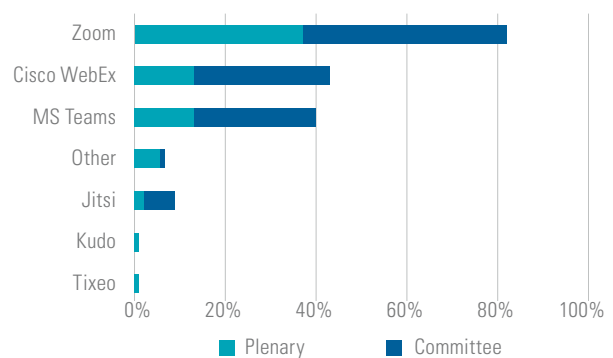
Voting methods and tools

Voting has been perhaps the most challenging process to operate remotely. The parliaments of Spain, Brazil and the UK developed a voting function as part of the internal apps provided for members. The parliaments of Argentina, Chile, Latvia and Zambia soon followed with their own apps for voting. Paraguay and Angola now conduct votes by acclamation via video-conference. Voter verification has been managed in various ways, from biometrics and two-factor authentication to the use of electronic national identity cards. The physical sittings still held by other parliaments, but with social distancing, also required technology solutions. Both

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1   Kudo has been used by several multilateral organizations, including the IPU, the NATO Parliamentary Assembly and the Council of Europe, for simultaneous interpretation into more than two languages.

chambers of the Italian Parliament developed flexible voting solutions for times when physical access was restricted. In the Senate a mobile app was developed for voting by tablet. In the Chamber of Deputies the solution was similar, using laptops inside and outside the hemicycle. These solutions connected to their existing voting systems.

Picture 6. New voting application for a socially distanced plenary

© Italian Chamber of Deputies

None of the respondents used email as a voting tool (although the European Parliament, which is not part of this data set, did use this method in the early days of the pandemic). The method most indicated (by 21%) was a simple show of hands or vote by acclamation. Six per cent of the responding parliaments allowed only those present to vote; 9% continued to use existing voting systems (though not available in at least one case to members not present in the House via a virtual desktop) and another 9% used the voting feature offered by their chosen video-conferencing tool. Nineteen per cent used special applications developed for the purpose, designed in some parliaments as a means of troubleshooting for remote sittings.

Figure 6. Voting for remote plenaries (n=70)

- No voting took place: 9%
- Only Members in the Plenary Chamber voted (remote Members did not vote): 6%
- Voting was done by show of hands (or similar): 21%
- Voting was done by email: 0%
- Voting was done using parliament's existing systems: 9%
- Voting was done using video-conferencing tools: 9%
- Voting was done using an application developed specifically for this purpose: 19%
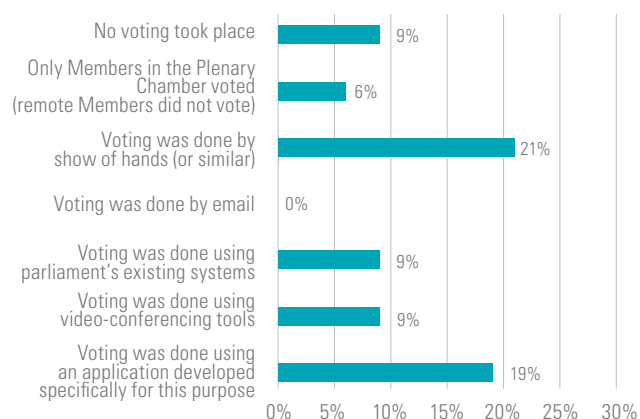
Support for staff working remotely

For staff as well as members, parliaments had to overcome limitations in their existing ICT infrastructures, which were not generally designed for remote working on such a scale. ICT staff providing systems support also had to work remotely and this created a leap in demand for internet connectivity, placed stress on system capacity and reliability, and generated confusion when members used their own equipment from

home. That in turn created problems over access and security, like those encountered in integrating remote meetings and broadcast technologies.

Picture 7. "eSaeima", the Latvian Parliament's virtual parliament application
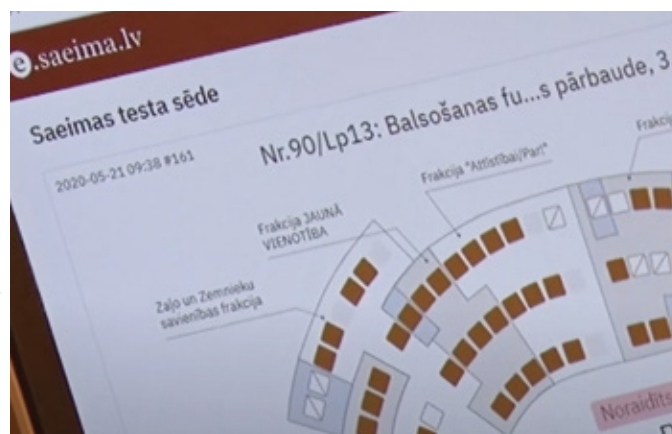
© Latvia Saeima

There was a significant increase in the need for training as parliaments shifted to remote operations, yet ICT staff were likely to be working remotely also – and just as likely as the general population to be absent. Supporting remote users and ensuring appropriate and timely communications was a challenge, as was adapting to new ways of working. The learning curve was steep for many parliaments obliged to incorporate new, unfamiliar and untested systems on very short notice, integrate them with existing systems and deploy them rapidly.

For ICT departments, a key challenge has been managing staff workload with the new tools and responsibilities in a context of remote working and higher absentee levels. Staff have, in some cases, been allowed to take equipment home or been provided with additional equipment for remote use. Some parliaments have provided bigger screens for home use, data plans to cover additional internet requirements or financial subsidies for staff buying home office equipment and furniture in some cases.

Making changes permanent

This period of innovation saw parliaments introduce radical changes to processes and procedures which half of those surveyed intend to maintain going forward, at least in part. Asked about plenary and committee procedures, many of the focus group participants, some from parliaments having reverted to purely physical sittings, described how use of ICT behind the scenes had changed as a result of the pandemic – not surprising given the amount of work done over the past year. As the Latvian Saeima put it:

> The volume and intensity of the work for the Latvian Parliament increased but the infrastructure was not ready for the new reality.

Among the parliaments adopting remote methods in some form during the pandemic, responses from nearly a quarter (24%) suggest they may not retain them, but rather revert to in-person work as soon as possible. For members, that does not always mean abandoning the new technology or remote work arrangements. In Ireland, where the House was required

to meet in person, with social distancing, the plenary met in a large conference venue, with the chamber used for committee meetings. But supporting those arrangements when socially distanced also required new technology. While returning to the Chamber is desirable, some of the digital innovations made will likely inform future development plans.

Picture 8. Testing the UK House of Commons remote voting application

Most parliaments intend to retain some or all their remote working practices after the pandemic, with 24% keeping all the tools and procedures in place. Another 52% of the parliaments intend to retain some of the innovations, but a third of those plan to confine them to specific kinds of meetings – retaining them for committees but mostly dropping them for plenaries.

> Twenty-four per cent of the parliaments having adopted remote working practices for plenaries intend or expect to keep them in place.

Figure 7. Plans for remote working post-pandemic (n=82)
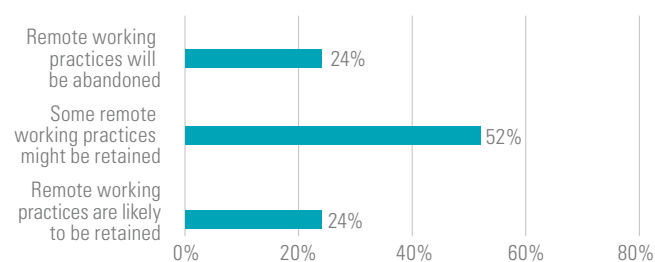
Lessons learned

Despite the many challenges, parliaments see benefits to their operational capabilities from changes made during the crisis. The pandemic has cemented the critical role of ICTs in the work of parliaments, highlighting the many benefits to be gained from flexible working. For members, detaching themselves from a single physical location has proven advantageous, with several parliaments reporting a sense of increased efficiency, particularly for committees.

A number of parliaments – and particularly those whose plenary sittings are typically more dynamic and interactive – report a loss of spontaneity and a sense that the quality of

debate has suffered. But there are also responses suggesting otherwise, with some preferring the more structured debate being enforced. Parliaments also report that, despite the steep learning curve, members have come to terms with the new ways, as expeditious and effective. The Polish Sejm, for instance, observed that:

> It has been shown that difficulties in communicating with the use of electronic solutions are apparent and easy to eliminate. Within two months, we made progress in using modern solutions that we had previously planned for at least years. The role of IT solutions has increased. Members' involvement and willingness to use digital solutions have increased significantly. It seems that significant elements of the system enabling remote working will remain active even after the pandemic is over. However, it is regrettable that we paid such a high price for it all.

Figure 8 highlights the main benefits attributed by parliaments to their experience in responding to the pandemic. They are examined below with an in-depth analysis of themes emerging from the research and the lessons learned about parliamentary resilience, to be applied in furthering their digital transformation and modernization agendas:

Figure 8.   Summary of benefits resulting from the pandemic response, based on February 2021 focus groups
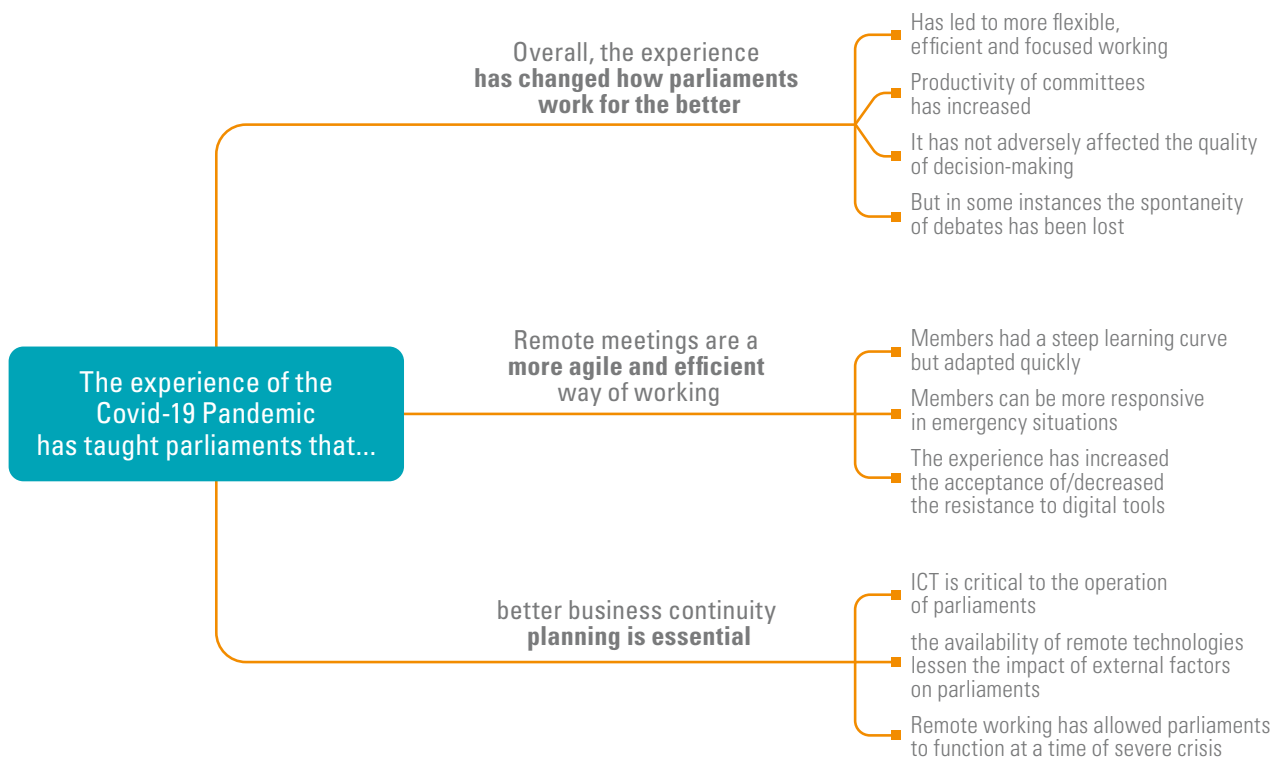
- **The way parliaments' work has changed:** even though not all parliaments have adopted remote working practices or intend to continue with hybrid plenaries and committees, lessons have been learned that will continue affecting parliaments into the future, placing ICT at the heart of parliamentary operations.

- **Parliamentary modernization has accelerated:** enforced innovation has pushed parliaments into adopting solutions never previously considered, or only seen as long-term possibilities.

- **Regulations have evolved to support remote working:** the rules governing parliaments never envisaged a situation like the pandemic, and that slowed their response in many cases. Changing regulations to allow more flexible work arrangements, if required going forward, stands to strengthen parliamentary resilience.

- **Parliaments are gaining trust in processes and technology** through greater user involvement, user-centred solutions (not "one size fits all") and increased training and support.

- **Parliaments have become more agile** as a consequence of the pandemic: solutions have evolved iteratively, new tools have been adopted and working practices have been changed so that parliaments can pivot quickly to address emerging problems. Agile working also strengthens resilience.

- **There are significant implications for planning, infrastructure and support:** demand for bandwidth is greater, systems are often cloud-based (posing security issues), and users are more inclined to work with their own equipment. These changes, together with the increase in remote working, create challenges for ICT procurement and support.

The lessons, as described in more detail below, are followed by recommendations on how to apply them.

The way parliaments' work has changed

The rapid switch to remote and flexible ways of working has changed the culture within many parliaments. Last year's rapid innovation will likely settle into a more managed and strategically aligned process, parliaments in the focus groups having largely agreed that at least some of the changes will be retained after the pandemic.

> The pandemic has changed planning and deployment processes.

Even for parliaments not intending to continue with virtual or hybrid sittings, the underlying ICT infrastructure has changed – and so has the thinking about technological good practice in a parliamentary setting. The UK House of Commons, for instance, intends to fully revert to physical sittings but also to retain some of the recent procedural and administrative changes, such as the electronic introduction of bills. The parliament of the small Pacific State of Vanuatu, though largely spared by the pandemic, anticipates that the lessons learned from it will likely shape their future thinking and planning, electronic voting having already been brought up for consideration.

ICT is more important and more visible

ICT staff have seen a dramatic transformation of their work from a "back-office" function into the beating heart of parliamentary activity. That may be obvious for parliaments having embraced remote work, but even for those continuing to meet physically, the social distancing required makes ICT a central consideration. The Parliament of Ireland is a good example. It continued with physical sittings, for both plenary and committee meetings, but expanded the physical space for them, making systems available for remote working and for member voting from outside the chamber (if on parliamentary

premises). The considerable scale of innovation by many parliaments – in Madagascar, Zambia, New Caledonia, Chile, Paraguay, Estonia and Latvia – accelerated the process to a matter of months, not years as would otherwise be likely. Some parliaments report being able to move forward with digital projects that met with resistance prior to the pandemic.

Congress of Peru

Before the pandemic, the Congress of Peru was not ready for remote work. Its systems operated through its local network only. That was corrected by installing new VPN connections and modifying core systems for a web-based environment. New technological solutions and security policies were then developed and deployed quickly to allow remote working. Going forward, these and other changes permitted members to perform all their parliamentary work remotely: attend plenary sessions, follow and participate in debates and vote.

Realizing the benefits of digital transformation

Parliaments in some countries, such as Colombia and Mauritius, note significant reductions in their printing expenses after switching to digital dissemination of documents. Even larger parliaments, in South Africa and Chile, for instance, have noticed significant reductions in printing volume. Members in Uruguay and Norway, initially sceptical about virtual participation, quickly adapted to and gained confidence in the new model, as did their colleagues in Latvia, New Zealand and the UK.

Picture 9.   The UK House of Commons holds its first hybrid debate

© UK Parliament

Opportunities for public engagement

Remote working is also proving beneficial for public engagement. One initial risk was managed quickly – that of hastily installed video-conferencing systems not interfacing properly with existing broadcast platforms. In the UK, the move to a fully virtual plenary for the House of Lords initially came with audio but not video, a problem resolved by moving to a hybrid system in June 2020. As described, the issue was one of capacity:

> [Parliament] couldn't build out the [virtual] infrastructure to support both Houses with broadcasting infrastructure quickly enough. A decision was made to start virtual

proceedings with a limited offer whilst working towards a solution fully integrated with broadcasting.

The Brazilian Chamber of Deputies had no such problems. The tools chosen worked well together and were quickly integrated, although a new approach had to be developed to coordinate meetings with broadcast platforms, an extensive project. On a positive note, parliaments report that impromptu committee meetings conducted remotely were more open and accessible to the public. In Norway, civil society organizations regard the introduction of remote testimony (as adopted even earlier by New Zealand) as a favourable development. In the latter country, remote testimony by the prominent Epidemic Response Committee has notably increased positive sentiment towards parliament and the work it does.

Remote working is better understood and accepted

Parliaments have seen a cultural shift: members once reticent about remote sittings, having since experienced them, now tend to acknowledge their advantages. Experience with the new digital tools has shown parliaments they can function even when members are away. While more problematic in the case of plenaries, parliaments see digital tools as enabling members to spend more time in their constituencies and benefit from a wider sampling of public testimony.

Behind the scenes, the working environment for staff has been radically transformed as well. Parliaments report that some 80% of staff working on-site when the pandemic struck were suddenly shifted to remote work. Parliaments already invested in cloud-based technologies were at an advantage; others had to act more quickly. The New Zealand Parliament had halted a move to cloud-based systems, for logistical reasons, but quickly resurrected the idea when Covid-19 arrived, with implications for working practices as well as new data centres now in planning. Parliaments have shown resilience and flexibility in other ways, too.

Picture 10.   The Infoleg app used by the Chamber of Deputies of Brazil was updated to allow members to vote directly through the app

© Chamber of Deputies, Brazil

The Parliament of Ireland was using Microsoft Office 365 at the time, though not its remote working or collaboration features, which it quickly adopted when the crisis began. It now recognizes remote work as a continuing reality and intends to equip members for secure, reliable remote access to core systems and data. The Parliament of New Zealand, like others, saw increased demand across all departments for staff to work from home on a regular, part-time or full-time basis – an arrangement allowed for some 25% of staff before the pandemic. It is now looking to expand its flexible work policies. In the UK, the Parliamentary Digital Service sees this shift as an opportunity to make recruitment more flexible as well – it no longer being necessary to recruit only persons permanently based in Westminster. An observation by the Parliament of South Africa is that more flexible work arrangements will require a more holistic and "softer" management approach, attuned to the well-being of staff working remotely.

National Assembly of Madagascar

The pandemic significantly accelerated the National Assembly's IT modernization programme. New virtual working and video-conferencing tools were developed for members and quickly deployed where needed. While some of its face-to-face meetings continued (held in a much larger temporary space for social distancing purposes), the use of virtual meeting tools was encouraged and supported wherever possible.

Parliamentary modernization has accelerated

The changes parliaments raced to adopt in reaction to the crisis will not necessarily be reversed after it ends. Focus group participants saw parliaments as shifting towards digital-first thinking, and members as actively embracing the benefits of new digital tools. Surprising workflow improvements and cost-savings have been made in several areas, such as document printing. The mindset about office space, an expensive overhead for all organizations, may also be changing.

National Assembly of Zambia

The National Assembly of Zambia estimates that 90% of its remote working measures will be retained. They allow for virtual meetings via Zoom, remote access to parliamentary systems and remote voting.

The adoption of digital tools has accelerated

The working culture of parliaments has become more receptive to digital technology, more flexible and more amenable to remote working.

Overall, the parliaments participating in this research were astonishingly quick to embrace the new digital tools. Many approached the pandemic as an opportunity for bold initiatives to modernize procedures, leveraging the new culture to embrace innovation, build on useful procedures and rethink others. Parliaments moved through three phases of digital innovation during the pandemic:

- **Enforced innovation,** where parliaments have responded quickly, experimented, deployed and revised quickly.
- **Iterative improvement** and second-stage innovation to develop working solutions.
- **Consolidation of the new approach,** adopting processes and tools to embed the new ways of working into the day-to-day fabric of parliamentary life.

One year on, having made years' worth of progress in months, many parliaments now look and feel different. The Latvian Parliament, instead of rushing to be first, looked at various options before building its virtual chamber; it employs an app featuring calendars, documentation and an online space for meeting and voting. Its approach was agile and iterative. A "minimum viable product" was rolled out first and then enhanced through iterative releases. The Saeima expects to return to physical plenaries, with members working together in the chamber, but the benefits of remote participation are now clearly understood, and the app is being retained for future use.

Strategic priorities have changed

As familiarity is gained with the new collaborative, cloud-based tools, remote working can be expected to continue where it proves beneficial. Once frowned upon or minimised, it is now seen as practical, even beneficial, and that has significant implications for how parliaments plan their ICT development over the medium to longer term future. What was envisaged only 12 months ago may be reconsidered now.

It will be imperative for parliaments to review their strategic plans for ICT in the light of new ways of working, to see how the new systems can better support them.

When it comes to parliamentary functions, digital and remote working has its pros and cons. The idea has not been well received as a substitute for face-to-face plenaries, where physical presence has been traditionally valued. For some parliaments, most notably in the UK but also Finland and elsewhere, there has been a sense that virtual plenaries have limitations for purposes of thorough debate and government accountability. Parliaments were more positive about the remote tools for plenaries, recognizing that the members for more distant regions can use them to participate while visiting their constituencies, and that members who are unwell or on leave can use them to vote. All-in-all, while not considered a replacement for physical plenaries, the new virtual tools are seen as a valuable addition. The advances made in digital documentation and electronic voting are viewed by many as potential enhancements to the plenary function.

Canadian House of Commons

The Canadian House of Commons has implemented an electronic voting app from a trusted mobile device, enabled through a special motion in the House. The app uses facial recognition to verify the voting member's identity. It is integrated with existing legislative systems for the purposes of casting and recording votes and importing the results of electronic voting. It is backed up by the Wickr secure messaging app to notify Members that voting is underway in the Chamber. Special broadcasting feeds relay the votes as captured to a "Virtual Proceedings Dashboard" in the whip offices providing live information on voting results, identifying which participants are connected remotely, indicating each Member's vote and whether voting remotely, registering facial recognition errors and other such information. The House also needs to develop a robust end-to-end audit trail to ensure the integrity and security of data in the system.

Parliaments are benefiting from innovation

There is much wider agreement that remote tools have been beneficial for committee work: members can participate while away and testimony can be gathered in greater depth from a wider range of people and organizations. Overall, the tools give committees more flexibility.

Returning to physical plenaries is seen as desirable if done without losing the new capabilities for remote work and for member participation while visiting constituencies, features increasingly valued.

The pandemic response has in some cases accelerated parliamentary openness. The Parliament of Morocco previously held committee meetings in camera, though publishing the outcomes. With the onset of the pandemic and social distancing the Parliament introduced video-conferencing tools, which led to live broadcasts of committee meetings. Recorded meetings and plenaries are now posted on the parliament's YouTube channel, which has over 16,000 subscribers.

Picture 11.   Managing the virtual plenary and live broadcasting

© Senate of Brazil

Issues relating to parliamentary regulations

The pandemic arrived with little warning and stayed longer than most expected. At the start, parliaments urgently looked for ways to keep operating without the physical presence of members and staff. Two-thirds of those surveyed acquired remote tools for committee meetings; only one-third did so for plenaries. Those statistics attest to the much greater complexity of running a virtual or hybrid plenary. The difference comes from the venerable character of their regulations, from a time when parliaments not meeting physically was hardly imagined.

Very few parliaments even considered video-conferencing before the pandemic. Some had used it in committees to receive public testimony. One, the Spanish Chamber of Deputies, had a remote voting application in place (since 2012), which it then opened to all members. Its use had previously been limited to members too ill to attend or on maternity leave.

Chilean Chamber of Deputies

The Chamber also moved to a hybrid system for remote sittings and voting (though legally obliged beforehand to enact special legislation and amend the constitution). It developed new systems for digital presentation and management of documents, permitting digital signatures and conferring "digital-first" honours on its membership. The Chamber had to invest significant resources during deployment to upskill members and provide additional support for use of the new systems. Deployment was agile and thus quite rapid. It started with a "minimum viable product" and added functionality as the need arose and the resources necessary became available. Plenary and committee modes of operation had to be analysed to avoid or minimise redundancies and inefficiencies. New roles also had to be created within the IT team to provide supervisors for the virtual sittings.

Regulations have slowed the introduction of virtual plenaries

For some parliaments, changing the regulations was straightforward. The Parliament of the UK changed its standing orders to allow remote participation and electronic voting by app. In other cases, legislative changes were needed, and in a few, constitutional amendments. The constitutional factor has been a major inhibitor of innovation for several parliaments. The Parliament of Chile was able to make a temporary change relatively quickly, allowing both houses to sit and function remotely. Those of Ireland and Australia, on the other hand, became locked into interpretations obliging members to meet in person, or at least at the same location. Both countries require referendums to change their constitutions, hardly feasible in the midst of a pandemic. In Ireland an app was developed for remote voting, but for use on the parliament's premises only.

The Norwegian and Estonian parliaments were both relatively slow in changing laws to permit remote work, but the latter has now developed a platform for remote sittings that is fully integrated with its existing information systems. Others, including the parliaments of Ghana, Finland and Germany, have not made the changes needed for remote plenaries.

Committees are less regulated and more flexible

Compared to plenaries, the path to remote committees was easier for most parliaments. Though sometimes hampered by legal or procedural issues, committees tend generally to be smaller, less formal and thus easier to organize remotely. The New Zealand Parliament moved quickly to digital technology and, while not adopting virtual plenaries, created and delegated certain plenary powers, early in the crisis, to an Epidemic Response Committee, assigned to hold the government accountable. Luckily, the pandemic lockdowns in New Zealand were relatively short and Parliament rose at mid-year for a general election.

Picture 12. The New Zealand Parliament taking evidence via Zoom in the virtual Epidemic Response Committee
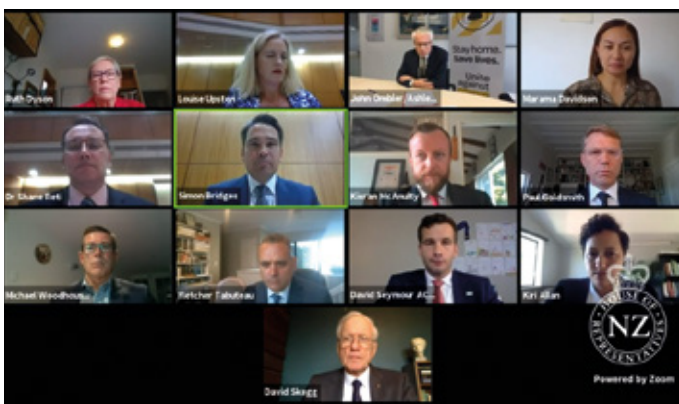
© New Zealand House of Representatives

There is a clear conflict, here, between the potential offered by technology to bring dynamic and radical change to parliaments and the necessarily conservative, time-honoured regulations that govern parliamentary sittings. Rightly or wrongly, regulations can be an impediment to innovation.

Parliaments have overcome issues of trust

The sudden switch to remote working and unfamiliar tools, coming as it did in the midst of such disruption, made it especially challenging for parliaments to function effectively, and to allay fears among members and staff over the new tools being introduced. There are reports of resistance and distrust: members were not familiar with remote work or video conferencing, did not understand them and were not always confident in their reliability or security.

Trust has come through effective delivery

The initial distrust was in most cases short-lived. As parliaments fine-tuned their solutions and intensified training and support, members adapted quickly to them. The importance of working closely with users, sharing their journey and rejecting a single, one-size-fits-all approach, was clearly conveyed by the focus groups. Staff had to be engaged at this challenging time for consensus to be achieved around the new tools and methods.

Picture 13. A Zoom Committee meeting in the Trinidad and Tobago Parliament

© Parliament of Trinidad and Tobago

Technical staff have worked closely with members

The South African Parliament describes how its ICT department worked closely with members in ways never needed before, to support them, understand their needs and develop solutions to gain their trust. The Parliament of New Zealand held daily stand-ups to iterate solutions. In the Dominican Republic, by contrast, elections held mid-way through 2020 replaced 70% of the parliament's membership, effectively resetting the process and forfeiting most of the trust and confidence gained before the election. Ensuing delays in adopting remote practices were thus inevitable.

Good planning processes made rapid change easier

The Brazilian Chamber of Deputies attributes the success of its own adaptation process to several factors:

- Key strategic decisions had been made prior to the pandemic:

  – An application had been developed for citizens to follow the Chamber's legislative work, so the necessary parliamentary information was already prepared.

  – Agile methodologies for systems development had been introduced two years before the pandemic and were already familiar to members.

  – Development of an end-to-end digital legislative process had already begun. Though not finished, that work helped show what could be reused and what needed to be rebuilt.

- A large, parliament-wide task force was set up to manage the process.

These strategic and operational factors, however, were not enough on their own. The Chamber realized early on that building member trust in the new approach would be critical to its success. This was done by reassuring MPs on the following points:

- The video conference platform was entirely separate from the Infoleg app and their internal systems.

- Infoleg had been developed entirely within the Chamber and used by citizens for over four years.

- MPs would have to register their smartphones with the app and log in to gain the new functionality.

- Two-factor authentication would be required from the start, with a third (biometric) to be added as an option after three months.

- The app was being enhanced to make virtual sessions as close to the traditional ones as possible, offering different ways of communication, as desired by MPs, in addition to e-voting.

- All sessions were open, so MPs wishing to contest the votes recorded in their names could do so immediately. It is interesting parenthetically that after nine months' use of this digital solution, when internal elections had to be held by secret ballot, trust in the app was sufficient for MPs to accept it, in amended form, for that sensitive process.

- Substantial member training and support would be provided by Chamber staff, including in particular:

  – a tutorial for each new function to be implemented through the app, introducing the new functions iteratively for easier comprehension; and

  – a new service desk exclusively for MPs.

- For the sake of consistency, the hybrid mode, using the same Infoleg app, would also be used for committee meetings.

Parliaments have become more agile

The management approach to developing, procuring and deploying ICTs in parliament, whether formally or informally, has traditionally been top-down. The pandemic changed that for many parliaments, there being no time to follow traditional practices. For parliaments to continue functioning, change had to happen quickly. Several parliaments therefore adopted "agile" practices, allowing faster response and deployment. It took the South African Parliament only five days to deploy its hybrid plenary system, never having considered it before.

Iterative solutions are faster

Parliaments can ultimately make faster progress by proceeding iteratively – not all at once – on the way to formal procurement or development. There being no perfect solution, trying to find one may stall progress. In Chile, rather than attempt perfection, the Chamber of Deputies delivered a "minimum viable product", adding functionality or fixing bugs through iterative releases later as solutions emerged in a live environment. The Chamber describes a cyclical, four-step process:

- Stabilize

- Conceptualize

- Listen to users

- Build iteratively

Parliaments discovered more flexible ways of working

Software as a Service (SaaS) cloud platforms, available on a rolling subscription basis, offer the advantage of not being wedded to particular tools or having to commit to long-term budgets. Products coming along later can then be evaluated quickly and switched to if found better. In Paraguay, the Chamber of Deputies initially experimented with Cisco's WebEx platform but met member resistance. Switching to Zoom, having seen it used in the Senate, the Chamber found it "a turning point, a great leap" in gaining confidence and trust. The Chamber's comments on the experience included the following:

> This was an imperfect world, with significant knowledge gaps: finding the right tool meant experimenting, learning quickly from users' experiences and feedback, talking to other parliaments and being prepared to switch tools.

Impact on traditional working practices of agile

In the UK, Parliament has moved from off-the-shelf systems to more customized, in-house applications to support documentation, debate and voting in both houses. The ready-made systems available were not designed for hybrid meetings. As a side effect of the move there has been increased demand for testing capacity within the ICT department.

Parliament of South Africa

The Parliament of South Africa has made many rapid changes to continue functioning during the pandemic. Staff had to respond quickly to the changing circumstances, which made agility crucial in all business areas. In establishing remote processes for members and staff, it maintained uninterrupted member access to systems, virtual platforms, broadcast infrastructure and the new hybrid technologies, which helped to accelerate the adoption of digital technologies. It thus adopted a tested approach, based on the pandemic's unpredictability and long-term impact, to working in volatile, uncertain and complex times.

Another side effect of this more dynamic, agile and customized approach is that IT departments can now work far more closely with end-users, both staff and members. The New Zealand Parliament describes "more user-centric and less corporatized" solutions and a better, deeper relationship with members, an improvement also indicated by the South African Parliament. Training and support have led to increased interaction between members and staff, the nature of which has changed, in qualitative ways, with the shift to remote working. That in turn has demanded greater flexibility and responsiveness from ICT departments.

New ways of working can conflict with traditional project management processes

One downside of this rapid methodological shift was highlighted by the New Zealand Parliament. While agile ways of working are delivering benefits for day-to-day work, reporting functions have not essentially changed within parliaments or their ICT departments. They remain top-down, with a cascade-like structure. This can produce conflict between efforts to improve agility and established processes, which include the ICT budgeting process, still based on project planning and waterfall methodologies. It can also make reporting a challenge for staff. Of course, the experience is not unique to New Zealand. There and elsewhere, management, reporting and budgeting processes will need a reset, or realignment, if the benefits of improving agility are to be realized.

This pursuit of greater agility seems a natural reaction to the crisis, and several parliaments have welcomed it. They have found flexibility and responsiveness the best ways to manage a volatile, complex environment with fast-changing needs. To be clear, however, the achievement of such agility need not portend a wholesale shift in the way parliaments work. As the pandemic recedes parliaments will likely revert to more familiar ICT processes – planned and strategically managed. They will do so, however, with experience and insight into more agile working practices, which if maintained, can lead to continuing innovation going forward.

Significant implications for planning, infrastructure and support

Thus far, the use of ICTs to help keep parliaments working has appeared, at least outwardly, to focus on end-user solutions, such as video conferencing, document sharing and voting. What such solutions have in common, however, is that they all require back-end server support, network capacity and bandwidth to be robust and reliable. Moreover, like everyone else, the IT support staff needed to keep systems running must work largely off-premises. Which means they also require remote access to provide end-user support and training and attend to various parts of the IT network. And that in turn has significant implications for a parliament's digital infrastructure.

National Assembly of Ecuador

With its members confined to their homes, often with only basic equipment, the Assembly's main challenge was the continuity of its legislative and oversight work. To address it, the Assembly approved a general framework to regulate virtual sessions and teleworking. The IT management coordinated and prioritized the roll-out of tools for virtual meetings, remote access to management systems and cloud-based document management (with electronic signature). This allowed members, using virtual desktops, to access virtual plenaries and committee meetings.

A dedicated technical and administrative support team was established to train and support members and secretaries in interactive participation. The tools are now used widely – and may continue to be, after the pandemic, for virtual sessions on demand. The Assembly has shown how major changes can be made in the digital management of parliamentary processes without having optimal digital literacy or infrastructure already in place.

Increase in network demand

Network demand has increased in proportion to the critical nature of these tools, forcing parliaments to consider acquiring extra capacity and increasing redundancy across their networks.

Bandwidth requirements have increased dramatically with the addition of remote collaboration tools, cloud storage and a lot more video conferencing. The need for reliable and fast network connections now extends beyond parliamentary premises, where ICT staff can manage it, to the homes of staff and members working remotely.

> It is critical that all members of parliament have equitable and reliable access to parliamentary sessions, regardless of their location, and that remote members are not disadvantaged.

Managing more diverse IT equipment

Wherever they work, members and staff need modern equipment. Some parliaments provide equipment for use remotely outside of parliament, but ICT departments increasingly have to manage user-owned hardware – the "bring-your-own-device" (BYOB) model. It can make sense from user and budgetary perspectives but creates challenges for ICT departments: machines to be configured, support to be provided for multiple hardware platforms and configurations and security to be managed for the parliamentary network and the systems connected to it.

A negative consequence of the pandemic from an ICT standpoint has been the global demand for equipment coupled with disrupted shipping and distribution channels, sometimes causing delays in acquiring hardware.

Greater use of the cloud has security and management implications

More broadly, cloud-based storage, internet-delivered applications and virtual desktops all increase the need for better network security. Parliaments must protect both their

own networks and their users' machines. At a systems level, parliaments need to be on top of where the data for their applications is stored, how it is transmitted, how secure it is and what legal implications there might be under host jurisdictions.

Demonstrating the value of inter-parliamentary cooperation

The pandemic created a unique set of circumstances and each parliament had to find its way through new and uncharted waters. But it also galvanized a strong sense of connection and a willingness to collaborate and share ideas, information and even applications. The IPU Centre for Innovation in Parliament operates network-based regional and thematic hubs as mechanisms for such collaboration. The hubs have expanded their informal communications as well as formal meetings and webinars over the past year. The Open Data Hub (hosted by the Brazilian Chamber of Deputies) has become a focal point for the sharing of technical questions and solutions among parliaments, with a WhatsApp group supporting well over 40 parliaments. The Southern African and Hispanophone regional hubs have similar instant messaging groups. Apart from the CIP, the European Centre for Parliamentary Research and Development (ECPRD) has established a Slack channel enabling European parliaments to share ideas and ask questions.

Implications for future planning

This special section of the report captures a unique picture of parliaments. It shows them responding, over the course of a year, to a rapidly evolving crisis and adapting to uncertainties and unknowns about the future. They did so through enforced innovation and rapid learning. Many parliaments around the world, responding to the same disruptive shock, harnessed digital technology enabling members and staff to work remotely. Plenaries and committees can now meet virtually and share digital-first documentation.

Picture 14. Members of Norway's Parliament continued to meet face-to-face with screens and social distancing measures in place

© Stortinget

What the future parliament looks like

The legacy of the pandemic for parliaments is hard to quantify. This research suggests that members and staff will both see benefits in the new ways of working and numerous innovations that sprang from the crisis, and which may very well last and re-shape how parliaments operate.

More virtual working means many things: more security issues, more network demand for bandwidth and greater reliance on remote, cloud-based applications, among others. One of the main benefits, however, is greater flexibility for members to visit constituencies and for staff to work from home. Other advantages are digital delivery of documents, digital tracking of amendments, and remote voting and participation. Parliaments are no longer confined to the same single place.

The impact of accelerating digitization on costs has been unexpected: a reduction in both printing and travel expenses. Overall, the opportunities that lie ahead can only be glimpsed, as attempted in this report. Not all the innovations described here will last beyond the pandemic – but many will: process improvements and flexible working options in particular. Virtual meetings may be seen by some as poor relations to the real thing, but given their advantages – the ability to continue functioning more flexibly and inclusively, with committee meetings attended publicly – the virtual parliament may be here to stay.

Parliaments' ICT departments look to become more centrally involved than ever in parliamentary operations. They as well will be seeking agile and flexible ways to perform that role. This strategic re-thinking of the ICT function, for committees in particular, is aimed ultimately at making parliaments more responsive and resilient.

Recommendations

Looking forward, parliaments are encouraged to review their strategic and business continuity planning in the light of their experiences, and those of others, looking for priorities to be changed or superseded. As supported by this research, parliaments should consider a number of ways to build on the innovations made, and realize their advantages:

Permanently amend regulations or governing legislation (if not done already) so that, in the event of another pandemic, parliaments can function seamlessly, unconfined to a single physical location.

Proactively maintain and adapt recent efficiency gains: the strategic plans in place for modernization and ICT at the start of 2020 may now have been superseded or become redundant. As the pandemic recedes, it will be important to register the lessons learned while revisiting the relative value of travel vs. remote interaction.

Approach ICT more holistically through an institution-wide digital strategy: the pandemic has revealed the critical importance of digital tools and infrastructure to the effective functioning of modern parliaments. Parliaments should consider a more holistic, institution-wide approach to digital technology, fully integrating their planning into the wider fabric and culture of parliament. In that process they should treat

ICT not as a subset of a parliament's business needs but as part of a strategy for a "digital-first" institution. A big part of that process will be to consider areas for ICT investments consistent with the mission-critical importance of digital tools going forward.

Review and update business continuity plans to factor in the risk of pandemics or similar situations in future. The review should examine the lessons learned and regulations amended this past year and find ways to respond more quickly and with less disruption to such events in future. It would also be beneficial for parliaments to consider mainstreaming knowledge management processes to better capture and leverage accumulated institutional lessons and share them with other parliaments.

Determine how parliament can continue or expand flexible participation, particularly in committees, for both members and the public: many lessons have been learned from the pandemic, and as parliaments move to a new normal, they should take stock of them and consider the advantages of remote working.

Develop flexible work arrangements for staff and remote participation for members: this could include a review of ICT infrastructure and bandwidth adequacy and policies for user-owned devices.

Embrace inter-parliamentary collaboration to accelerate innovation: collaboration to solve complex problems can save time and money and drive faster innovation. Such collaboration and mutual support among parliaments increased during the pandemic, contributing to faster solutions with less risk.

Key findings on the use of technology in parliaments in 2020

This section presents a summary of the 2020 survey of parliaments. It is intended as a "quick read" to highlight key findings and trends. Detailed analysis and in-depth discussion of the findings summarized here can be found in the body of the report, which readers are encouraged to consult for more information on specific topics, questions or technologies.

The survey was completed by 116 parliamentary chambers. Of these, 43% were unicameral and 57% bicameral (with lower houses accounting for 32% of the total and upper houses, 25%). The sample is broadly reflective of the typical parliament but with a slight under-representation of smaller parliaments (fewer than 50 members) and over-representation of medium and larger parliaments (200 or more members). Over a third (39%) of the responding parliaments were European, 22% African and 12% Latin American.

ICT oversight and management

The strategic barriers to more effective use of ICTs within parliaments reported in 2020, and also highlighted in the 2016 and 2018 reports, include inadequate funding and staff capacity. Funding remained as likely to be an issue for all parliaments, regardless of size or budget, with persistent strategic and systemic difficulties challenging the delivery and deployment of ICTs. In 2018, most parliaments indicated a desire to improve in many areas, from dissemination and document management to open data publishing and communication with youth. Two years later, only a few have reported such progress. More encouragingly, parliaments report better-than-expected progress in disseminating information internally and interacting with citizens.

The average number of full-time equivalent (FTE) ICT staff, whether employed directly in parliament, seconded from government or hired as external contractors, was 62, with a typical ratio of 31 ICT staff per 95 members (approximately, 1:3). Sixty-eight per cent of the responding parliaments had fewer than 50 ICT staff. In terms of recruiting and retaining key staff, parliaments face long standing challenges. For smaller parliaments, the market for appropriately trained staff can be limited, and for larger ones, the demand can outstrip supply. Despite an expressed preference for internal staff, 65% of the parliaments reported using external contractors, with 18% using staff supplied by (or seconded from) central government.

Figure 9.   Ratio of ICT staff to members (n=113)
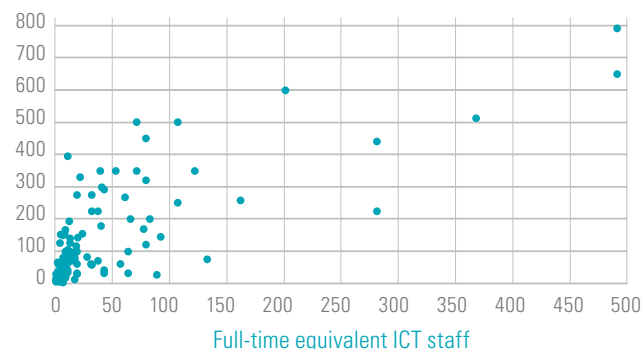
Full-time equivalent ICT staff

Eighty-two per cent of the parliaments determined their own ICT budget, but only 65% fully funded it themselves: 25% received at least some ICT funding from the government, and 21% from donor agencies. There has been a continuing rise in the percentage of overall budget spent on ICT. Fewer parliaments have reported spending 4% or less, with greater numbers spending 9% or more. In 2020, only 16% reported spending less than 1% on ICT, a decline from 23% in 2012. Budgetary control is a core part of strategic planning in parliament, permitting greater autonomy and certainty and thus better long-term planning.

Figure 10. Percentage of parliament's budget allocated to ICT (n=106)
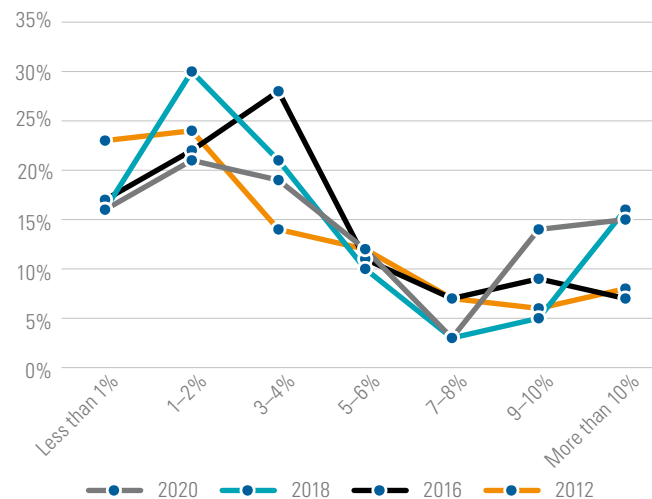
Even where the percentages are small, the budget for ICT is significant. This year's report, like previous editions, shows a clear relationship between good planning and effective use of resources. Despite the improvements seen in strategic planning relative to earlier years, progress remains slow, with a third of the respondents still lacking any vision statement and 30% having no strategic plan for ICT. Most worryingly, 5% are not even considering such tools. The Covid-19 pandemic has brought this problem more sharply into focus. It has demonstrated in particular the importance of good planning principles, up-to-date strategies and strong lines of communication among senior parliamentary staff, MPs and

ICT staff, each contributing as powerful enablers of fast and effective response to crisis.

One-off events like a pandemic can disrupt formal planning, but parliaments with strong ICT planning appear to have fared better. Good planning often means greater awareness and responsiveness to a changing environment, and thus better resilience. The dramatic innovation enforced over the last 12 months presents an opportunity for parliaments to "reset" their approach to ICT and adopt a more holistic digital strategy. That means deploying technology as a transformational component of the modern, digital-first, parliament; embracing cultural and operational change with a view to greater openness and more flexible, remote working arrangements; and shifting from the traditional strategic focus to how ICT can support business needs.

Accordingly, this will be the first report in this series to include in-depth discussion on innovative practices in parliament. The 2018 report highlighted innovation not as a radical tool but an iterative process, driven by internal or external pressures – a process requiring cultural change to gain acceptance for new ideas and make innovation a more important part of parliamentary culture. This year's survey shows an impressive 59% of the parliaments surveyed having adopted informal methods, and 20% formal processes, to encourage and support innovation. Over a quarter of the parliaments (26%) have adopted a formal innovation strategy, and more than a third (35%) have dedicated at least one staff member to a formal role in innovation.

Figure 11. Innovative practices within parliaments (n=100)
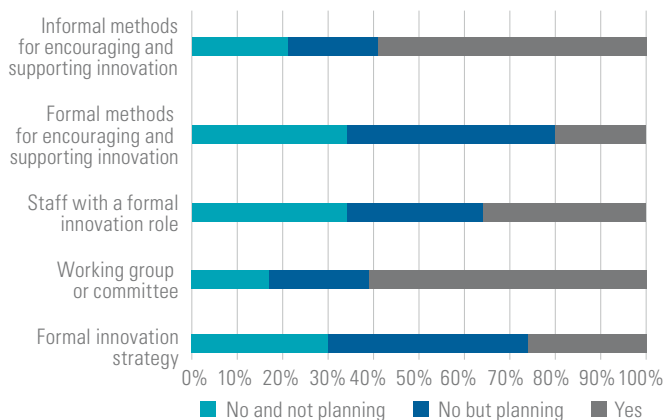
The most important improvements seen over the last two years, and also found by previous surveys, came in the areas of publication (external) and dissemination (internal) of documents and information. Almost half of the parliaments noted the significance of virtual or hybrid solutions introduced during the pandemic and nearly two-thirds (64%) saw those solutions continuing to be important over the next two years. The trend is skewed, however, towards parliaments in higher-income countries. Parliaments in countries of high and upper-middle income (50% and 53%, respectively) were much more likely to see the significance of the new solutions than those in lower-middle and low-income countries (29% and 17%).

Parliaments in lower-income countries cited core system issues, such as document management, as their most important area of improvement between 2018 and 2020.

Parliaments in countries across all income levels saw significant increases in the amounts of information provided on their websites and in their capacity to disseminate documents internally. This suggests that many of the resource-challenged parliaments are catching up in these areas. The importance of improvements in the publication of plenary proceedings was perceived by a smaller percentage of parliaments in the high-income countries, possibly because with systems already in place the improvements were incremental.

The areas in which improvements were anticipated over the next two years were social media, audio and/or video capture of proceedings and systems for posting information and documents on websites. Use of the emerging technologies Infrastructure as a Service (IaaS) and Software as a Service (SaaS) was perceived as likely to grow significantly over the next two years. Artificial intelligence (AI) has been adopted by relatively few parliaments (10%) but is the feature most often identified (by 45% of the parliaments) as likely to see development or deployment over the next two years. The increasing use of remote infrastructure, cloud-based systems and storage and the rise of AI all raise important questions parliaments will need to address with respect to security, governance and data privacy.

Infrastructure, services, applications and training

The three previous editions of this report, in 2012, 2016 and 2018, all highlighted human and financial resource challenges. In addition to the continuing upward trend in resources allocated to ICT, as a share of parliamentary budgets, this year's report examines the increasing cost and complexity of ICT infrastructure. While budgetary and staff constraints persist, the complexity of ICT has been exacerbated for many parliaments by the pandemic, with the sudden and unexpected need for MPs and staff to work remotely.

The speed and capacity of internet access, ubiquitous now in parliaments, are reported by many to exceed current needs. Even so, the demand for internet-connected systems and remote working will undoubtedly create pressure to expand network capacity going forward. Parliaments are wired and also wireless, providing internet connectivity at work for members and staff (in 95% and 90% of the parliaments, respectively), as well as access for public visitors (in 83%). The percentage of parliaments offering remote access for staff and members has increased substantially since 2018, from 41% to 55% for members and from 52% to 69% for staff. Inside the chamber, 87% of the parliaments provide members with tablets, 77% with smartphones and 21% with installed desktop devices. Although 88% now allow internet access for members while in the chamber, only 31% permit members to live-stream proceedings.

Services for network management are provided by all parliaments, and for data management by 97%. Only 67% offer services for project planning and management. The level of services provided was roughly the same in 2018 and 2020, with parliaments in higher-income countries providing a marginally wider range of ICT services. A parliament's size is

naturally a key a factor here, with larger parliaments providing a more extensive range than smaller ones.

For document storage, 2020 saw the continuation of a shift since 2016 from local storage, to shared in-house storage and increasingly to cloud-based solutions. Internally shared storage is now used in 80% of the parliaments and cloud storage in 39% (an 86% increase since 2018). Most parliaments use multiple methods to share documents, with only 3% relying solely on internally shared storage and 4% solely on cloud storage for document sharing. The use of more formal, enterprise-based electronic document and records management systems (EDRMS) has continued to rise, from 47% in 2016 to 51% in 2018 and to 58% now. The upward trend notwithstanding, there are barriers to cloud storage, in terms of the adequacy of infrastructure and support, and such other issues as security, data sovereignty and the physical jurisdiction of data servers.

Table 3. Access to shared documents (n=113)

	2020	2018	2016
A shared drive provided in the internal network	80%	77%	75%
A shared drive provided through cloud storage	39%	21%	12%
A web-based intranet	69%	60%	52%
Electronic document and records management system (EDRMS)	58%	51%	47%
(Most) files are stored on local workstations, and shared via email and/or thumb drives (USB)	-	14%	16%
Using parliament's website	73%	-	-
Using parliament's mobile application	28%	-	-

Commercial software and services continue to dominate the ICT infrastructure of parliaments, with use by 94% for servers and by 94% for desktop and laptop PCs. Open-source software is used in some form by 78% of the respondents and remains the most prevalent form of server operating system in use (for 55%). Parliaments in low-income countries were the least likely to use open-source software, with only 50% doing so. Parliaments using such software were more likely to provide technical support for it internally, though 19% had no formal support agreement in place.

Official records are now largely produced digitally, with 65% of the parliaments transcribing them into digital format. The use of direct-to-digital speech recognition software has risen from 8% in 2010 to 25% 10 years later. There has been little change, on the other hand, in the use of ICT to support legislative drafting, the drafting and tracking of amendments or the plenary functions of parliament generally. According to the first World e-Parliament Report, published in 2008, 70% of the respondents had an application at that time to produce plenary minutes. The figure for 2020 stands at 69% (setting aside gains in functionality).

Figure 12. How parliaments support their open-source software (n=88)
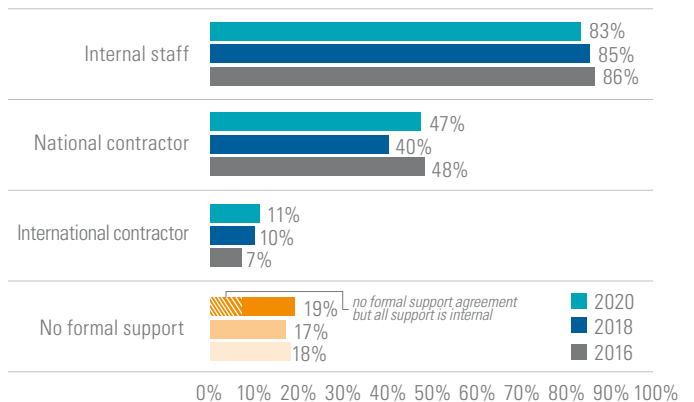
The use of remote plenary voting systems rose from 1% in 2018 to 6% in 2020, but most committees continue to vote manually. There has been a discernible increase in the use of video streaming tools in plenary rooms, rising from 54% in 2018 to 65% in 2020, and a dramatic 72% rise in the use of video conferencing, which has also improved the depth and breadth of testimony before committees.

Figure 13. Use of audio-visual equipment in plenary and committee rooms (n=106)
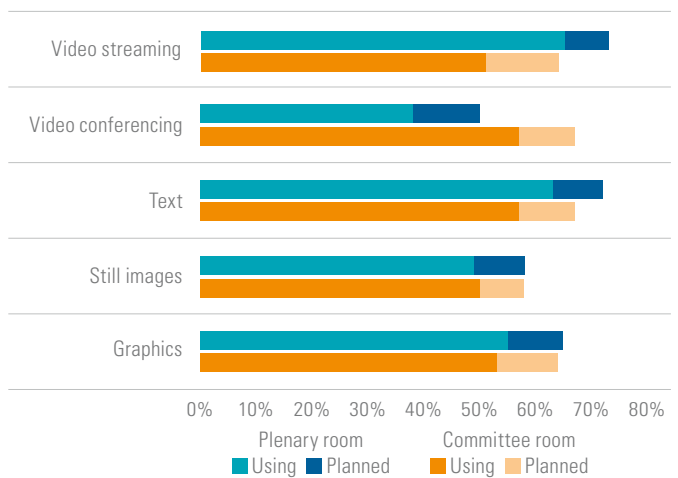
Continuing to expand their communications with the public, 63% of the parliaments now have systems in place for that purpose. Training for public engagement remains a low priority, however, rated as important by only 3% of the parliaments. Internally, 72% of the respondents had provided some form of ICT training and/or induction for members and 86% had done so for staff.

Systems and standards for creating legislative documents and information

The 2016 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 also a "blossoming" in the open publishing of such documents. The progress since then appears limited, however, owing to continuing constraints on funding and skilled resources. Complex legislative management systems continue to be adopted but are also widening the gap between the better-off parliaments and those less so. Such economic disparities largely explain the limited adoption of such systems. While one in ten parliaments used off-the-shelf commercial software solutions for legislative management, 88% reported the adoption of heavily customized or custom-built solutions. The systems used by 75% of the parliaments were reported to handle all plenary amendments, while 74% reported their systems handling committee amendments. Fewer parliaments (47%) had systems showing how amendments changed bills, with 46% reporting systems able to exchange data with outside systems.

Table 4. Features of document management systems for bills (n=57)

	2020	2018	2016
Has workflow capability	75%	70%	75%
Exchanges data with systems outside the parliament	46%	51%	49%
Handles all possible versions of a bill	72%	82%	79%
Handles committee amendments	74%	72%	83%
Handles plenary amendments	75%	79%	83%
Shows how amendments change a bill	47%	60%	40%
Includes all actions taken by parliament on a bill	72%	77%	83%

These figures are largely consistent with the two previous reports and indicate a fairly settled state of maturity. However, they do not capture the details of changes in functionality or additional advanced features as systems are upgraded. Several parliaments, though fewer than in previous editions, report continuing user resistance and limited management buy-in as barriers to the adoption of new legislative management systems.

The growth of open publishing, first reported in 2016, continues, but again with major disparities according to country income level, in all areas except the use of PDFs. Sixty-five per cent of the parliaments in high-income countries published text in searchable format, compared to only 17% of those in low-income countries. An application programming interface (API) was provided by only 7% of the parliaments in countries of lower-middle and low income, compared to 25% of those in high-income countries. Internally, 73% maintained some form of digital archive of parliamentary documentation, and 45% had a formal policy for managing such archives. Only 39% of the parliaments

had both a policy and practices in place for that purpose, slightly more than in previous reports.

Figure 14. How documentation is made available to people outside parliament (n=107)
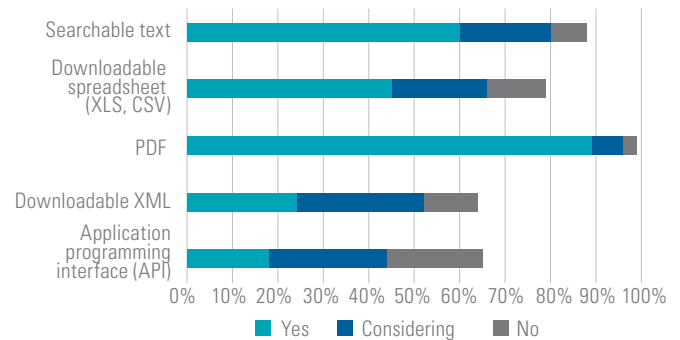
There was notable early interest in AI among parliaments attending the 2018 World e-Parliament Conference in Geneva. As of today, one in ten parliaments are using AI-based technologies, but fully half indicate no plans to do so. Six per cent have used some level of AI functionality to draft bills, and about a third are considering that option. AI appears to be an emerging area that will no doubt be followed in future reports, but apart from the data on adoption, the use of AI in parliament raises important questions about governance (who can verify that algorithms are legitimate and not biased?) and security (how are the algorithms to be protected, particularly if the systems are used to draft legislation or support parliamentary procedure?).

This report shows continuing movement, though without radical change, towards the use of digital tools to manage parliamentary workflow and processes. There has been a steady increase in the provision of open data but with continuing barriers to its use. Similarly, the use of digital parliamentary archives has outpaced the adoption of policies for managing them. Such disparities too often reflect a disconnect between planning and practice. The emergence of AI-based systems, on the other hand, shows parliaments more in step with wider trends and open to cautious exploration of emerging technologies.

Library and research services

This year's report shows a steady and consistent uptake of digital tools by parliamentary libraries and research departments, as well as unexplained decreases for some of the numbers reported, probably owing to variations in the sample. The data does, however, show the critical importance of ICT and how digital tools now underpin parliamentary libraries around the world. Almost three-quarters of those surveyed have online user catalogues, 49% have some form of electronic resource management capability and 60% of parliamentary libraries have a digital repository or archive.

Digital tools are vital for communications, both internally and externally. In 2020, libraries in 55% of parliaments provided members and/or staff with access to internet-based resources, and 69% offered access to their own resources through a parliamentary network. A library-specific website (or subsite)

was available to members in 44% of the parliaments, and libraries could receive electronic requests from members for information, resources and research material in 58% (with an additional 29% considering such a feature). Over half of parliaments (57%) did not offer members the use of electronic alerting services; while 38% did provide such services and 31% did not at present but were considering the possibility.

Figure 15. Digital tools used by the library to support users (n=83)
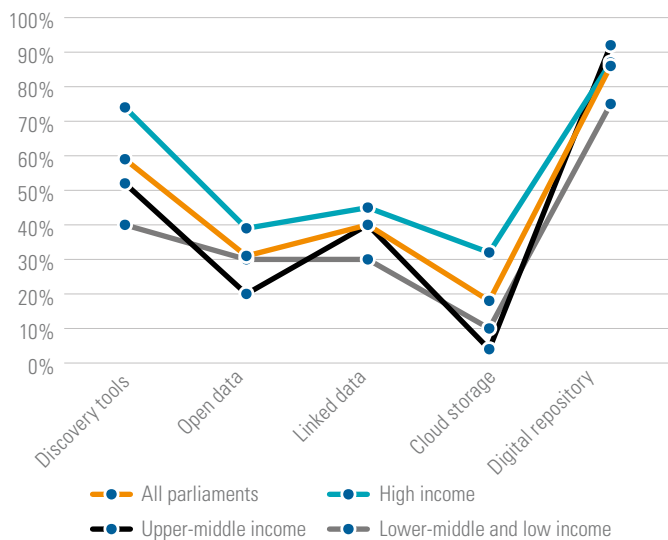
Open data was made available by libraries in 31% of the parliaments, and 40% offered linked data supporting deeper analysis. Library use of cloud storage (19%) has increased in line with that observed among parliaments generally.

Usage of ICT is supported by parliaments' ICT departments in 92% of libraries (the only source of such support for 36%). A quarter of the libraries (25%) provided some level of internal ICT support within the library and research service areas; 28% used external contactors to support and maintain their systems.

Parliamentary openness and transparency have been important priorities, and relative to earlier reports, have increased significantly over the last 10 years. In 2020, internal research was published in 67% of the parliaments, reflecting a shift from internal support to public-facing roles for parliamentary libraries. Email is now ubiquitous for external communication, with 96% of libraries using it in 2020 and 38% producing email newsletters available by subscription to external individuals and organizations. Recent reports have seen little change in library use of social media (24% in 2020, 26% in 2016 and 27% in 2018), while instant messaging (such as WhatsApp, Viber or Telegram) has become their second most widely used communication medium, with 8% using such applications in 2016, rising to 13% in 2018 and to 26% in 2020.

Parliaments online

Websites continue to occupy a critical place in the architecture of parliamentary information, education, outreach and engagement; they are both outlets for meaningful and timely parliamentary information and touchpoints for public engagement. All parliaments now have a web presence, underlining the importance of this medium. Parliamentary websites have been around for some time, evolving with the changing needs of parliaments and stakeholders and with improvements in the underlying technologies. In 2020, as a reflection of their importance, 62% of the parliaments assigned some degree of responsibility for these websites to their secretaries general. Parliamentary websites have become increasingly institutionalized, with a chief information officer (or equivalent official) usually setting website strategy, often in tandem with the director of communications. Day-to-day website operations fall to several different departments, starting with ICT, communications and public or press relations.

Figure 16. Responsibility for website (n=111)
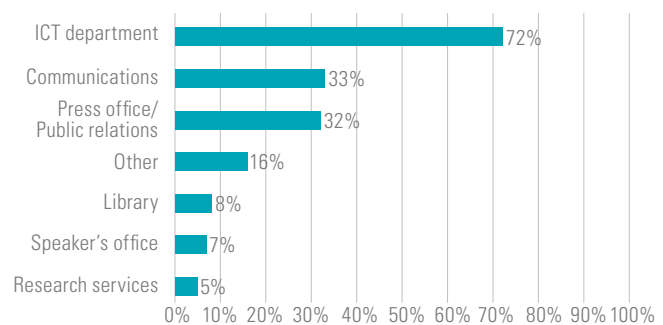
There has been a noticeable upward trend in parliaments with website management policies in place. In 2020, web content was reported to be mobile-specific in 63% of the parliaments, and fully optimized for mobile devices in 73%.

Content production tends to be delegated to departments owning the content, rather than centralized. The substance of such content has been consistent across parliaments: for 98% its purpose in 2020 was to inform and educate the public about the history, role, functions and composition of parliament. In 79%, the websites featured explanations of the legislative process and how parliaments work. In 50% they explained the institution's budget and financing processes and in 95% published a schedule of parliamentary business. Three-quarters (76%) provided an audio or video record of plenary proceedings and 44% did so for committee meetings.

Most parliamentary information, documents and data tend to be published in the traditional sense, i.e. to be read, rather than as open data for reuse. The publication of plenary decisions, speeches, debates, voting records and member activity increased significantly in 2020 over that reported for previous years. Twenty-two per cent of the respondents published data on plenary decisions and voting either as open data or downloadable spreadsheets. The publication of committee data, on the other hand, declined in 2020.

Ninety-one per cent of the parliaments provided plenary agendas online in advance of sittings and 26% did so at least a week in advance. Draft legislation and plenary proceedings were published online within one day by 58% and 67% of the parliaments, respectively, the latter figure remaining roughly constant since 2016, when it was 68%. Only 6% did not publish. In the case of committee meetings, however, only 47% of the parliaments published proceedings within a day of the action, with 18% not publishing them at all (although this latter figure has been declining). To make published

information more accessible, 98% of the parliaments offered a search facility and 31% an online alerting service.

Figure 17. When documents are usually available on the website (n=109)
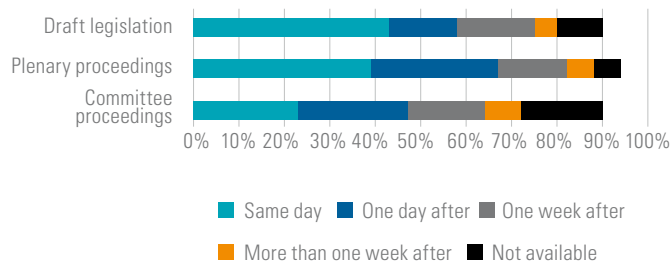
- Same day
- One day after
- One week after
- More than one week after
- Not available

To improve accessibility for all users, user-needs analyses were performed by 83% of the parliaments in 2020, a slight increase. Fifty-seven per cent conducted user testing and applied usability methods. This includes parliaments using domestic public sector standards, W3C (or similar) guidelines or the IPU's website guidelines (referenced by half of parliaments).

The 2020 survey showed a significant rise in the number of parliaments reporting civic participation projects as important areas of improvement, to 21%, up from only 6% in 2018. Open data improvements continued to be important for 20% of the parliaments, but the significance assigned to social media enhancements has declined steadily since 2016, having perhaps been embedded previously. Looking ahead, the improvements planned for parliamentary websites over the next two years fall largely in the same three areas as in previous years: design and usability, content, and technical platforms.

Communication between citizens and parliament

The growth previously seen in the use of web-based tools for communicating with citizens has continued, with 81% of the parliaments reporting such increases in 2020. Seventy-six per cent of the parliaments reported all or most members using email, 43% reported having a website and 56% having used social media to communicate with citizens. Member use of instant messaging for this purpose has continued to rise, from 14% in 2016 to 39% in 2020. Use of instant messaging by parliaments themselves has also increased, with 34% of the responding institutions reporting such use. Seventy-six per cent of the parliaments used social media despite continuing barriers to effective use of that channel, consisting most notably of skill and training deficits and information overload. Thirty-five per cent of the respondents reported challenges with trust and security.

Figure 18. Trends in use of digital tools for citizens communicating with parliament (n=107)
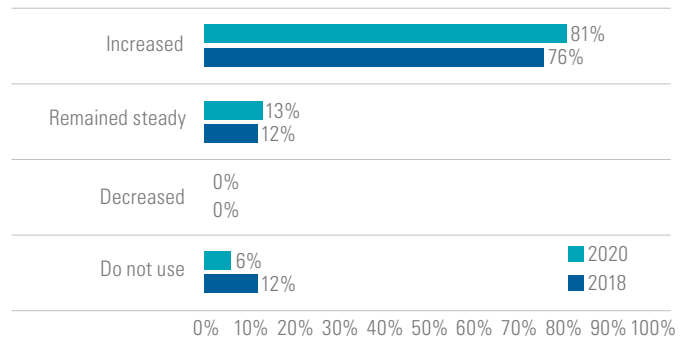
This report shows a steady rise in the use of digital communication by committees: 82% of the parliaments reported such use in 2020, up from 75% in 2018 and 67% in 2016. Committee use of social media was reported by 45%. While the use of social media and smartphone apps has increased (to 30% in the latter case), more interactive and deliberative tools have been slow to catch on; 23% of the parliaments reported use of e-petition systems.

The top two objectives indicated for the use of such tools was to inform citizens about policy issues and proposed legislation and to engage more people directly in the political process, as reported by 70% and 69% of the parliaments, respectively. Lower-ranking objectives included better public understanding of what parliaments do and how they work (important for 64%). Use of digital tools to communicate with young people was indicated by 50%.

Figure 19. Change in use of digital tools among members 2018–2020 (n=109)
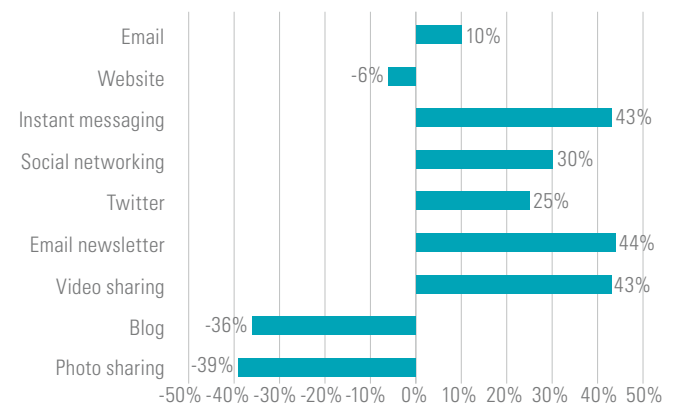
A unifying thread throughout the series has been the work done by parliaments and their project management offices to make data understandable and useful for citizens. In 2018, 53% of the respondents worked directly or informally to support the work of those offices, compared to 63% in 2020, largely reflecting a rise in informal relationships. Overall, important lessons learned from parliamentary use of digital tools to engage with citizens include the need for proper planning and resourcing and the importance of audience-appropriate language and proactive management of online conversations, to avoid undue domination or subversion.

Inter-parliamentary cooperation

Previous reports in this series indicated a rise in inter-parliamentary support for emerging technologies, such as open data, social media and the web. The data for 2020, on the other hand, suggest a swing back to support for more traditional parliamentary and ICT functions: legislative procedure, oversight and staff training. Combined with other findings in this report, this change suggests greater acceptance and use of these new technologies as parliamentary "business as usual". But a note of caution is warranted. While dramatically accelerating inter-parliamentary collaboration in some areas, the onset of Covid-19 in 2020 has disrupted it in others, radically altering strategic priorities.

Overall, collaboration has remained strong, with parliaments working through global, regional and thematic alliances to share ideas and good practice: 79% have indicated membership of at least one such network. Respondents considered the IPU's new Centre for Innovation in Parliament (CIP) a positive catalyst for inter-parliamentary collaboration during the pandemic (as discussed in more detail in the special section on the lessons learned from Covid-19).

Challenges reported in previous reports remain, with demand for support in use of the new digital applications continuing to outstrip the supply of help available. That makes projects like the CIP, as well as support from partner organizations – the IPU, InterPARES, the National Democratic Institute (NDI), UNDP and others mentioned in this report – especially crucial to continue building capacity and strengthening networks.

Figure 20. Gap between demand for and supply of inter-parliamentary support (n=80)
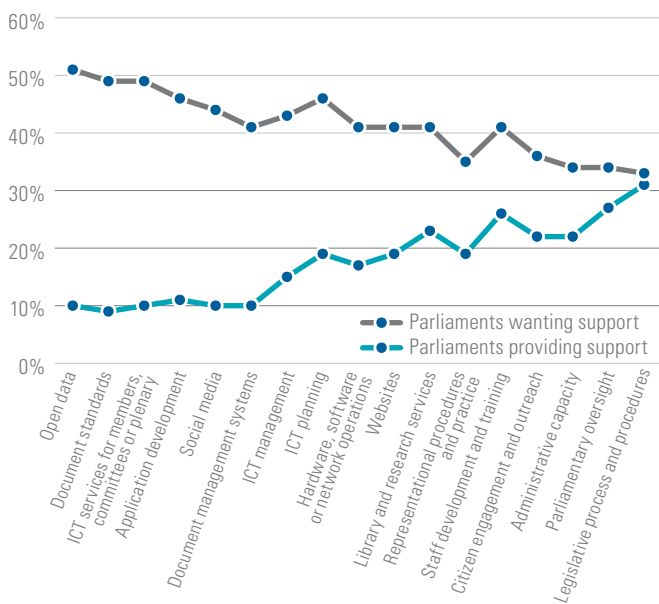
Detailed assessment of parliamentary technologies and practices

This section provides detailed findings from the parliamentary survey summarized above, as completed by a diverse range of parliaments around the globe. As shown in Figure 21, 43% of the 116 parliamentary respondents were unicameral (single chamber), compared to 60% of all parliaments.[2] The remainder of responses come from bicameral parliaments, with 32% from lower houses and 25% from upper houses. Where bicameral parliaments prepared joint answers from both chambers (because they have shared management and services, for example), this has been separated into two entries, one for each chamber.

Figure 21. Respondents by type of chamber (n=116)

- Unicameral
- Lower house
- Upper house
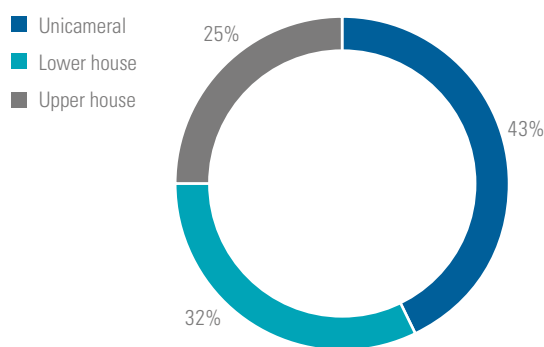
The sample considers the size of each chamber and is broadly reflective of the typical parliament. However, there is a slight under-representation of small parliaments (those with fewer than 50 members) and over-representation of medium and larger parliaments (200 or more members) as shown in Figure 22.

Figure 22. Relative size of parliamentary chambers by number of members (n=116)
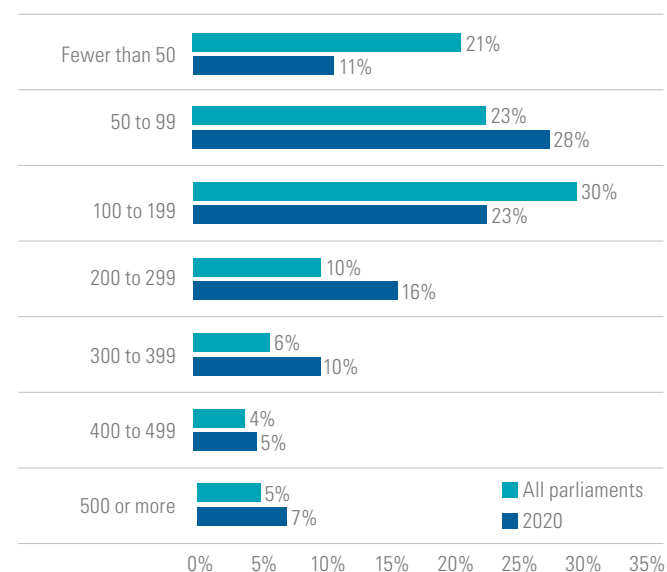
According to geographic region, as shown in Figure 23, over a third of the responding parliaments were European (39%), 22% were African (a 3% increase over 2018) and 12% Latin American. Representation of the Caribbean remains low, at 2%, down from 3% in 2016 and 2018. The Pacific region accounts for 4% – down from 6% in 2018 but still higher than in 2016 (2%).

Figure 23. Breakdown of respondents by region (n=116)

- Africa
- Asia
- Caribbean
- Europe
- Latin America
- Middle East
- North America
- Pacific
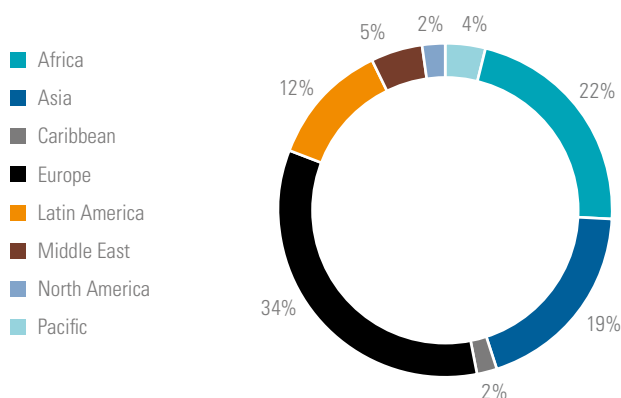
The parliaments taking part represented the full range of national income bands as defined by the World Bank.[3] As shown in Figure 24, 45% of the respondents were from high-income countries (up from 44% in the last survey and 42% in 2016). That compares to only 32% in the World Bank's ranking. While representation from the middle-income countries (50% of the respondents) was close to the World Bank average, low-income countries were considerably under-represented (5%, compared to 11% in the 2018 sample). There is no obvious explanation for this other than the resource constraints resulting for such parliaments from the pandemic. The survey findings may thus be slightly skewed towards parliaments in higher-income countries.

Figure 24. Breakdown of respondents by income (n=114)

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

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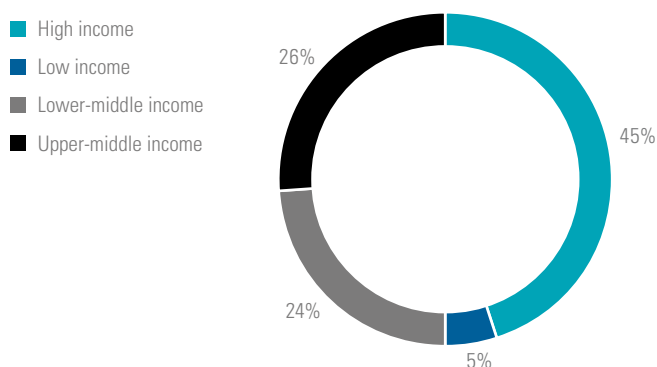
2 See: data.ipu.org.

3 See: data.worldbank.org/country.

ICT oversight and management

Information and communication technologies are now seen by parliaments as "business as usual". Since its inception in 2008, this series has tracked how technology has become increasingly critical to the operations of parliament. In this sixth edition of the report, there is strong evidence that ICTs increasingly form part of a parliament's core functions, including legislative workflow management and engagement with the public, suggesting that parliaments could not function as they do today without digital tools. The Covid-19 pandemic, as discussed elsewhere in this report, appears to have cemented this critical role. Important things to consider include the sources of ICT budget funding and the assignment of responsibility for defining and implementing a parliament's ICT vision and strategy.

With respect to strategic objectives, as shown in Table 5, 85% of the parliaments surveyed in 2020 involved their senior ICT person, whether a chief information officer or IT director, in determining the parliament's objectives, compared to 84% in 2016 and 2018. Other senior ICT management staff were involved by 56% of the parliaments. The traditional view of ICT objectives as a technical domain, requiring approval from senior management, has been persistent, as reflected in the 2016 and 2018 reports – and even more so in 2020, when the number of parliaments requiring their Secretary General's approval for ICT objectives rose to 83% (from 75% in 2018). A quarter of the parliaments surveyed involved a special group or committee, sometimes including a parliamentary management board, in defining and approving such objectives. While only 6% of the parliaments involved their Speaker in defining the objectives, their approval was required in 35%, and the Speaker had a monitoring and oversight role in a quarter of the parliaments.

Table 5.   Responsibility and oversight for ICT objectives (n=112)

	Develops objectives and plans	Approves objectives	Participates in oversight
President/Speaker of parliament or chamber	6%	35%	25%
Parliamentary committee	3%	19%	23%
Members	3%	10%	21%
Secretary General	18%	83%	51%
CIO/Director of ICT	85%	39%	48%
Senior ICT leadership	56%	17%	29%
Special group or committee	24%	23%	29%
Internal ICT experts	50%	4%	21%
Library/research staff	17%	3%	15%
Contractors (external)	23%	3%	12%
Members of the public	3%	0%	12%
Other	1%	1%	0%

It remains unusual for the public to be involved in this process. Three per cent of the parliaments reported some role for the public in developing their ICT strategies (a rise from 1% in 2016 and 2% in 2018). The largest increase was in the percentage of parliaments involving the public in ICT strategy (12%), a 100% increase since 2018.

It has been a continuing trend in this series that the importance of the most senior ICT person is not always reflected by their seniority within the parliament's management structure. As shown in Figure 25, the senior ICT person was part of the senior management team in 53% of the parliaments, down from 58% in 2018.

Figure 25.   Strategic role of most senior ICT staff member (n=112)
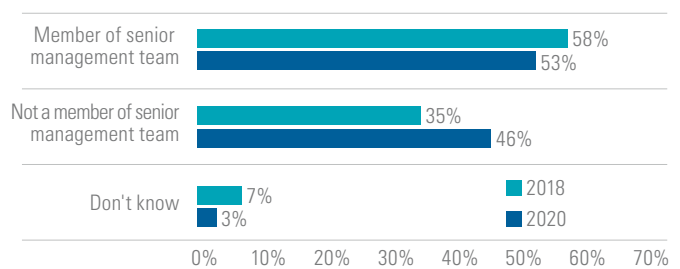
In the case of bicameral parliaments, the trend is towards a single ICT unit. This was the case for 45% of the parliaments; 26% of the bicameral parliaments had separate ICT functions for each chamber, which collaborated to some extent on projects and tasks. Only 29% of the chambers maintained separate ICT operations.

Most ICT spending (in 82% of the parliaments) was funded from the parliament's own budget (compared to 84% in 2018). However, only 65% of the parliaments funded their ICT budgets entirely themselves; 25% also received at least some funding for ICT from the government, and 21% received funding from donor agencies.

Table 6.   Source of budgeted funding for ICT (n=116)

	2020	2018
Parliament only	65%	68%
Government only	12%	11%
Parliament and government	3%	2%
Parliament and donor agencies	8%	12%
Government and donor agencies	6%	1%
Parliament, government and donors	6%	4%

The data shows a continued rise in the number of parliaments allocating 9% or more of their overall budget to ICT, with 29% of the respondents so indicating in 2020 (versus 20% in 2018 and 14% in 2012). Concomitantly, the figure for parliaments spending less than 1% has fallen to 16% (from 23% in 2012), and for those spending 4% or less, to 56% (versus 67% in 2018 and 2016).

Figure 26. Percentage of parliament's budget allocated to ICT (n=106)
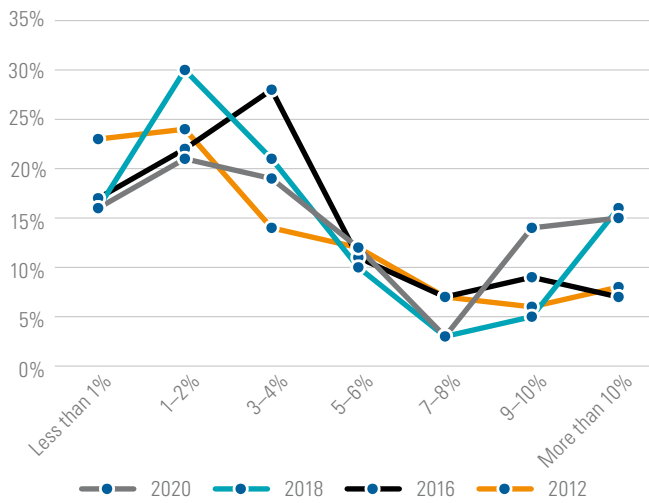
Control over budgets is a core part of the strategic planning process for parliaments, giving them more autonomy and certainty. This in turn assists with longer term planning. This might prove challenging following the pandemic, as new ways of work are emerging. Even where the percentages are small, the budget for ICT is significant, and previous reports have made clear the relationship between effective use and good planning. It is important to ensure clear and purposeful oversight of ICT. The determination of who is involved and what format the decision-making bodies should take will impact on how ICT is planned, implemented and followed up.

In terms of the ICT strategic planning process, 59% of the parliaments reported having a vision in place for their overall strategic direction, a decline from 63% in 2018 and from 73% in 2016 (see Table 7). The share of parliaments reporting a strategic plan to be in place decreased slightly, from 75% in 2018 to 70% in 2020. These decreases, however, are likely due to the changing cohort of research participants rather than any actual decline in formal planning. This is perhaps reflected in the fact that 54% of the parliaments reported having both a vision and a strategic plan (up slightly) while far fewer (9%) had a strategy but no associated vision (down from 15% in 2018 and 14% in 2016). In terms of implementing the ICT projects identified in their strategic plans, almost half (48%) of the parliaments used a formal project management methodology or process (compared to 42% in 2018).

Table 7. Formal vision and strategic planning processes (n=116)

	2020	2018	2016
Has a vision statement	59%	63%	73%
Has a vision statement and a strategic plan	54%	52%	56%
Has a vision statement and intends to create a strategic plan	4%	9%	13%
Has a strategic plan without a vision statement	9%	15%	14%
Has a vision statement, strategic plan and a process to update it	40%	44%	40%

Overall, 59% of the parliaments had a process for regularly updating their strategic plans, a significant increase from the 46% so reporting in 2016 but slightly below the 62% in 2018. It is still a cause for concern that over a third of the respondents (36%) had no vision statement for ICT, that 10% were not considering the idea, that 30% had no strategic plan and that 5% were not considering the introduction of one.

These concerns need to be qualified, however. Even where methodologies are not formally in place, the data suggests that good project management practices are seen as important. Further, the Covid-19 pandemic, discussed elsewhere in this report, has underscored the importance of ICT to parliaments: analysis of the responses on that point strongly suggests that good planning principles, up-to-date strategic plans and strong lines of communication between senior parliamentary staff, members and ICT staff were critical to a fast and effective response to the crisis. Parliaments have reacted to the pandemic, moreover, by adopting more agile and iterative working methods. While not minimizing the importance of good project management and planning, such changes have altered how organizations think about, plan and manage their ICT investment. Above all, strong planning and management practices increase resilience – the ability to bounce back quickly from setbacks – which has been the hallmark of successful responses to the pandemic.

Managing innovation within parliament

In response to increasing interest in innovation among several parliaments, the IPU's Centre for Innovation in Parliament has been identifying and sharing good practice in this area through the use of hubs and an "innovation tracker". For 2020, a new question was added to the survey to define a baseline for such ongoing innovation. According to the findings, 59% of the parliaments had some type of informal methods in place for encouraging and supporting innovation internally. One in five parliaments (20%) had formal processes for this and 26% had adopted a formal innovation strategy. These findings are encouraging and support the anecdotal evidence collected by the CIP since the 2018 report, which included a special section on innovative practice. It is encouraging to see that 61% of the parliaments had some form of working group or committee charged with overseeing innovative practice and over a third (35%) had at least one staff member with a formal role relating to innovation.

Figure 27. Innovative practices within parliaments (n=100)
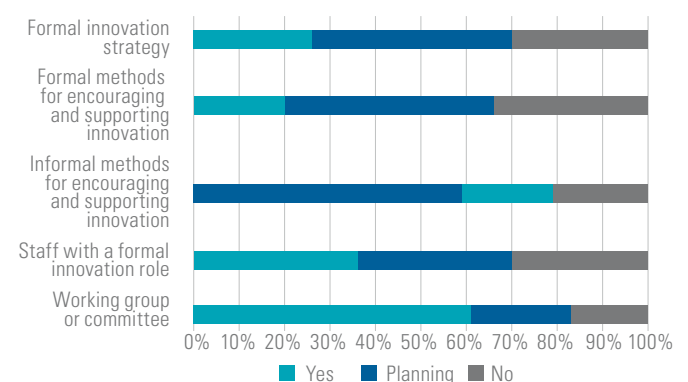
Supporting ICT access and use within parliament

The average number of full-time equivalent (FTE) ICT personnel (whether employed directly by the parliament, seconded from government or hired on external contract) was 62. Sixty-eight per cent of the parliaments had fewer than 50 FTEs for the ICT function. The ratio of ICT personnel to MPs averaged about 31 ICT workers per 95 members, or roughly 1:3. Five parliaments employed more than 200 for their ICT function (Brazil, Canada, Germany, the United Kingdom and the United States). Parliaments at the other end of the spectrum dedicated only one FTE to ICT support, though usually supplemented by contractors and government secondments.

Figure 28. Ratio of ICT staff to members (n=113)

Full-time equivalent ICT staff
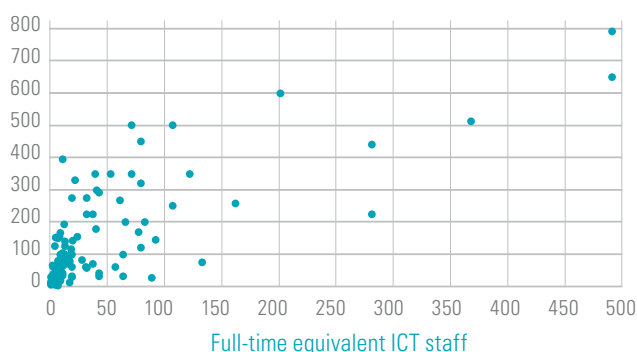
Parliaments face a challenge in recruiting and retaining key staff. In smaller parliaments, the market for appropriately trained staff can be small. In larger ones, particularly those located in highly developed commercial centres, the demand for needed skills can outstrip supply, pricing parliaments out of the market. This means that parliamentary ICT functions must often be performed by external contractors, which 65% reported using. In 18% of the parliaments, ICT staff were supplied (or seconded) by central government departments or agencies.

Figure 29. ICT staff and contractors (n=113)
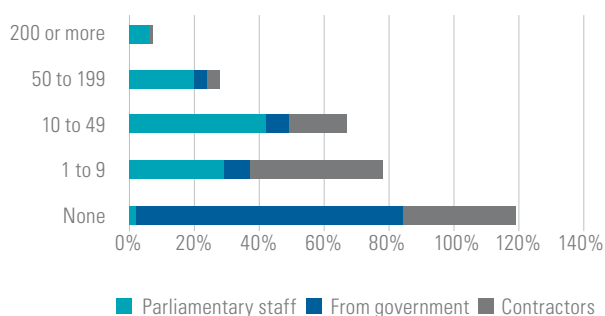
As shown in Table 8, apart from their own resources, parliaments are heavily reliant on contract staff. It has been clear in recent reports that greater availability of internal staff remains the ideal or preferred option.

According to the survey, the only area where ICT was more likely to be provided through contract staff was software development. That was the case for 65% of the parliaments in 2020 (compared to 63% in 2018); only 60% had their own staff for that purpose (61% in 2018). The difference was far less in 2016, when 79% used contractors versus 53% using internal staff. The critical role of project management

was reflected by the large percentage of parliaments (93%) dedicating internal staff to that purpose, with only 20% using external contractors. The figures for 2018 were roughly similar (87% and 16%, respectively). The same preference for internal staff was replicated for business analysis, with 86% of the parliaments using internal staff and only 23% using contractors. This indicates a strong preference against using contractors for those roles. The use of external resources for business-critical roles does in fact carry a strong risk of losing organizational knowledge. The level of comfort with outsourcing software development and web services – more operational functions – has clearly risen.

There was little difference in the use of internal versus external resources between parliaments in high-income countries and those in countries of low or lower-middle income. If anything, those in high-income countries tended to use external contractors more than did those in countries of low and lower-middle income.

Table 8.   Internal versus external current staffing for key ICT functions (n=114)

	Current		Preferred	
	Internal	External	Internal	External
IT project management	93%	20%	54%	4%
Business analysis and requirements management	86%	23%	55%	9%
Testing	78%	32%	50%	15%
Software development	60%	65%	39%	33%
IT infrastructure management	87%	30%	49%	15%
Web services	80%	41%	43%	24%
Management of social media tools	88%	11%	46%	8%
Management of open data repositories	78%	14%	53%	8%

How ICT is improving parliaments

Previous World e-Parliament Reports have shown an increase in the breadth of ICT tools, services and platforms used by parliaments. The top three improvements identified between 2012 and 2018 related to the publication and dissemination of data and documents to members, staff and, most significantly, the general public. There was a clear increase between 2012 and 2016 in the importance assigned to open access publishing, reflecting increased emphasis on the timely publication of parliamentary data and documentation and the advent of open access and publishing methods to achieve it. As shown in Table 9, the three most important improvements remain unchanged since 2016 (although the order of the first two has flipped in 2020); all relate to the timely and efficient publication of data, either within parliament or to the public.

Table 9.   Top three improvements made (n=110)

	2020	2018	2016
1	Increased capacity to disseminate information and documents **73%**	More information and documents on the website **73%**	More information and documents on the website **89%**
2	More information and documents on the website **66%**	Increased capacity to disseminate information and documents **66%**	Increased capacity to disseminate information and documents **86%**
3	Existing online documents presented in a more accessible way **56%**	Existing online documents presented in a more accessible way **56%**	Existing online documents presented in a more accessible way **69%**

As shown in the graph below, the priorities reported over the last two years are consistent with those indicated in 2016. Owing to the pandemic, the 2020 survey added a question on the ability to sit in virtual or hybrid sessions. Of the parliaments surveyed, 46% considered such ability an important achievement. While this question was never previously asked, it is hard to imagine more than a very low, single-digit percentage being reported earlier, even as recently as 2018. The high percentage reported for 2020 indicates a significant willingness to embrace innovative working methods (even if forced by necessity).

Figure 30. Most important improvements over last two years (n=110)
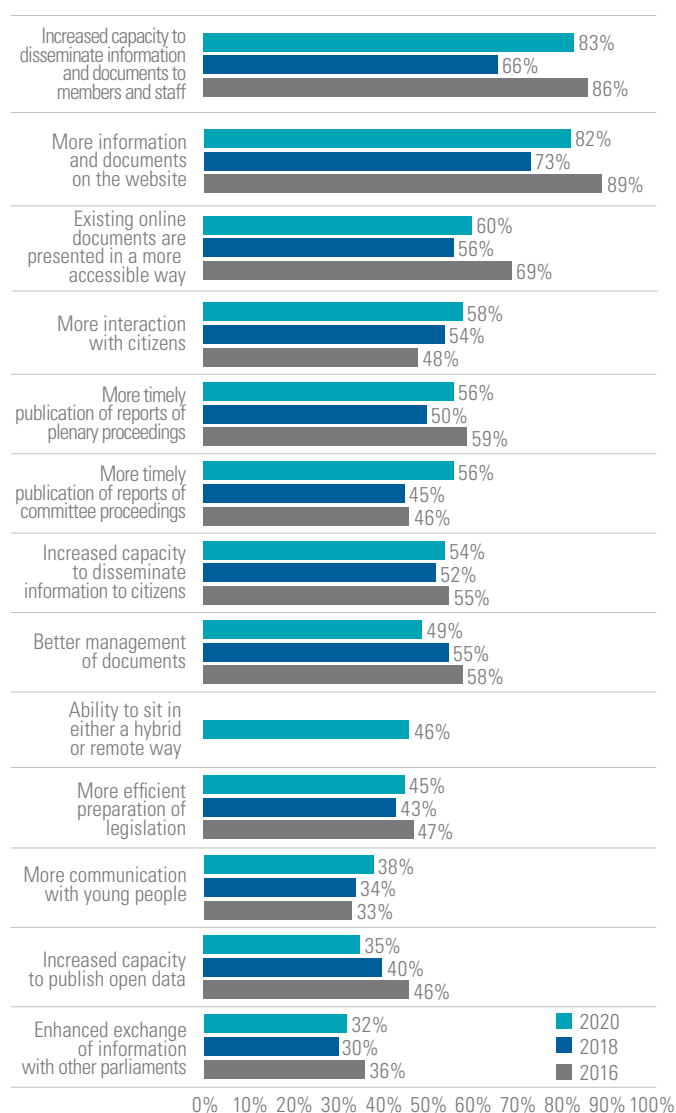
As seen in 2018, there were notable variations according to country income level in the perceptions about important improvements. As shown in Figure 31, parliaments based in lower-income countries were noticeably more likely to cite improvements in core systems, such as document management. Parliaments in countries of all income levels recognized the importance of placing more information on their websites and increasing their capacity to disseminate documents internally. This suggests that many of the resource-challenged parliaments are catching up in these areas. Since 2018, parliaments in high-income countries have been less likely to perceive the importance of improvements in publishing plenary proceedings, possibly because the systems are now in place and recent improvements have been incremental, as data elsewhere in this report suggests.

The perceived importance of virtual or hybrid sessions is greatest among parliaments in countries of high and upper-middle income (50% and 53%, respectively) and least significant among those in countries of lower-middle and low income (29% and 17%, respectively). While it is difficult to draw any firm conclusions from these data, it can be inferred that the cost, funding availability and/or access to the skills required are challenges for these parliaments. It is equally possible that the barriers are political or cultural.

Figure 31. Most important improvements over last two years by income level (n=110)[4]

Legend: High / Upper middle / Lower middle / Low / All

Categories (x-axis): Ability to sit in either a hybrid or remote way; More timely publication of reports of plenary proceedings; More interaction with citizens; Existing online documents are presented in a more accessible way; More information and documents on the website; Increased capacity to disseminate information and documents to members and staff

Parliaments were also asked to identify the most important improvements anticipated over the next two years. As shown in Table 10, the priorities indicated have changed little since 2018. As one exception, more efficient preparation of legislation was considered the most important improvement anticipated by 63% of the parliaments (up from 51% in 2018). As another, timelier reporting of plenary proceedings was indicated by 42% (up from 34%). The ability to sit in virtual or hybrid sessions was considered the third-most important anticipated improvement by 64% of the parliaments.

Table 10. Most important improvements expected in next two years (n=107)

	2020	2018
Increased capacity to publish open data	69%	70%
Better management of documents	64%	61%
Ability for parliament to sit in either a hybrid or remote way using digital tools	64%	-
More efficient preparation of legislation	63%	51%
Enhanced exchange of information with other parliaments	57%	56%
Increased capacity to disseminate information to citizens	55%	61%
More communication with young people	55%	54%
More interaction with citizens	53%	60%
Existing online documents are presented in a more accessible way	50%	56%
More timely publication of reports of plenary proceedings	42%	34%

	2020	2018
More information and documents on the website	41%	43%
More timely publication of reports of committee proceedings	39%	43%
Increased capacity to disseminate information and documents to members and staff	37%	43%

Figure 32 compares the most important improvements anticipated in 2018, going forward, with those considered most important in 2020 as achievements during the past two years. Overall, apart from a few outliers (where expectations exceeded reality or vice versa), the improvements anticipated were reasonably close to those delivered. Priorities and results differed the most about upgrades to core systems.

Figure 32. Predicted versus actual improvements (n=110)[5]

Legend: Anticipated (2018) / Reported (2020)

- Increased capacity to disseminate information and documents to members and staff: 43% / 83%
- More information and documents on the website: 43% / 82%
- Existing online documents are presented in a more accessible way: 56% / 60%
- More interaction with citizens: 60% / 58%
- More timely publication of reports of plenary proceedings: 34% / 56%
- More timely publication of reports of committee proceedings: 43% / 56%
- Increased capacity to disseminate information to citizens: 61% / 54%
- Better management of documents: 61% / 49%
- More communication with young people: 54% / 38%
- Increased capacity to publish open data: 70% / 35%
- Enhanced exchange of information with other parliaments: 56% / 32%

Looking at the most important improvements parliaments anticipated going forward, the top three in 2016 and 2018 related to social media (67% in 2018), audio and/or video capture of proceedings (65%) and systems for posting information and documents on websites (64%). As shown in Table 11, those were still the top three in 2020. Two new categories have been added to the 2020 survey: Infrastructure as a Service (IaaS) and Software as a Service (SaaS), which are cloud computing services increasingly being used in parliaments. Over the past two years, IaaS was introduced in 21% of the parliaments, with another 39% expecting to do so in the next two years. The same goes for SaaS: since 2018,

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4 Some categories have been omitted from this chart to make it more readable.

5 Some categories have been omitted from this chart to make it more readable.

it has been introduced in 25% of the parliaments; 38% now expect to be using it by 2022. The increasing use of cloud-based systems raises key issues for parliaments about data ownership (including the jurisdictions where data is stored and the related legal implications) and privacy, as well as the obvious issues around data reliability, security and integrity.

Artificial intelligence has been a topical issue for parliaments as well as globally. The Brazilian Chamber of Deputies has been working on an AI project for legislative drafting, aspects of citizen engagement and information discovery for website visitors. Parliaments in Austria, Estonia and the United States have also developed AI-related applications. The uptake of AI-based capabilities within parliamentary systems was limited in 2020. So far, only 10% of parliaments have adopted AI-based technologies (6% in systems relating to legislative drafting). Supporting the assertion that this is becoming more relevant to parliaments, AI was the most widely anticipated feature over the next two years (45% of the parliaments are considering it). Though it potentially has a broad range of applications, the use of AI is not entirely neutral. Adopting machine-learning systems raises questions that parliaments must consider, not least regarding the transparency and governance of algorithms.

Table 11. Technologies that have been introduced or used in new ways (n=114)

	Introduced in the last two years	To be introduced in the next two years
Audio and/or video capture of proceedings	68%	10%
Social media, e.g. Facebook or Twitter	64%	8%
Systems for putting information and documents onto websites	58%	24%
Webcasting	54%	19%
TV broadcasting of plenary sessions	48%	14%
Open-source software	46%	26%
Mobile communication devices	46%	25%
Mobile communication applications for members	45%	32%
Document repositories	42%	34%
Systems for ensuring the preservation of documents in digital formats	40%	39%
Systems for creating and editing documents	39%	32%
Systems for managing email from citizens	35%	29%
Open standards such as XML	33%	39%
Software as a Service (SaaS)	25%	38%
Mobile communication applications for citizens	24%	35%
Speech-to-text dictation software	23%	39%
Infrastructure as a Service (IaaS)	21%	39%
Artificial intelligence (AI) capabilities	10%	45%
Applications that have been co-developed with citizens	8%	38%

Summary

The strategic barriers to more effective use of ICTs within parliaments have been well described in previous reports. They include inadequate funding and staff capacity. In 2020, funding remained as likely to be an issue for parliaments regardless of income level, with persistent strategic and systemic difficulties challenging the delivery and deployment of ICTs. In 2018, most parliaments anticipated improvements in many areas, from dissemination and document management to open data publishing and communication with youth. Two years later, only a few have reported such progress. More encouragingly, parliaments report better-than-expected progress in disseminating information internally and interacting with citizens.

In terms of recruiting and retaining key staff, parliaments face long standing challenges. Despite a demonstrable preference for internal staff, 65% of the parliaments reported using external contractors, with 18% using staff supplied or seconded from central government. The average number of FTEs dedicated to ICT was 62, bringing the ratio of ICT staff to MPs to approximately 1:3.

Eighty-two per cent of the parliaments determined their own ICT budget, but only 65% fully funded it themselves: 25% received at least some ICT funding from the government and 21% from donor agencies. There has been a continuing rise in the percentage of overall budget spent on ICT. Fewer parliaments have reported spending 4% or less, with greater numbers spending 9% or more. In 2020, only 16% reported spending less than 1% on ICT, a decline from 23% in 2012.

Despite the improvements seen in strategic planning relative to earlier years, progress remains slow, with a third of the respondents still lacking any vision statement and 30% having no strategic plan for ICT. Most worryingly, 5% are not even considering such tools. The Covid-19 pandemic has brought this problem more sharply into focus. It has demonstrated in particular the importance of good planning principles, up-to-date strategies and strong lines of communication among senior parliamentary staff, MPs and ICT staff, as important factors in building resilience. One-off events like a pandemic can disrupt formal planning, but organizations with strong processes tend to be more aware of their situation, responsive to change and resilient.

This first-time review of innovative practices in parliament shows that an impressive 59% of the parliaments surveyed have adopted informal methods, and 20% formal processes, to encourage and support innovation. Over a quarter of the parliaments (26%) have adopted a formal innovation strategy, and more than a third (35%) have dedicated at least one staff member to a formal role in innovation.

The most important improvements seen over the last two years, as found by previous surveys also, came in the areas of publication (external) and distribution (internal) of documents and information. Almost half of the parliaments noted the significance of virtual or hybrid solutions introduced during the pandemic, and nearly two-thirds (64%) saw those solutions continuing to be important over the next two years. The trend is skewed, however, towards parliaments in higher-income countries. Parliaments in countries of high and upper-middle income (50% and 53%, respectively) were much more likely to

see the significance of the new solutions than those in lower-middle and low-income countries (29% and 17%).

Parliaments in lower-income countries tended noticeably to cite core system issues, such as document management, as their most important area of improvement. Parliaments in countries across all income levels saw significant increases in the amounts of information provided on their websites and in their capacity to distribute documents internally. This suggests that many of the resource-challenged parliaments are catching up in these areas.

The areas in which improvements were anticipated over the next two years were social media, audio and/or video capture of proceedings and systems for posting information and documents on websites. Use of the emerging technologies Infrastructure as a Service (IaaS) and Software as a Service (SaaS) was perceived as growing significantly over the next two years. Artificial intelligence has been adopted by relatively few parliaments (10%) but is the feature most often identified (by 45% of the parliaments) as likely to see development or deployment over the next two years. The increasing use of remote infrastructure, cloud-based systems and storage and the rise of AI all raise important questions parliaments will need to address with respect to security, governance and data privacy.

Infrastructure, services, applications and training

The previous section examined the strategies for deploying ICTs within parliaments, sources of funding and broad technological trends. This section drills down to more detailed aspects of how parliaments deliver and manage their ICT capabilities and what systems, infrastructure and soft services are needed to support their use within the organization, such as user support, project planning and project management.

Eight per cent of the survey respondents reported a lack of reliable electricity supply, a fundamental consideration for the effective and reliable use of ICTs. This was slightly higher than in 2018 (6%) but the long-term trend is downward: 14% of the parliaments reported the problem in 2010, falling to 12% in 2012 and to 10% in 2016.

Range of network and connectivity services

All responding parliaments since 2018 have reported having internet connections. In 2020, 95% considered their connection at least adequately reliable (with 40% considering it better than adequate), and 90% considered it adequately fast (with 37% reporting better than adequate speed). Which means conversely that only 5% considered it not adequately reliable for their purposes and that 10% considered it too slow – but there is always an element of "catch up" in pursuing speed, reliability and bandwidth. Be that as it may, the increasing reliance of parliamentary systems on the internet, as shown in earlier reports, as well as virtual functionality (such as cloud storage and video conferencing) raise questions about the adequacy of internet service and, in particular, for members and staff working remotely.

Wi-fi networks are approaching ubiquity within parliaments. In 2020, only 3% lacked wi-fi networks for members (as in 2018) and 5% lacked them for staff (compared to 8% in 2018). Eighty-three per cent of the parliaments now provide wi-fi access to the public, a significant increase over the 65% so reporting in 2018. These figures suggest that wi-fi is nearing a saturation point. Those parliaments not currently offering wi-fi anticipate doing so for both members and staff; 13% neither offer nor intend to offer public access.

Table 12. Wi-fi networks within parliament (n=113)

	Members	Staff	Public
Yes	97%	95%	83%
No	3%	5%	17%

Parliaments, like all large organizations, must deliver a range of ICT-related services. In 2020, as shown in Figure 4 below, all the responding parliaments had ICT applications for network management, as did 97% for data management (compared to 95% in 2018 and 2016). For reasons unclear, the figure for project planning and management dropped from 74% in 2018 to 67% in 2020. With this one exception, the level of services provided was broadly consistent between 2018 and 2020. Project management and application development were the two services least likely to be offered internally, but also the most likely to be project-based.

Figure 33. ICT services available in parliament (n=116)

Service	2020	2018	2016
Network management	100%	100%	98%
Data management	97%	95%	95%
User support	96%	98%	75%
User training	86%	82%	84%
Application management	86%	89%	93%
Application development	73%	76%	75%
Project planning and management	67%	74%	72%
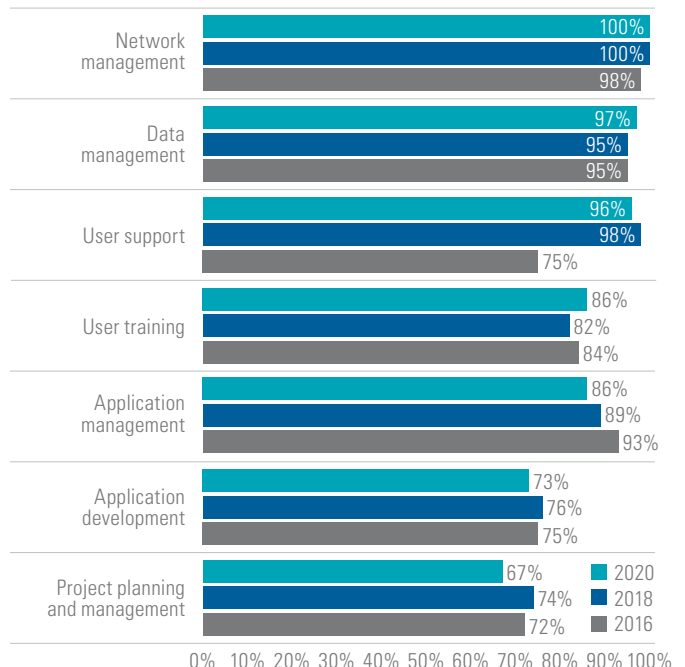
In both 2018 and 2020 parliaments in higher-income countries were only marginally more likely to provide a wider range of services than those in low-income countries, but the ubiquity of ICT may explain why the difference is so slight. A more important factor in the scale of ICT requirements is a parliament's size. Seventy-seven per cent of the parliaments with 400 or more members provided all seven services shown in Figure 4. The figure drops to 49% among parliaments with fewer than 100 members and to 47% for those with 100 to 399 members. Eighty-six per cent of all the parliaments

surveyed provided five or more ICT services, compared to 96% among parliaments with more than 400 members.

Table 13. ICT service areas provided by parliaments (n=116)[6]

	Less than 100 members	Between 100 and 399 members	More than 400 members
Five or more service areas	82%	84%	96%
Seven service areas	49%	47%	77%

In 2020, 95% of the responding parliaments provided internet access to their members and 90% did so for staff, down slightly from 2018 but significantly higher than in 2012, as might be expected. Unsurprisingly given the current situation, remote access for staff and members has increased substantially since 2018, rising from 41% to 55% for members and from 52% to 69% for staff. In terms of hardware, the percentage of parliaments providing laptops, tablets and/or smartphones to members and staff was largely consistent with previous survey findings, but was slightly higher than in 2018 for identity management services. The increase in remote working during the pandemic led to a rise in members and staff using their own devices, with implications for procurement, support and security.

Figure 34. Services provided to members and staff (n=115)
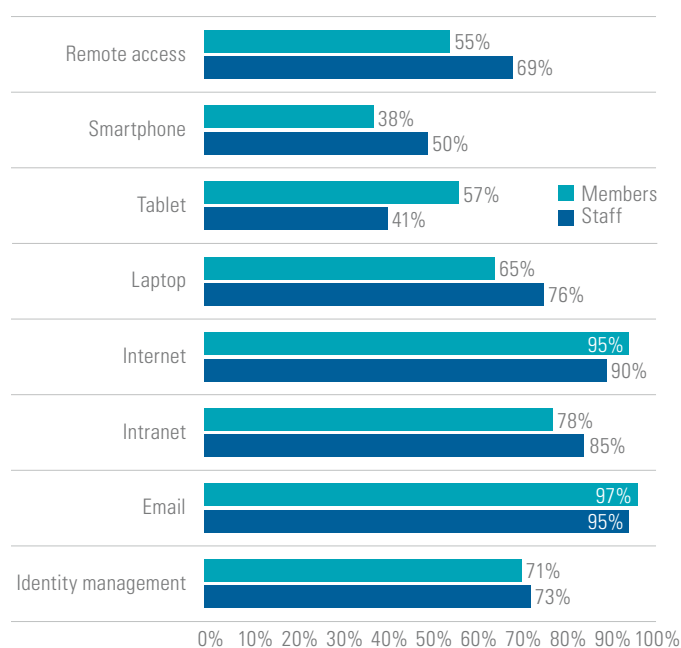
	Members	Staff
Remote access	55%	69%
Smartphone	38%	50%
Tablet	57%	41%
Laptop	65%	76%
Internet	95%	90%
Intranet	78%	85%
Email	97%	95%
Identity management	71%	73%

Enterprise software and document storage

Back in 2016, parliaments largely approached document storage in terms of internal capacity: three-quarters had internal shared storage and only 12% were using cloud-based technologies. By 2018, the figure for cloud storage had increased to 21%. In 2020, respondents reported an increase in internally shared storage (up from 77% to 80%) but a leap in cloud storage, to 39%. For document sharing, only 3% of the parliaments relied solely on internally shared storage, and only 4% shared documents solely through cloud storage. Of the remaining respondents, 49% reported having four or more methods for sharing documents and 73%, three or more. Thirteen per cent of the parliaments reported no functionality for sharing documents electronically (relying instead on manual or one-off document transfers).

The use of more formal, enterprise-based electronic document and records management systems (EDRMS) has increased, from 47% in 2016 to 51% in 2018 and to 58% in 2020. Barriers to cloud storage still exist, in terms of infrastructure and support, but also concerns over security, data sovereignty issues and the legal implications of data storage jurisdiction. While only 23% of the parliaments provided access to shared documents via mobile applications, 73% of these did so through their parliamentary websites.

Table 14. Access to shared documents (n=113)

	2020	2018	2016
A shared drive provided in the internal network	80%	77%	75%
A shared drive provided through cloud storage	39%	21%	12%
A web-based intranet	69%	60%	52%
Electronic document and records management system (EDRMS)	58%	51%	47%
(Most) files are stored on local workstations, and shared via email and/ or thumb drives (USB)	-	14%	16%
Using parliament's website	73%	-	-
Using parliament's mobile application	28%	-	-

Service-level agreements and support (SLAs)

The use of SLAs for service providers, both external and increasingly internal, is considered a good organizational practice. Under an SLA, the expectations for ICT support are agreed and made explicit, with measurable performance indicators.

Nearly nine in ten parliaments (88%) had at least some SLAs in place for external providers in 2020, and 59% had SLAs for all major providers. These figures are consistent with those reported in 2016 and 2018 and show that the use of SLAs is gaining currency among parliaments. In 2020, 21% of the parliaments used them internally, between departments (the same as in 2018, up from 13% in 2016). Thirty-five per cent reported at least some internal SLAs in 2018 and 2020. One in ten parliaments had no plans to use internal SLAs (which may make sense for smaller parliaments), while in the case of external SLAs, only 2% had no such plans.

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6   These seven areas are: Project planning and management, application development, application management, user training, user support, data management, network management.

Figure 35. Use of service-level-agreements (n=113)

	External contractors	Internal departments
Yes	58%	12%
Yes, with some	30%	18%
No, but planning or considering	4%	14%
No, and not planning or considering	4%	19%
Not applicable	1%	8%

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
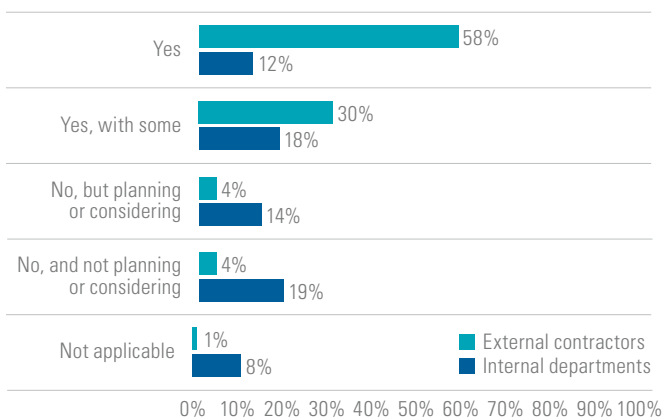
Commercial versus open-source software

Commercial software and services continue to dominate the ICT infrastructure within parliaments. Last year, as shown in Table 15, 94% of the parliaments were using commercial software for their servers and 94% for their desktop and laptop PCs. As in previous reports, the biggest in-road for open-source software is its use as a server operating system, and 55% of the parliaments reported using it in that way. The use of open-source server software for virtual server configurations was reported by 33%. Overall, 78% used open-source software in some form or other (with only two parliaments using it exclusively instead of commercial software). The percentage was similar in 2016 (75%) and 2018 (80%).

Conversely, commercial software is dominant for desktop and laptop operating systems and was used by 94% of the parliaments (compared to 12% using open source for that purpose). The pattern is similar for other applications, such as publishing, office tools, collaboration tools and video conferencing.

Table 15. Use of commercial and open-source systems (n=113)

	Commercial software	Open-Source software
Operating systems for servers	94%	55%
Operating systems for virtual server	85%	33%
Network operations	86%	26%
Security	92%	22%
Operating systems for desktop/laptop	94%	12%
Content management	62%	33%
Document management	69%	22%
Database	85%	40%
Email	86%	16%
e-Learning	29%	16%
Office tools	93%	12%
Video conferencing	82%	22%
Collaboration tools	60%	14%
Publishing (print)	65%	4%

Publishing (web)	67%	26%
Electronic resource management	47%	14%
Online library catalogue	51%	24%

There was limited variation according to national income level in the use of open-source software. Parliaments in countries of lower-middle income were the most likely to use it (83%), followed by those in countries of high or higher-middle income (78%). Those figures compare with 50% in the low-income countries.

All the parliaments in high-income countries used commercial software for the operating systems of their internal servers. The figure was 81% in countries of lower-middle income and 83% in low-income countries. While 63% of those in high-income countries used commercial software for their virtual servers, none did so in the low-income countries. Variation by income was more pronounced in the case of commercial software, as shown in Figure 36. The disparities between high- and low-income countries are considerable in the cases of content management software, document management, databases, email systems, e-learning, collaboration tools and publishing.

Figure 36. Use of commercial software by type and income level (n=113)
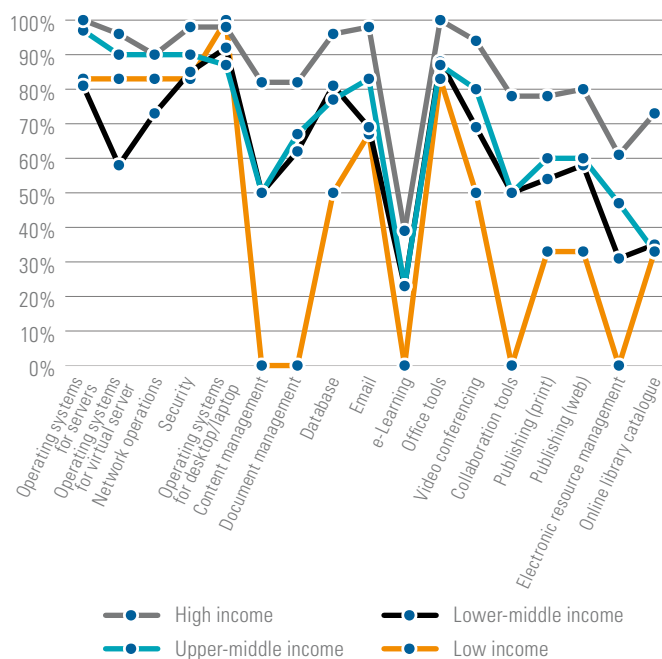
As observed in previous reports, open-source software can be attractive to parliaments with limited funding, particularly for parliamentary workflow and document management. The cost of purchasing or licensing software and the hardware to run it, whether in-house or on the cloud, are not the only considerations. Parliaments, like all end-users of digital tools, must consider the support and maintenance costs and the availability of needed skills. As noted in the 2016 World e-Parliament Report:

> One of the challenges with open-source applications and services can be the incorrect assumption that they have no cost associated with them. While part of the package might be cost-neutral, parliaments must still support these products in the same way that they have to support commercial software.

Where open-source software was in use, support was provided internally by 83% of the parliaments. Local external contractors were used by 47% and international contractors by 11% (up from 7% in 2016). Just under one in five parliaments had no formal support contracts in place for their open-source systems, roughly the same proportion as in 2016 and 2018. The figure is only 11% when parliaments supporting all of their open-source software internally are excluded.

Figure 37. How parliaments support open-source software (n=88)

Internal staff	83% (2020), 85% (2018), 86% (2016)
National contractor	47% (2020), 40% (2018), 48% (2016)
International contractor	11% (2020), 10% (2018), 7% (2016)
No formal support	19% (2020) *no formal support agreement but all support is internal*, 17% (2018), 18% (2016)

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

■ 2020 ■ 2018 ■ 2016
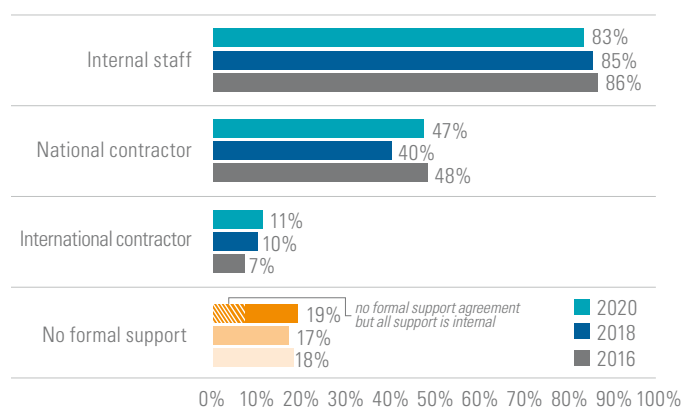
How ICT supports parliamentary functions

The survey for 2020 examines the continuing but slow trend towards the digitization of parliaments. The changes reported are limited, and yet more of what parliaments do is now digital. The trends observed in 2020 show little deviation relative to past reports, and most of the variations result from the changing sample for each report. The only notable increases reported are in the digitization of parliamentary archives (achieved by 79%, compared to 71% in 2018 and 68% in 2016), and public communication systems (63% in 2020 and 2018, compared to 56% in 2016 and 36% in 2008, when the first report was published).

For some functions, such as legislative drafting, the tracking and drafting of amendments and the plenary functions, it is not entirely surprising to see such limited change in the use of ICT. The first World e-Parliament Report, published in 2008, recorded that 70% of respondents had applications for producing plenary minutes. In both 2020 and 2018, 69% had systems to produce plenary minutes. These numbers do not reflect the complexity or changing functionality of solutions that might have been adopted over time, such as the use of automatic transcription and the addition of AI components to improve the quality of transcriptions.

In response to a new question in the 2018 survey, on committee voting, 30% of respondents had systems in place to manage that process. In 2020, for reasons which are unclear, the figure fell to only 21%.

Table 16. Parliamentary functions, activities or services for which there are IT systems (n=112)

	2020	2018	2016	2008[7]
Plenary functions				
Amendment drafting	46%	46%	45%	-
Amendment status/tracking	55%	55%	55%	64%
Analysis of budget proposed by the government	29%	32%	22%	-
Bill drafting	50%	44%	42%	-
Bill status/tracking	63%	65%	64%	-
Database of laws passed by parliament	75%	69%	74%	-
Minutes of plenary sessions	69%	84%	79%	70%
Other scrutiny documents	26%	34%	31%	11%
Plenary calendars and schedules	73%	75%	78%	59%
Plenary speeches and debates	73%	75%	78%	70%
Plenary voting	66%	69%	67%	65%
Questions to the government	46%	58%	50%	52%
Committee functions				
Committee calendars and schedules	68%	70%	70%	-
Committee reports	68%	71%	72%	64%
Committee voting	21%	30%	-	-
Committee websites	54%	55%	52%	-
Minutes of committee meetings	60%	67%	68%	63%
Administration and support functions				
Digital archive of parliamentary documents	79%	71%	68%	-
Financial disclosure	36%	36%	38%	-
Financial management system	81%	78%	76%	
HR system	80%	78%	77%	70%
Management and support of member websites	24%	19%	21%	34%
Management and support of website for parliament	90%	90%	91%	84%
Management of library resources	65%	71%	59%	-
Online library catalogue	65%	65%	57%	-
Systems for communicating with constituents	63%	63%	56%	36%

Having looked at the broad sweep of technology support for various parliamentary and administrative functions, the next section will examine in more detail how ICT is being used to support the operational side of parliaments. It starts off by looking at the role of ICT in supporting the plenary and committee work of parliaments.

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7   The data for 2008 was based on slightly different wording.

Plenary and committee room systems

The number of parliaments using manual methods of voting in the plenary chamber or hemicycle has fallen to 58% from 78% in 2018, which closely reflects the number of parliaments intending in 2018 to move away from manual voting systems. Of those continuing to vote manually, 13% tallied the vote electronically and 43% did that and also used some form of electronic voting. Thirty-three per cent had manual voting only.

Use of individual and assigned voting buttons remained the most popular method of voting in the chamber (for 23% of the parliaments), with 18% using cards or tokens and 6% using biometric data for authentication (compared to 13% in 2018 and 8% in 2016). The most significant increase was in the number of parliaments using remote voting methods in the plenary. That increased from 1% in 2018 to 6% in 2020, reflecting the rapid adoption of virtual solutions during the pandemic.

Figure 38. Methods of voting in the plenary room (n=112)

- Manual
- Manual with electronic tally
- Using card or token
- Using biometric
- Using password
- Touch screen
- Voting button
- Voting station
- Remotely through electronic means
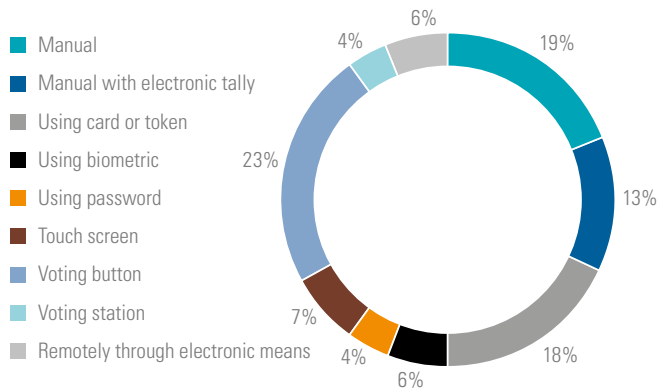
In contrast with plenary rooms, committees have tended to retain manual voting practices. Sixty-nine per cent of the parliaments reported using manual voting methods in committees, with 58% using entirely manual procedures for voting and counting. Only 12% of the parliaments used entirely electronic methods to vote in committees, with card or token-based systems being the most popular (7%). No parliaments reported systems in place for remote voting in committees, though some have since adopted them in the context of the pandemic.

Seventy-four per cent of the parliaments now use automatic video recording in their plenary rooms to capture and broadcast proceedings. Another 7% expected to implement such systems in the future. In 2018, 80% of the parliaments live-streamed (or quasi-live) their plenary sessions. The figure rose to 86% in 2020.

The traditional oral proceedings of parliament are being supplemented, though not replaced, with audio-visual tools in both the plenary and the committees. Since 2018, there has been a discernible increase in the use of video streaming tools in plenary rooms – up from 54% in 2018 to 65% in 2020. The rise in video conferencing in plenary rooms has been dramatic –from 22% of the parliaments in 2018 to 38% in 2020. For committees, the rise was even more dramatic, from 38% in 2018 to 57% in this report. With the rise of these technologies, use of the more traditional presentation media, such as text and graphics, is plateauing. Beyond the survey, there have

been anecdotal accounts during the pandemic of parliamentary committees holding hearings by video and obtaining testimony of unusual depth and breadth. An unexpected side effect has been to make parliaments and their committees more accessible to a wider public.

Figure 39. Use of audio-visual equipment in plenary and committee rooms (n=106)
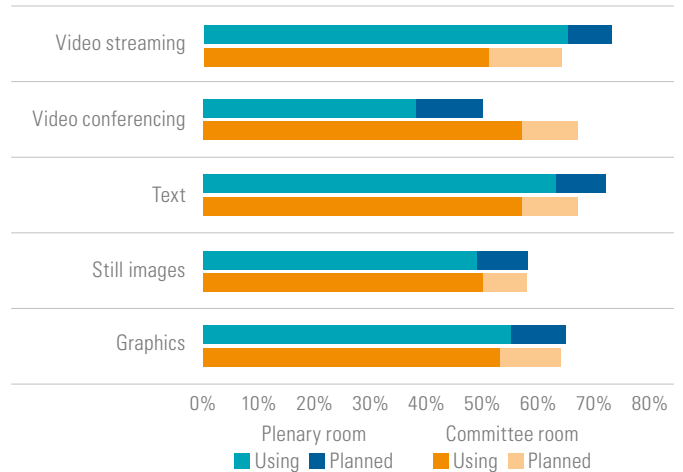
It is now commonplace for parliaments to broadcast live or recorded/edited proceedings. Seventy-four per cent of the parliaments reported automatic recording of their plenaries, with 86% live-streaming them. Only 4% neither live-streamed their plenaries nor planned to.

The official record remains a critically important document that parliaments are using a variety of digital methods to capture. The most popular method is direct capture of text using a PC-based system, used by 65% of the parliaments (up from 57% in 2010). Manual note-taking continues in many parliaments, but for later transcription into digital format. Stenographic equipment also remains very much in use, as shown in Figure 40. The use of direct-to-digital speech recognition software has risen from 8% in 2010 to 13% in 2016 to 14% in 2018 and to 25% in 2020. An innovation in capturing the official record is the use of AI-based algorithms to improve the quality of automatic transcription.

Figure 40. Use of digital tools to capture plenary records (n=110)

- By hand and transcribed into digital format
- In digital format using a PC
- Digital format using a stenographic machine
- Digital format by using speech recognition technology
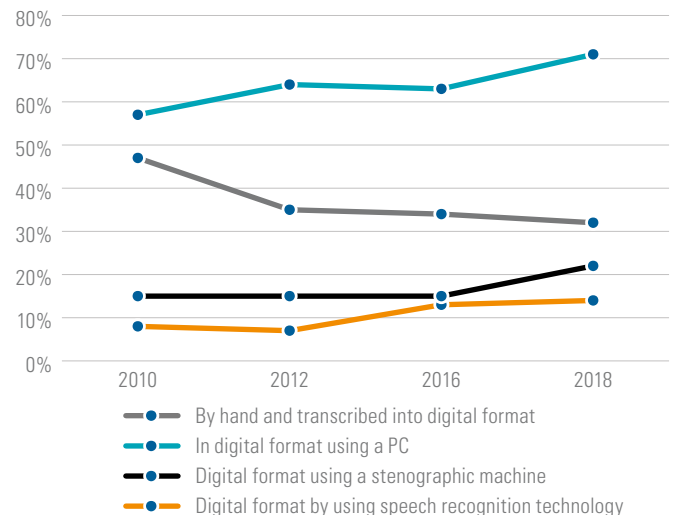
Within the chamber itself, members increasingly have access to a range of personal technologies to support their work. One in five parliaments have built-in desktop or similar devices in the plenary chamber, and nearly nine in ten allow members to use tablets.

Table 17. Technology used by members inside the plenary chamber (n=99)

Desktop	21%
Laptop	73%
Smartphone	77%
Tablet	87%

Though one parliament did not allow members to bring electronic devices into the chamber this was very much a minority view, with 88% now allowing members to use their internet-enabled devices in the chamber. Figure 41, showing how devices are used in the chamber, indicates that 63% allowed members to use social media, 47% allowed them to take photographs, but only 31% allowed them to live broadcast over social media. Some parliaments permitted the use of devices in the chamber but not while speaking.

Figure 41. Internet-enabled devices in the chamber (n=112)
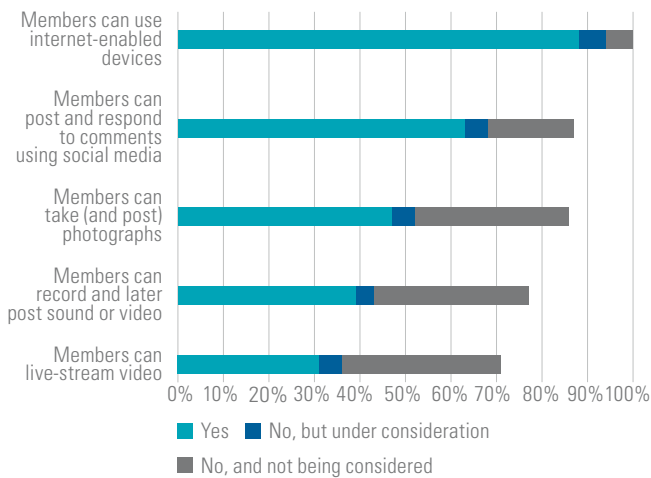
ICT training for members and staff

The relatively recent influx and rapid growth of new digital tools among parliaments makes basic technical competency increasingly important for both members and staff, to be comfortable and confident with digital tools in their jobs. Seventy-two percent of respondents provided ICT training and/or induction for members and 86% did so for staff. Four per cent of the parliaments trained members only (and 17% staff only), while 10% provided no direct training at all, to members or staff (compared to 11% in 2018). Table 18 shows some of the discrepancies in training offered by parliaments in high-income vs. low-income countries. Seventy-two per cent of those in high-income countries offer training to members, while only 33% do so in low-income countries, which are also more likely to train staff only (33%, versus 17% in the high-income countries).

Table 18. ICT training for members and staff (n=109)

	Members	Staff	No training provided	Members only	Staff only	Members and staff
High	76%	86%	10%	4%	14%	73%
Upper middle	71%	86%	7%	7%	21%	64%
Lower middle	75%	92%	8%	0%	17%	75%
Low	33%	67%	33%	0%	33%	33%
All	72%	86%	10%	4%	17%	69%

The training priorities parliaments see as most important going forward are essentially the same as indicated in previous reports. As shown in Figure 42, the top priorities are security (62%), application, development and maintenance (49%, down from 56% in 2018) and systems administration (46%). There were increases in training around email systems (from 24% to 36%) and for video and audio webcasting (from 7% to 16%). The data from this and previous surveys suggest that, overall, the requirements for ICT staff training are stable and consistent, albeit with the expected rise in newer and more emergent technologies as these become more embedded in parliaments. It is possible that the rise in webcasting training was a result of greater use of virtual tools during the pandemic, a point to be followed in future reports.

Figure 42. Training priorities for ICT staff (n=105)
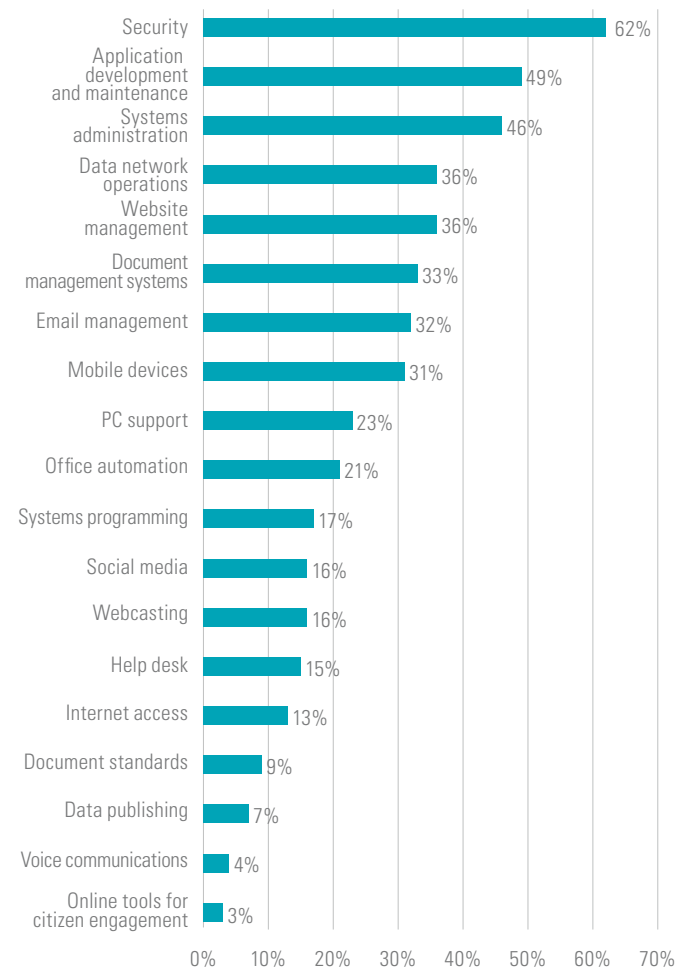
Summary

The three previous editions of this report, in 2012, 2016 and 2018, all highlighted human and financial resource challenges. In addition to the continuing upward trend in resources allocated to ICT, as a share of parliamentary budgets, this year's report examines the increasing cost and complexity of ICT infrastructure. While budgetary and staff constraints persist, the complexity of ICT has been exacerbated for many parliaments by the pandemic, with the sudden and unexpected need for MPs and staff to work remotely.

The speed and capacity of internet connections meet or exceed the current needs of most parliaments. However, demand for internet-connected systems and remote working will undoubtedly create pressure to expand network capacity going forward. Parliaments are wired and also wireless, providing internet connectivity at work for members and staff (in 95% and 90% of the parliaments, respectively), as well as access for public visitors (in 83%). The percentage of parliaments offering remote access for staff and members has increased substantially since 2018, from 41% to 55% for members and from 52% to 69% for staff. Inside the chamber, 87% of the parliaments provided members with tablets, 77% with smartphones and 21% with installed desktop devices. Although 88% now allow internet access for members while in the chamber, only 31% permit members to live-stream proceedings.

Services for network management are provided by all parliaments, and for data management by 97%. Only 67% offered services for project planning and management in 2020. The level of services provided was roughly the same in 2018 and 2020, with parliaments in higher-income countries providing a marginally wider range of ICT services. A parliament's size is naturally a key a factor here, with larger parliaments providing a more extensive range than smaller ones.

For document storage, 2020 saw the continuation of a shift since 2016 from local storage, to shared in-house storage and then increasingly to cloud-based storage. Internally shared storage is now used in 80% of the parliaments, and cloud storage in 39% (an 86% increase since 2018). Most parliaments use multiple methods to share documents, with only 3% relying solely on internally shared storage and 4% solely on cloud storage for document sharing. The use of more formal, enterprise-based electronic document and records management systems (EDRMS) has continued to rise, from 47% in 2016 to 51% in 2018 and to 58% now. The upward trend notwithstanding, there are barriers to cloud storage, in terms of the adequacy of infrastructure and support as well as issues of security and data sovereignty.

Commercial software and services continue to dominate the ICT infrastructure within parliaments, with use by 94% for servers and by 94% for desktop and laptop PCs. Open-source software is used in some form by 78% of the respondents and remains the most prevalent form of server operating system in use (for 55%). Parliaments in the low-income countries were the least likely to use open-source software.

Official records are now largely produced digitally, with 65% of the parliaments transcribing them into digital format. The use of direct-to-digital speech recognition software has risen from 8% in 2010 to 25% 10 years later. There has been little change, on the other hand, in the use of ICT to support legislative drafting, the drafting and tracking of amendments or the plenary functions of parliament generally. According to the first World e-Parliament Report, published in 2008, 70% of the respondents had an application at that time to produce plenary minutes. The figure for 2020 stands at 69% (setting aside gains in functionality).

The use of remote plenary voting systems rose from 1% in 2018 to 6% in 2020, but most committees continue to vote manually. There has been a discernible increase in the use of video streaming tools in plenary rooms, rising from 54% in 2018 to 65% in 2020, and a dramatic 72% rise in the use of video conferencing, which has also improved the depth and breadth of testimony obtained by committees. Continuing to expand their communications with the public, 63% of the parliaments now have systems in place for that purpose. Training for public engagement remains a low priority, however, rated as important by only 3% of the parliaments. Internally, 72% of the respondents had provided some form of ICT training and/or induction for members and 86% had done so for staff.

Systems and standards for creating legislative documents and information

Digital technologies allow parliaments to create systems that modernize and support their legislative, representative and oversight functions. Systems for managing parliamentary documentation are designed to make parliaments more efficient, to improve the quality of information and to provide better ways to manage the increasing scale and complexity of data. They range from systems providing digital copies of the official parliamentary record to the complex process of managing the passage of legislation and the interchange between parliament and government. The more advanced systems in use today provide the ability to add and track amendments, allowing members, staff and the public to follow the full legislative life cycle as a bill progresses from draft through committees and plenary into law.

Document management systems lie at the heart of the modern parliament. Primarily focused on supporting and transforming internal processes, they are also a starting point for more open parliaments, improving transparency and accountability. These systems work through the full life cycle of different parliamentary processes and can support the publication of related information, often using open standards. Parliaments lacking such systems can be hampered in the effective management and reporting of information as well as the ability to track and make sense of legislation.

Document management systems

Forty-nine per cent of the respondents had systems for managing legislative text in digital format as it moves through deliberations, down from 55% in 2018 but the same as in 2016. Such systems are being planned or considered by another 51%, up from 37% in 2018, indicating slow but steady progress in the digitization of bill management.

As seen in previous reports going back to 2010, parliaments in lower-income countries tend to be far less likely to have systems in place but also more likely to be planning or considering them. In 2020, 72% of the parliaments in high-income countries had document management systems, compared to only 29% of those in countries of lower-middle and low income.

Figure 43. Correlation between income level and use of legislative management systems (n=112)
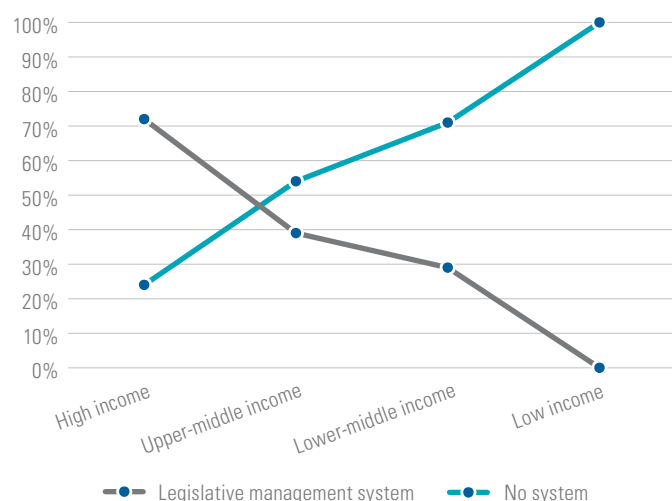
One in ten parliaments uses commercial software solutions for its legislative management systems, including IBM Domino/Notes, M-Files and Microsoft SharePoint, while 88% have either heavily customized or custom-built solutions. There are also several cases of systems being shared between parliament and government departments.

Parliaments with legislative management systems were asked to indicate their functionalities. As in previous reports, 5% indicate workflow capability only, with no ability to handle plenary or committee amendments directly. Systems in 75% have some workflow capability, and those in 72% can handle all versions of a bill. Three-quarters of the parliaments can handle plenary and committee amendments (75% and 74%, respectively), only 47% have systems able to show how amendments change bills (significantly below the 60% reported in 2018 but above the 40% reported in 2016). The legislative management systems of 47% can exchange data with systems outside parliament.

Table 19. Features of document management systems for bills (n=57)

	2020	2018	2016
Has workflow capability	75%	70%	75%
Exchanges data with systems outside the parliament	46%	51%	49%
Handles all possible versions of a bill	72%	82%	79%
Handles committee amendments	74%	72%	83%
Handles plenary amendments	75%	79%	83%
Shows how amendments change a bill	47%	60%	40%
Includes all actions taken by parliament on a bill	72%	77%	83%

Apart from legislative management, parliaments were provided a list of standard parliamentary functions and asked to identify systems they had in place to support them. Seventy-three per cent indicated systems for managing plenary votes, with 28% using Extensible Markup Language (XML)-based systems. Far fewer parliaments used XML-compliant systems for committee records (8%, versus 51% with non-XML systems). For official plenary records, 19% used XML and 54% non-XML systems, the former being useful as a simple, straightforward way to publish open data. That is not to say that non-XML systems prevent or inhibit open publishing, only that the intermediate steps between source and publication can be more complicated.

Table 20. Committee and plenary document management systems (n=78)

	XML based system	Non-XML based system	Considering	No
Minutes of committee meetings	8%	51%	22%	15%
Committee reports	14%	54%	24%	5%
Verbatim record of Committee hearings	8%	58%	18%	12%
Minutes of plenary sessions	19%	54%	18%	6%
Plenary speeches and debates	21%	56%	18%	5%
Plenary votes	28%	45%	14%	9%

In previous reports XML has been highlighted as an important tool for improving parliamentary openness. While not the only way to release data, XML offers an easy-to-understand and standardized way of describing and sharing machine-readable data. As in 2016 and 2018, parliaments indicate challenges in implementing XML and, though improved to some extent, the picture remains broadly similar. Fewer parliaments (25%) reported difficulties in finding or developing software for authoring or editing in 2020. That is down from 39% in 2018. Almost the same proportion (38%) still saw challenges in staff knowledge and training (up from 35% in 2016 and 2018). User resistance to XML, following a sharp rise in 2018 (to 25%) dropped back to 11% in 2020, below the 2016 level. It is significant that 21% of the parliaments reported no challenges in implementing XML whereas only 9% did in 2018.

Figure 44. Challenges in using XML for document management systems (n=84)

Challenge	2020	2018	2016
Lack of staff knowledge and training	38%	35%	35%
Difficulty in finding or developing software for authoring and editing	25%	39%	35%
Lack of financial resources	21%	19%	14%
Complexity of using XML	20%	29%	19%
Difficulty in developing a DTD or XML schema	19%	23%	20%
Lack of management support	11%	17%	11%
User resistance	11%	25%	14%
None	21%	9%	15%
Not applicable	18%	24%	24%

These findings suggest that technical complexity and staff knowledge remain the greatest barrier to the uptake of open systems in parliaments, even though resistance to XML has diminished. It appears overall, that XML is on its way to becoming a standard component of many parliamentary systems.

Making parliamentary documentation available to the public

About the different document formats

PDF This is a proprietary document intended to pre-define (and lock-in) the formatting. It is designed to be read by people but is difficult, and in some cases impossible, for computers to read.

XLS or CSV A Microsoft Excel format spreadsheet (XLS) or an open-format spreadsheet format that uses comma-separated values (CSV).

XML Extensible Mark up Language (XML) is a way to define rules for encoding documents in a format that can be rendered for people to read (for example, in a web browser) or can be machine-readable (that is, used by other software and applications). The aim of XML is to make information reusable and to ensure that the process of describing it is simple and does not require any prior knowledge (it is self-contained).

API An application programming interface (API) is a set of protocols, software routines and tools that allow software-based applications to access, interrogate and extract data from a live data source. This means that tools can be built to access a single data source, ensuring that it is always the most up-to-date version.

Early editions of the World e-Parliament Report series focused on internal systems for the preparation and workflow of parliamentary documentation. While that aspect remains important, there is now added focus on systems to produce data for use outside parliament, whether for civil society organizations, the media, academic and research institutions or the wider public. The 2016 report included a second survey on the work of parliamentary monitoring organizations (PMOs) and their role in extracting and sharing meaningful information from parliamentary data.

Figure 45. How documentation is made available to people outside parliament (n=107)
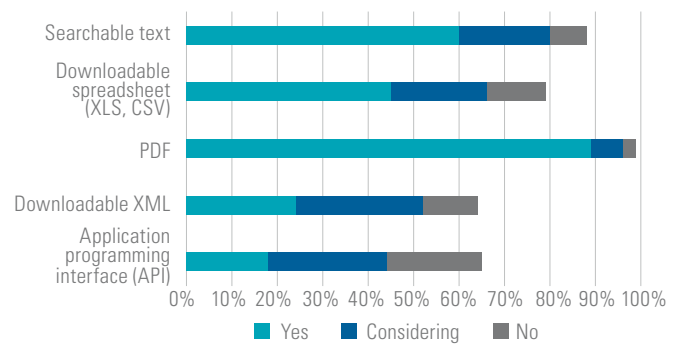
In 2016, 80% of the parliaments published documents in PDF format, and another 10% were considering that option, making PDF their most popular publication format. PDFs are not the best format for open sharing, however, as they are not "machine-readable", being designed for people, not computers. When content is published as an image, it creates problems for reuse. Different formats have benefits and downsides depending on how and when they are used. PDFs are poor vessels for data, being much better suited to text-based reports, with formatting preserved.

More open formats include comma-separated values (CSV), for spreadsheets, live downloads and, for more technically minded organizations, application programming interfaces (APIs). In 2016, 39% of respondents published spreadsheets, but far fewer provided an XML or JavaScript Object Notation (JSON) interface (12% and 7%, respectively). In 2018, 88% of the parliaments published live-data APIs, with 38% supporting that format. Others were planning on or considering either XML- or JSON-based APIs (32% and 30%, respectively).

In 2020, the use of PDF-based documents remained high (89%), and the most widely used format for publishing. Spreadsheets were used by 45% and XML by 27%. Overall, 18% of the parliaments offered open data through an API, an option being considered by another 26%. It is also notable, however, that one in five was not considering that option.

As shown in Table 21, the disparities seen in earlier reports have widened, reflecting persistent barriers to open publication among parliaments in lower-income countries. Sixty-five per cent of those in high-income countries offer searchable text to the public, compared to only 17% in low-income countries. Only 7% of those in countries of lower-middle or low income offer an API, compared to 25% in high-income countries. Data downloadable in XML format was provided in 2020 by 37% of the parliaments in high-income countries, but only 13% of those in countries of upper-middle income, and none of those in low-income countries, did the same. The gaps narrow slightly for publishing in spreadsheet format but remain heavily skewed against low-income parliaments. Only the PDF format is consistently used across all income segments.

Table 21. How documents are made available by income (n=107)

	High	Upper middle	Lower middle	Low
Searchable text	65%	57%	43%	17%
Downloadable spreadsheet	46%	47%	29%	33%
PDF	88%	77%	79%	67%
Downloadable XML	37%	13%	11%	0%
Application programming interface	25%	13%	7%	0%

As shown in Figure 46, 88% of the parliaments surveyed made at least some open data publicly accessible for all on their websites compared to 69% in 2018. A quarter of the parliaments (25%) provided some or all of their data on request. For access to an API, it is good practice to require use of a digital "key". While it may "lock down" the data, it provides a more reliable means of managing interaction with external data partners, to ensure that any changes in the publication schedule, process or schema are communicated correctly. A quarter of the parliaments shared their data via a government or national portal, and 6% did so through an external organization (a decline from 10% in 2018). Overall, over a third of the respondents (35%) had more than one channel for accessing open data.

Figure 46. How open data can be accessed, when available (n=102)
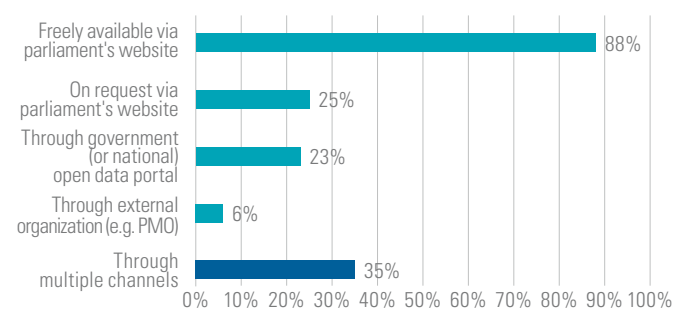
Artificial intelligence

Artificial intelligence refers to the use of digital processes to simulate "intelligence", solve problems and learn through experience (machine learning). The ultimate definitions of AI are that it can simulate human thought, but its use in parliamentary settings is at this stage less ambitious. It does, however, offer an opportunity to build systems that are able to learn from what has happened in order to improve parliamentary processes. Ten per cent of the parliaments used AI in 2020, marking it as an emerging technology. As shown in Figure 47, only 6% used some level of AI functionality to draft bills, and even fewer did so for other parliamentary activities. The potential for rapid growth in its use, however, is obvious from the high percentages of parliaments considering that option for drafting purposes (about a third), the management of information for members (two in five) and support for citizen engagement (also two in five).

Figure 47. Use of AI (n=97)
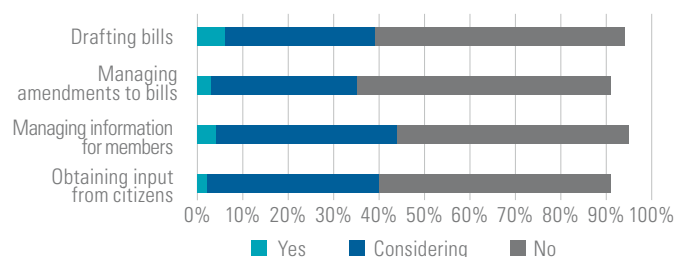
As some examples, AI is now being used by:

- The Brazilian Chamber of Deputies and the US House of Representatives, to improve legislative drafting.

- The Brazilian Chamber of Deputies for thematic, citizen-facing content on its website (on human rights, for instance), as well as an AI-based "chatbot", under development, to help citizens find information.

- The Austrian Parliament, to manage and refine the information members receive from external research and publications.

- The Estonian Parliament, to improve quality and accuracy in transcribing the official record (a pilot project).

- The Japanese Diet, to enhance video recordings of the plenary sessions and improve end-user searchability.

Archiving and preservation

Seventy-three per cent of the parliaments maintained some form of digital archive of parliamentary documentation in 2020, and 45% had a formal policy for digital archiving and content management (compared to one-third in 2018). Of the remaining parliaments, 24% were considering digital archives, and only 2% were not. Three-quarters of the parliaments had digital archives in place and nearly half had digital archiving and preservation policies. Far fewer, however, had both in place (39%).

Figure 48. Policies and practice for digital archives (n=110)

Legend: Yes, Considering, No

X-axis: 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Categories:
- Policy for the preservation of documentation in digital format
- Maintains digital archive of parliamentary documentation
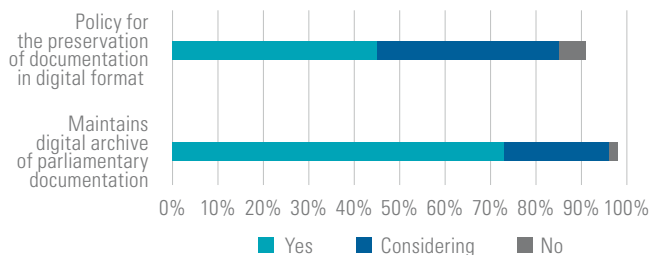
Summary

The 2016 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 also a "blossoming" in the open publishing of such documents. The progress since then appears limited, however, owing to continuing constraints on funding and skilled resources. Complex legislative management systems continue to be adopted but are also widening the gap between the better-off parliaments and those less so. Such economic disparities largely explain the limited adoption of such systems. While one in ten parliaments used off-the-shelf commercial software solutions for legislative management, 88% reported the adoption of heavily customized or custom-built solutions. The systems used by 75% of the parliaments were reported to handle all plenary amendments while 74% had systems to handle committee amendments. Fewer parliaments (47%) had systems showing how amendments changed bills, with 46% reporting systems able to exchange data with outside systems.

These figures are largely consistent with the two previous reports and indicate a fairly settled state of maturity. However, they do not capture the details of changes in functionality or additional advanced features as systems are upgraded. Several parliaments, though fewer than in previous editions, report continuing user resistance and limited management buy-in as barriers to the adoption of new legislative management systems.

The growth of open publishing, first reported in 2016, continues, but again with major disparities according to country income level (in all areas except the use of PDFs). Sixty-five per cent of the parliaments in high-income countries published text in searchable format, compared to only 17% of those in low-income countries. An application programming interface (API) was provided by only 7% of the parliaments in countries of lower-middle and low income, compared to 25% of those in high-income countries. Internally, 73% maintained some form of digital archive of parliamentary documentation, and 45% had a formal policy for managing such archives.

There was notable early interest in AI among parliaments attending the 2018 World e-Parliament Conference in Geneva and a significant rise in this interest expressed at the 2021 Virtual World e-Parliament Conference. As of today, one in ten parliaments are using AI-based technologies, but fully half indicate no plans to do so. Six per cent have used some level of AI functionality to draft bills, and about a third are considering that option. This appears to be an emerging area that will no doubt be followed up in future reports but, apart from the data on its adoption, the use of AI in parliament

raises important questions about governance (who can verify that algorithms are legitimate and not biased?) and about security (how are the algorithms to be protected, particularly if the systems are used to draft legislation or support parliamentary procedure?).

This report shows continuing movement, though without radical change, towards the use of digital tools to manage parliamentary workflow and processes. There has been a steady increase in the provision of open data, but with continuing barriers to its use. Similarly, the use of digital parliamentary archives has outpaced the adoption of policies for managing them. Such disparities too often reflect a disconnect between planning and practice. The emergence of AI-based systems, on the other hand, shows parliaments more in step with wider trends and open to cautious exploration of emerging technologies.

Library and research services

Access to up-to-date and reliable information and research are critical to the functioning of legislatures. Parliamentary libraries support members and staff by providing information, knowledge and analysis relating to the political, economic and social context of legislation and committee inquiries. According to the survey, 97% of the responding parliaments had libraries in 2020. Two parliaments did not, both in Europe: one a very small unicameral chamber and the other an upper chamber (whose lower chamber did have one). Among bicameral parliaments, 37% had separate libraries for each chamber; 63% had one for both chambers.

Library management systems

Almost three-quarters of the parliamentary libraries surveyed now provide an online catalogue to their users (71%), roughly the same as in 2018 (73%) but up from 2016 (65%). Just under half (49%) reported having some form of electronic resource management capability, with 30% either planning on or considering such a facility. This is a considerable decline from 2018 (42%), when 51% had such capabilities. Sixty per cent of the parliamentary libraries had digital archiving systems (about the same as in 2018) and a further 30% were planning on or considering one.

Figure 49. Automated systems for managing library resources (n=104)

Categories:
- Acquisition of monographs
- Acquisition and claiming of serials
- Circulation system
- Cataloguing of acquisitions
- Online catalogue
- Archiving of digital resources
- e-resource management capabilities

X-axis: 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Legend: Yes, Planning, No
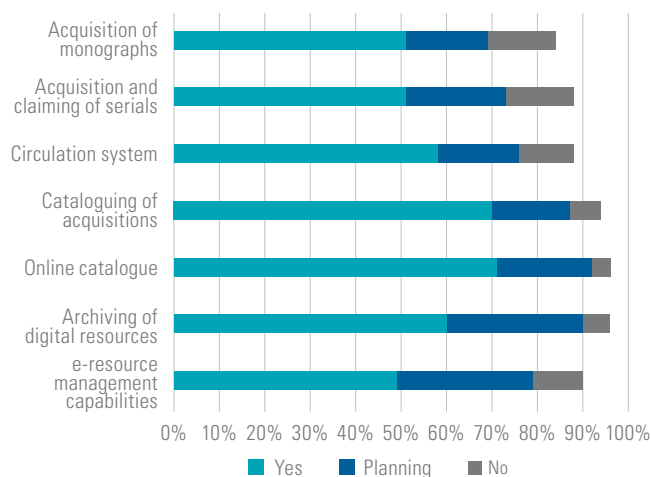
In 55% of the libraries, as reported in 2020, members and staff had access to internet-based resources; in 69% they had access to the library's own resources, through a parliamentary intranet. Such arrangements were being planned or considered by 23%. A library-specific website (or subsite) was available to members in 44% of the parliaments, and in 58%, members could submit requests electronically to their libraries for information, resources and research material (with an additional 29% considering that capability). Only 38% of the libraries offered members the use of electronic alerting services; over half (57%) did not. Most libraries (56%) subscribed to online journals and databases, a decline from 2018 (66%). Curiously, 13% had no plans to offer journal or database access to members, up significantly from 2018, when 7% had no such plans).

Table 22. Electronic networks and tools available to libraries (n=104)

	Yes	Planning	No
Connected to an intranet	69%	23%	5%
Provides access to internet-based resources	55%	27%	14%
Has own website that is available to members and committees	44%	28%	21%
Uses electronic alerting services	38%	31%	26%
Receives requests and questions from members electronically	58%	29%	10%
Purchases subscriptions to online journals and databases	56%	27%	13%

Three-quarters of the libraries (75%) operated a digital repository to preserve and provide access to parliamentary documents. Sixty-one per cent offered discovery tools to facilitate user research and permit federated searches across multiple sources. Parliamentary libraries were also starting to use more open data sources and to link them for purposes of analysis. The percentage of libraries using cloud storage increased to 19% in 2020, slightly below that for parliaments overall (21%).

Libraries in three-quarters of the parliaments of high-income countries (74%) had digital discovery tools in 2020, compared to 59% for those of all income levels and only 40% of those of lower-middle and low income. Thirty-one per cent of the libraries offered open data, with slightly less discrepancy in this case between those of high-income and lower-income countries (39% and 30%, respectively). Forty per cent offered linked data, for deeper analysis of data sets, and 86% had a digital repository of parliamentary documents, another category with less difference between parliaments of high-income and lower-income countries (87% and 75% respectively).

Figure 50. Digital tools used by the library to support users (n=83)

ICT support for parliamentary libraries was largely provided by the parliament's ICT department (for 92% of the libraries, and as the only source for 25%). A quarter of the libraries (25%) had some internal support capacity of their own. In 25%, staff performed some technical support role but the figure was only 10% in the case of research services. Thirty-nine per cent of the libraries used external contractors to support and maintain their systems.

Table 23. Source of ICT support for library and research services (n=100)

	Library	Research Services
Librarians	25%	10%
Library technical staff	25%	9%
Parliamentary ICT staff	92%	62%
Government ICT	7%	6%
External contractors	39%	18%

Serving the public

As described in earlier reports, parliamentary openness and transparency have become increasingly important over the last 10 years. Among libraries and research services offering customized research, 67% made at least some of the results available to the public. Only 9% neither did this nor planned to do so. Arrangements for the publication of research findings vary from country to country. The Israeli Knesset publishes all internal research reports, even those commissioned by a single MP. The UK House of Commons publishes only the findings of research conducted for committees or requested by several members.

Table 24. Parliamentary research papers made available to the public (n=105)

Yes	67%
Planning	25%
No	9%

As these data suggest, parliamentary libraries and research services are no longer confined to support for members. Their role has become increasingly public-facing. Six per cent report the use of online collaboration tools for engagement with the public and civil society. Though small for now, that percentage reflects growing use of collaboration platforms, such as Slack and Yammer, and more open, outward-looking collaboration across business and society generally. The parliaments of Afghanistan, Switzerland, New Zealand and Slovenia are all using tools to collaborate externally. Email is now ubiquitous, with 96% of libraries using it to communicate externally and 38% producing email newsletters for external subscribers. The use of social media is levelling off here as well, with 24% of the libraries reporting it in 2020 compared to 26% in 2016 and 27% in 2018. The use of instant messaging (WhatsApp, Viber, Telegram) is rising sharply – from 8% in 2016 to 13% in 2018 and to 26% in 2020. Instant messaging is now the second most favoured interactive communication method, after email. The use of blogs appears to be receding, down from 10% in 2018 to 5% in 2020.

Figure 51. Digital tools used by the library to support users (n=86)

Email	96%
Email newsletter	38%
Instant messaging	26%
Social media	24%
Twitter	13%
Photo sharing	9%
Video sharing	6%
Social collaboration tools	6%
Blog	5%
Website	1%
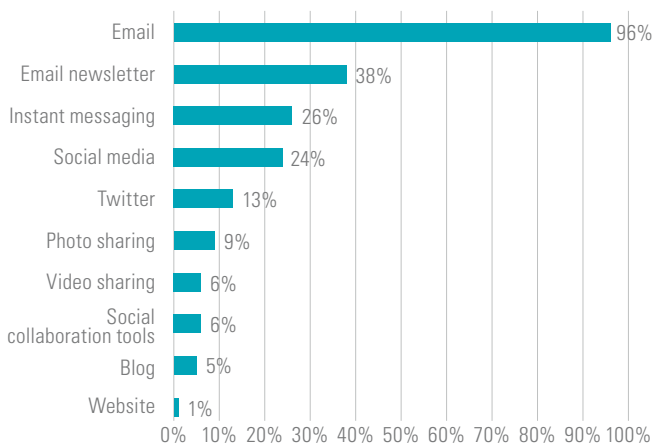
Summary

This year's report shows a steady and consistent uptake of digital tools by parliamentary libraries and research departments, as well as unexplained decreases for some of the numbers reported, probably owing to variations in the sample. The data does, however, show the critical importance of ICT and how digital tools now underpin parliamentary libraries around the world. Almost three-quarters of those surveyed had online user catalogues in 2020; 49% had some form of electronic resource management capability and 60% had digital archiving systems.

Digital tools are vital for communications, both internally and externally. In 2020, libraries in 55% of parliaments provided access for members and/or staff to internet-based resources, and 69% to the library's own resources. A library-specific website (or subsite) was available to members in 44% of the

parliaments, and libraries could receive electronic requests from members for information, resources and research material in 58%, and electronic alerting services were provided by 38%.

Open data was made available by libraries in 31% of the parliaments, with 40% offering linked data to support deeper analysis. Library use of cloud storage (19%) has increased in line with that observed among parliaments generally.

Information and communications technologies were supported in 92% of the libraries by their parliaments' ICT departments (the only source of such support for 36%). A quarter of the libraries (25%) provided some level of internal ICT support within the library and research service areas; 28% used external contactors to support and maintain their systems.

Internal research was published by 67% of the parliaments, reflecting a shift from internal support to public-facing roles for parliamentary libraries. Email is now ubiquitous for external communication, with 96% of the libraries using it in 2020 and 38% producing subscription-based email newsletters for external individuals and organizations. Library use of social media appears to be levelling off (24% in 2020, compared to 26% in 2016 and 27% in 2018), while instant messaging rose in 2020 to 26%, becoming their second-most widely used communication medium.

Parliaments online

As far back as the first World e-Parliament Report, in 2008, 90% of parliaments reported having some form of public-facing web presence. This rose to 100% in 2016 and 2018 but dropped back to 98% in 2020, the difference attributable to an African parliament whose web content was being hosted on the government website pending plans to develop its own. As reported throughout this series, parliamentary websites have been ubiquitous for many years and were already well established before the series began. But that presence has been neither passive nor static. What we see today is vastly different from the sites in use 10 and especially 20 years ago. The UK Parliament was one of the first parliaments to launch a website, in 1996. Figures 52 and 53 compare that original site with its landing page today.

Figure 52. UK Parliament's website October 1996

Figure 53. UK Parliament's website February 2021
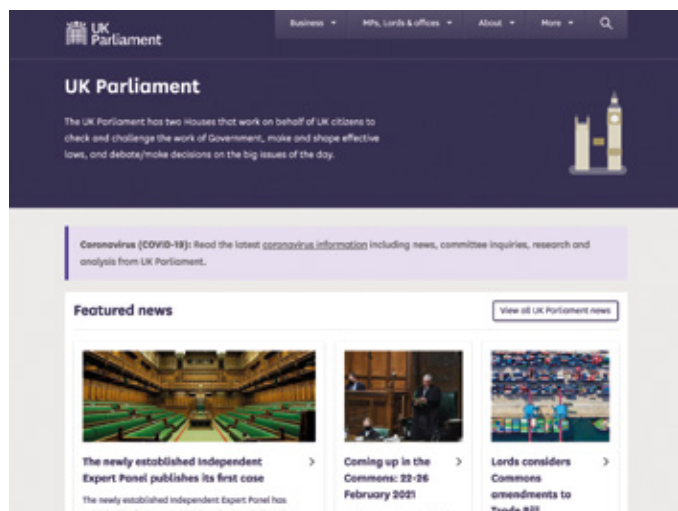
This section of the report examines how parliaments plan and manage their websites, the types of content they offer and their internal structures for creating and managing content. It looks at efforts to make their websites usable and accessible, and to ensure timely public access to information.

Website planning and management

The importance parliaments assign to their websites is reflected by the managerial level of responsibility for the site's strategic goals. In 2020, it rested at least in part with their secretaries general in 62% of the parliaments, a percentage consistent with findings in the last four reports. Political involvement in website strategies appears to be diminishing: the Speaker has been increasingly less involved since 2008, when Speakers took part in 46% of the parliaments, compared to the low of 28% recorded in 2020. Similarly, the percentage of parliaments with members involved in such decisions has fallen from 14% in 2008 to 8% in 2020. As explained in the 2018 report, this suggests an increasing acceptance within parliaments of websites as "business as usual" and a better understanding, or perhaps diminished perception, of the risks posed by public-facing content.

The chief information officer (CIO), or highest-ranking ICT manager, as well as the director of communications, have consistently played key roles in setting the strategic direction of parliamentary websites. Some parliaments assign such roles to existing parliamentary boards or executive branch oversight departments, which in practice may be placing actual strategic direction in the hands of website managers, particularly in larger parliaments.

Figure 54. Responsibility for establishing overall website goals (n=109)

● 2020 ● 2018 ● 2016 ● 2012
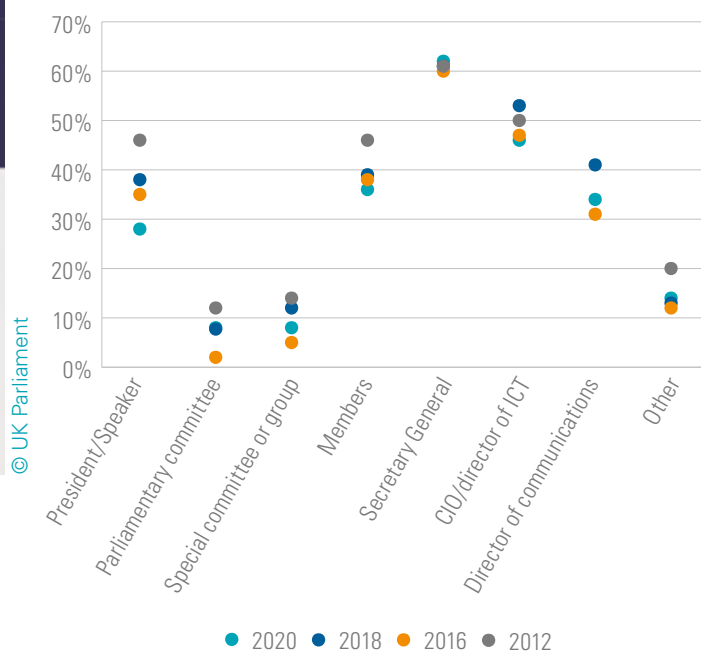
A single person or committee was solely responsible for the website's goals in 67% of the parliaments in 2020, with the Speaker tending to play that role in 14% (despite a diminishing role overall) and the Secretary General doing so in 6%. Sole responsibility was assigned to a special committee or designated group in 10% and to the director of communications in 4%. The CIO was solely responsible in only one of the parliaments surveyed.

Table 25. Sole responsibilities for website goals (n=109)

Speaker only	14%
Special committee or group	10%
Secretary General only	6%
Director of communications only	4%
CIO only	1%

Day-to-day responsibility for operation of the website falls to several different departments. Information technology departments are naturally involved in most parliaments (72% in 2020), though less so than in 2018 (76%). The communications department was the second-most involved (in 33%, compared to 38% in 2018 and 32% in 2016), followed by the press office or public relations department (32%). A department was assigned sole responsibility in 58% of the parliaments: the ICT department in 74%, and communications in 19%. Where parliaments identified "other," the websites were usually managed by a multi-departmental committee or board.

Figure 55. Responsibility for website (n=111)

ICT department	72%
Communications	33%
Press office / Public relations	32%
Other	16%
Library	8%
Speaker's office	7%
Research services	5%
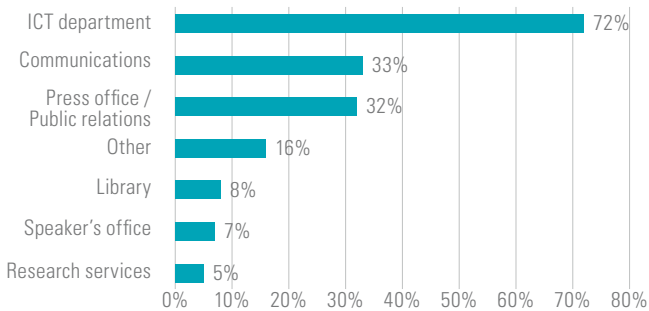
In the 2020 survey, 93% of the parliaments reported having some form of policy for website management, an increase from 90% in 2018. An encouraging 72% had a formal (written) policy in at least one area: the most mentioned being access and usability (55%), privacy (54%) and content (51%). In all areas but one, more parliaments had formal than informal (unwritten) policies. The exception was website development planning, where 41% had an informal policy and only 31% a formal one. This was also the area where parliaments were least likely to have any policy (20%). Eleven per cent of the parliaments appear not to have a policy for website security, which may in some cases be covered by other policies or an external host. The lack of any policy for website security would be cause for concern.

Figure 56. Website policies (n=108)

Goals and objectives
Development plan
Content
Privacy
Access and usability
User support
Security

■ Written ■ Formal ■ None
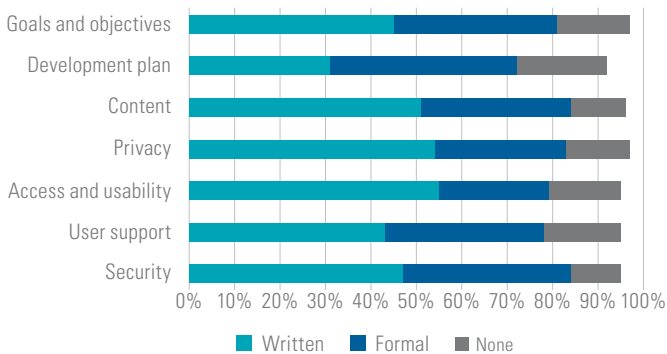
Responsibility for developing and managing website content is spread across different areas. In 2020, 41% of the parliaments left individual departments to manage their own content. Where centralized, responsibility for content tended to fall to the ICT department (in 21% of the parliaments, compared to 17% in 2018) or the communications department (15%; down from 20% in 2018). In 10%, the press office or public relations department was responsible. Thirteen per cent of the parliaments indicated other departments, most often the Secretary General's office or the parliamentary secretariat.

Figure 57. Who manages the website (n=111)

■ ICT department
■ Press office/Public relations
■ Communications
■ Different departments are in charge of their own content
■ Other department(s)

13%
21%
10%
15%
41%
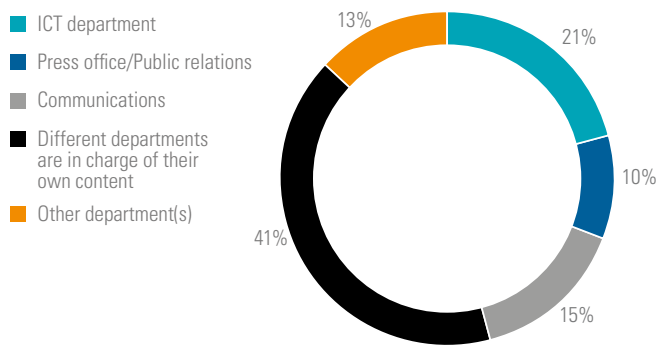
Website content

Parliamentary websites are rich repositories of information, history and the latest details on the work being done by parliaments. For the public they are touchpoints for reliable information about the democratic system, and about the individuals representing them, how to reach them and what they are doing. Only one parliamentary website did not provide details on members in 2020. Content to inform and educate the public about the parliament's history, role, functions and composition was provided by 98% of the respondents. Seventy-nine per cent of the websites explained the legislative process and operating methods of parliament. Far fewer (55%) illustrated the information using charts or diagrams. As shown in Figure 58, the Australian Federal Parliament offers a good example of clear graphical representation of the legislative process, a good way to demystify often complex parliamentary processes, for both young people and the wider public. Eighty-six per cent have some form of glossary or explanation of parliamentary language and terms, another important factor in educating and engaging the public.

Most parliamentary websites (84%) provided contact information in respect of website content and operations, but only 67% clearly articulated responsibility for content and website policies and practices.

Figure 58. How a bill passes through parliament

THE USUAL PATH OF A BILL

HOUSE of REPRESENTATIVES

1st READING
The bill is introduced to the House of Representatives.

2nd READING
Members debate and vote on the main idea of the bill.

House committee*
Public inquiry into the bill. Reports back to the House.

Consideration in detail*
Members discuss the bill in detail, including any changes to the bill.

3rd READING
members vote on the bill in its final form.

BILL PASSED
in the House of Representatives and sent to the Senate.

SENATE

1st READING
The bill is introduced to the Senate.

2nd READING
Senators debate and vote on the main idea of the bill.

Senate committee*
Public inquiry into the bill. Reports back to the Senate.

Committee of the whole*
Senators discuss the bill in detail, including any changes to the bill.

3rd READING
Senators vote on the bill in its final form.

BILL PASSED
in the Senate.

GOVERNOR-GENERAL

Royal Assent
The Governor-General signs the bill.

BILL BECOMES AN ACT OF PARLIAMENT

A LAW FOR AUSTRALIA

*optional stage

Senate referral
The Senate may refer the text of the bill to a Senate committee for inquiry (this can happen while the bill is in the House).

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Table 26. Information provided on the parliamentary website (n=110)

List of Members of parliament	99%
History and role	98%
Functions, composition and activities	98%
Parliamentary committees, commissions and other non-plenary bodies	98%
Parliamentary leadership	95%
Full text of the standing orders, rules of procedure or similar rule-setting documents	88%
Whom to contact for questions about parliament	88%
Explanation of parliamentary terms, procedures and routine order of business	86%
Visiting parliament	84%
Whom to contact for questions about the operation of the website	84%
Administration of parliament	83%
Explanation of the legislative process	79%
About the website (who owns it, manages it, updates policy, etc.)	67%
Chart or diagram showing how the business of parliament is conducted	55%
Explanation of the budget and public financing processes	51%

Half of the websites provided an explanation of the parliamentary budget and financing processes, 79% provided copies of draft legislation and 78% copies of enacted legislation (where not provided, such copies are often made available through a government website). Ninety-five per cent of the websites provided a schedule of parliamentary business, and 92% offered information on committee activities. An audio or video recording of plenary proceedings was provided by 76% of the websites but by only 44% in the case of committee meetings (compared to 39% in 2018).

Table 27. 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	92%
Text and status of draft legislation	79%
Text of all enacted legislation	78%
Audio or video of plenary meetings	76%
Parliamentary questions and government responses	69%
Audio or video from committee meetings	44%

Online publication formats

Most parliamentary information, documents and data is "published" in the traditional sense: for reading not for reuse. As illustrated in Figure 59, most parliaments make information available either directly on the web page or as a downloadable file, such as a PDF. Though not ideal, it is better than not publishing. There were continuing disparities in 2020 in the kind of content published. Thirty-four per cent did not publish committee votes; 30% published no impact assessments for their bills (though possibly available elsewhere) and nearly a quarter (23%) published no committee amendments to legislation. And the numbers were higher in 2018. On a more encouraging note, 6% provided such information in an open data format and 7% as editable files. Twelve per cent of the parliaments used an open data format for data on plenary action and voting, with a further 10% providing editable downloads; 10% provided plenary speeches as open data. Overall, most parliaments published plenary information in some format, but fewer published information on the committees or on the impact and budget implications of legislation.

Many parliaments are providing more open data, particularly on plenary action, speeches, debates, voting and member activity (with increases of 180% to 230% over previous findings). At the same time, the number of websites not providing information on parliamentary activity is going down. As a rule, all publication is good, but open, machine-readable publication is better, allowing PMOs, academics, the media and other stakeholders to scrutinize, analyse and understand what is happening in greater detail. Where open data format is not an option, other modifiable formats, such as a spreadsheets, should be explored as a better alternative to simple PDFs or web page content. The purpose of a modifiable format is not to change the data but allow its reuse, correlation and analysis. Open data and modifiable downloads eliminate the need for manual duplication or re-entry and reduce the risk of error.

Figure 59. How access to content is provided (n=108)

Legend: Web page or document, Download, Open data, Not available
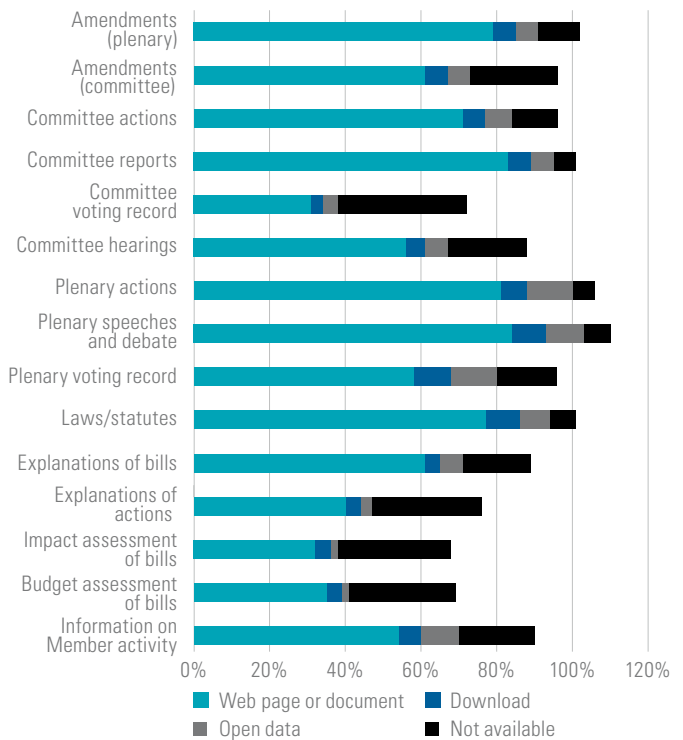
Timely access to information

With the news cycle reduced to seconds nowadays, keeping the public informed in a clear, timely and efficient way is critical. Public access to accurate, relevant information helps parliaments to engage a wider audience and citizens in their work – and ultimately to help build trust. Advance public notice of parliamentary business helps to engage groups or individuals with interests in particular topics. In 2020, 91% of the responding parliaments posted their plenary agendas online in advance of sittings, and 26% did so a week or more in advance. Sixty-seven per cent published committee agendas online at least two days in advance. A persistent 13%, however, did not publish committee agendas, a constant figure in the last three reports.

Figure 60. When plenary and committee agendas are published (n=109)

Legend:
A. At least one week before action
B. At least two days before action
C. Same day of action
D. After action taken
E. Not available
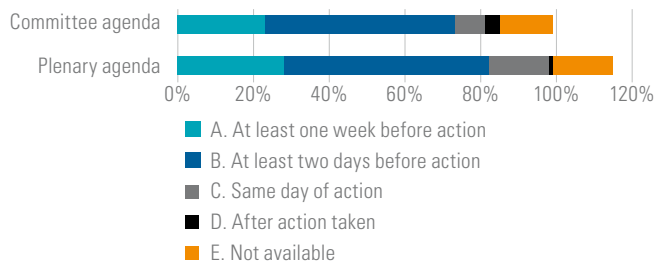
Draft legislation was published online within a day of submission by 58% of the parliaments, and on the same day by 43%, in 2020. Plenary proceedings were published within a day of the session by 67% (68% in 2016). The number not publishing remained at 6%. Here again, committees lagged behind plenaries in website publication: in only 47% did committees publish their proceedings within a day, slightly up from 2018 (43%) and significantly more than in 2016 (35%).

The percentage of parliaments not publishing their committee proceedings online was 18%, compared to 23% in 2018 and one-third In 2016.

Figure 61. When documents are usually available on the website (n=109)
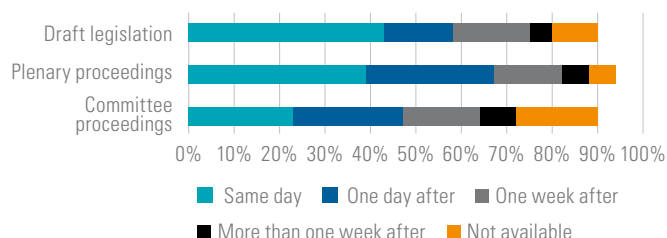
Thirty-nine per cent of the parliaments published information on the impact of legislation, either simultaneously as released to members or shortly later; 26% answered "not applicable" to the question. Four in five parliaments (81%, up from 74% in 2018) published their plenary schedules internally and externally at the same time; only 65% did so for committee schedules. The data for both 2020 and 2018 indicated moderate improvements over previous years in the timing and parallel publication of parliamentary schedules.

Figure 62. When documents are made available to members and public at the same time (n=108)

To ensure that published information can be found by website visitors, 98% of the websites offered a search facility in 2020. Audio or video archives and live webcasting were provided by 78% (up from 73% in 2018). User-passive "push" notifications, as op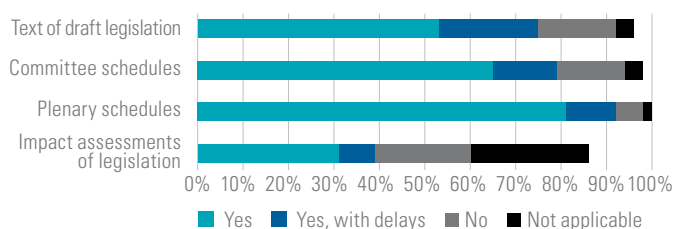posed to active searches, are a good way to keep stakeholders informed about new publications and resources. Thirty-one per cent of the parliaments offered an online alerting service, a decline from 2018 (38%).

Table 28. Tools for finding and viewing information (n=108)

A search facility	98%
Audio/video archive and live webcast	78%
Alerting services for documentation	31%
Designed for use on mobile devices	63%

In step with increasing use of mobile technologies by the general public, 63% of the parliaments reported offering mobile-specific web content in 2020, an increase from 54% in 2018. All parliamentary websites were optimized for PCs (desktop or laptop) and a significant number provided some level of website optimization, to ensure the usability of content across a range of platforms and devices. Web content was fully optimized for mobile devices in 73% of the parliaments, and for tablets in 78%.

Figure 63. Optimization of web content across devices (n=109)
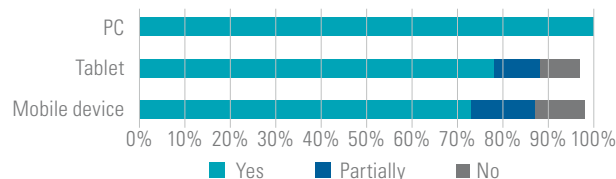
Usability and accessibility

Providing web content accessible for all users is becoming ever more important for democratic institutions, including parliaments. Websites need to exhibit good user-centric principles of design but also consider different user needs. One example is "easy read" content for users with reading difficulties, making sure that all graphical content has alternative text for screen readers and that page design is coherent.

There are various good practices and standards for website usability. The 2012 and 2016 reports both noted increases in the adoption of usability techniques but no comparable rise in the application of accessibility standards. Back in 2016, an increased number of parliaments reported the design and deployment of websites based on usability and accessibility methods (both formally and informally). More parliaments that year-based design and content not on standards per se, but on user needs (81% in 2016 versus 72% in 2012) or "user testing and other usability methods" (59% and 15%, respectively). Application of the user-needs method edged up in 2018, to 82%, and again in 2020, to 83%. The figure for "user testing and usability methods" stood at 57% in 2020. Twenty-one per cent of the parliaments applied national public sector standards, W3C or similar standards, or the IPU Guidelines for Parliamentary Websites; 20% applied no formal standards to website development.

Table 29. Website tools and guidelines (n=106)

Content and design based on needs of different user groups	83%
User testing and other usability methods are used	57%
National government/public sector standards	59%
W3C or other applicable standards	61%
IPU Guidelines for Parliamentary Websites	52%
Periodic evaluation	61%

Parliaments address the needs of users with disabilities or special needs in considerably different ways. Many follow formal standards for how web content should be delivered, or comply with legal accessibility requirements for published content. Several parliaments have made their websites compatible with screen reading software; others publish all material in "easy read" format or provide sign-language interpretation. Some parliaments have run specific accessibility tests on their websites.

The IPU Guidelines for Parliamentary Websites, referenced by half of the parliaments (52%) recommend approaches to the use of multiple languages within the parliamentary web estate when more than one official language is used in the country. The issue is important as a matter of democratic inclusion but does add a degree of complexity to the website.

All parliaments with two official languages made their website content fully available in both languages, but only 29% of those with three official languages did the same. The figure for parliaments with more than three was only 14%.

Most important improvements

In each of the last three surveys, the web service improvements considered most important during the two prior years have come in the same three areas: content, technical architecture, and design and usability, which may reflect the survey's technical focus. Perhaps more striking are the fall-off in the importance assigned to usability improvements and the impressive rise in that assigned to civic participation projects, up to 21% from only 6% in 2018. Parliaments continue to recognize the importance of open data improvements (ranked high by 20%) but social media enhancements no longer impress as they once did, their ranking having declined steadily since 2016. To be clear, beneficial changes may in fact be happening in such areas, but what is being measured here is their relative importance as perceived by members.

Figure 64. Most important improvements in last two years (n=76)
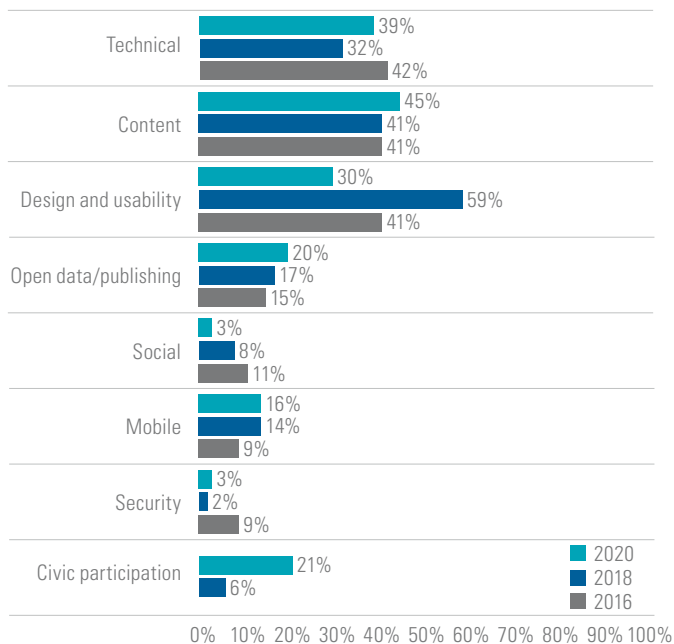
Parliaments also ranked the importance of website improvements planned for the next two years. The top three were essentially the same: design and usability, content and technical platforms. Those were followed closely by open data and mobile-friendly features for apps and websites. In 2018, a notable number of respondents indicated greater use of video, whether live broadcasts or archive footage, as the most important improvement planned. There were similar responses in 2020, but more about improving content overall. Fifteen per cent of the parliaments indicated improvements to open data and publishing capabilities (up from 13% in 2018), with 12% indicating civic participation, a notable increase from 2018 (7%). Only 1% indicated security improvements as the most important, though some may have considered those falling in the category of "technical" improvements.

Table 30. Most important improvements planned to websites over the next two years (n=82)

Technical	55%
Design and usability	37%
Content	18%
Mobile	17%
Open data/publishing	15%
Civic participation	12%
Social	1%
Security	1%

Summary

Despite a strong focus on social media, particularly for public engagement, websites continue to occupy a critical place in the architecture of parliamentary information, education, outreach and engagement; they are both outlets for meaningful and timely parliamentary information and touchpoints for public engagement. All parliaments now have a web presence and thus an important stake in the internet. Parliamentary websites have been around for some time, evolving with the changing needs of parliaments and stakeholders and with improvements in the underlying technologies. In 2020, 62% of responders assigned some degree of responsibility for websites, as a reflection of their importance, to the parliament's Secretary General. Parliamentary websites have become increasingly institutionalized, with a chief information officer (or equivalent official) usually setting website strategy, often in tandem with the Director of Communications. Day-to-day website operations falls to several different departments, starting with ICT, communications and public or press relations.

Content production tends to be delegated to departments owning the content, rather than centralized. The substance of such content has been consistent across parliaments: for 98% its purpose in 2020 was to inform and educate the public about the history, role, functions and composition of parliament. In 79%, the websites featured explanations of the legislative process and how parliaments work. In 50% they explained the institution's budget and financing processes and in 95% published a schedule of parliamentary business. Three-quarters (76%) provided an audio or video record of plenary proceedings, and 44% did so for committee meetings. There has been a noticeable upward trend in the adoption of website management policies. In 2020, 63% of the websites had mobile-specific content, and the content of 73% was fully optimized for mobile devices.

Most of the parliamentary information, documents and data concerned tends to be published in the traditional sense, i.e. to be read, rather than as open data for reuse. The publication of plenary decisions, speeches, debates, voting records and member activity increased significantly in 2020 over that reported for previous years. Twenty-two per cent of the respondents published data on plenary decisions and voting either as open data or downloadable spreadsheets.

Ninety-one per cent of the parliaments provided plenary agendas online in advance of sittings, and 26% did so at least a week in advance. Draft legislation and plenary proceedings were published online within one day by 58% and 67% of the

parliaments, respectively, the latter figure remaining roughly constant since 2016, when it was 68%. Only 6% did not publish. In the case of committee meetings, only 47% of the parliaments published proceedings within a day of the action, with 18% not publishing them at all (although this latter figure has been declining). To make published information more accessible, 98% of the parliaments offered a search facility and 31% an online alerting service.

To improve accessibility for all users, user-needs analyses were performed by 83% of the parliaments in 2020, a slight increase. Fifty-seven per cent conducted user testing and applied usability methods.

The 2020 survey showed a significant rise, to 21%, in the number of parliaments considering civic participation projects to be important areas of improvement, up from only 6% in 2018. Open data improvements continued to be important for 20% of the parliaments, but the significance assigned to social media enhancements has declined steadily since 2016, having perhaps been embedded previously. Looking ahead, the improvements parliaments identified in 2020 as being planned for their websites over the next two years fell largely in the same three areas as in previous years: design and usability, content, and technical platforms.
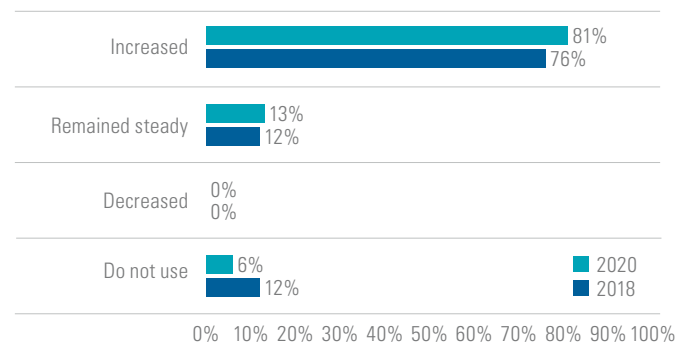
Communication between citizens and parliament

The previous section examined the architectural and usability aspects of parliamentary websites and how (and how often) information is published and shared with the public. In this section, the focus shifts to understanding how parliaments and their members use digital and social tools to communicate, engage and interact with citizens.

The 2016 and 2018 reports mapped the rise of social media and, more recently, instant messaging. They have shown a decline in traditional broadcast media, particularly radio, and a parallel rise in the use of web-based video and audio broadcasts and streaming. By 2018, half of the parliaments (55%) had their own broadcast television channel and 62% offered video sharing capabilities via the internet, a significant increase over the 43% doing so in 2016.

This growth in the use of web-based tools for communicating with citizens continued in 2020, with the use of digital tools now firmly embedded in most parliaments. Asked in 2018 about change in the use of digital communication, 76% reported increases; none reported decreases. The 2020 findings are even more dramatic: 81% reported increases, with no reported decreases, in the use of digital methods to communicate with citizens. Notable too is that the share of parliaments not using digital tools for communication was halved, from 12% in 2018 to 6% in 2020.

Figure 65. Trends in use of digital tools for citizens communicating with parliament (n=107)

Member communications

The vital communication between members of parliament and citizens is increasingly happening online. Perhaps unsurprisingly for readers of this series, email remains the digital method most widely used by members to communicate with the public. All or most members in 76% of the parliaments used email in 2020; 6% reported no members doing so, but this may relate to formal parliamentary email addresses, a point still unclear. All or most members used a website or social media to communicate (in 43% and 56% of the parliaments, respectively), with no members using social media in only 2%. All members used instant messaging, such as WhatsApp, Viber, Telegram or Signal, in 14% of the parliaments. Conversely the use of previously popular web-tools, such as blogs and photo sharing, is starting to decline.

Figure 66. Digital tools used by members to communicate with citizens (n=109)
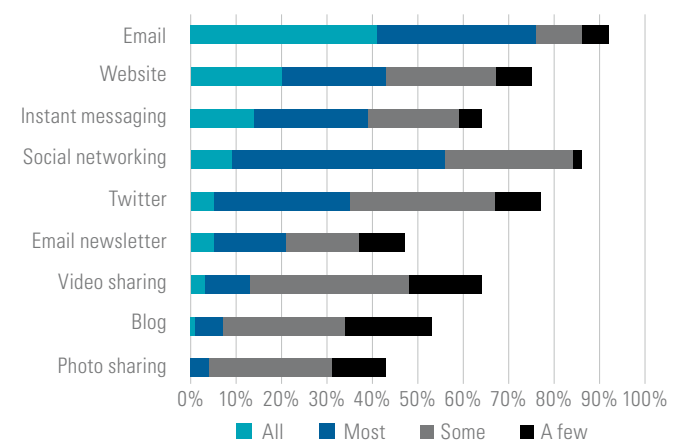
The 2018 report saw a significant rise in member use of instant messaging applications. The parliaments reporting its use by all or most members rose from 14% in 2016 to 27% in 2018. That rapid growth continued in 2020, to reach 39%. As shown in Figure 67, there have been similarly strong increases in members' use of email newsletters and videos, and continued steady growth in social networking via platforms such as Facebook and Twitter.

Figure 67. Change in use of digital tools among members 2018–2020 (n=109)

Tool	%
Email	10%
Website	-6%
Instant messaging	43%
Social networking	30%
Twitter	25%
Email newsletter	44%
Video sharing	43%
Blog	-36%
Photo sharing	-39%
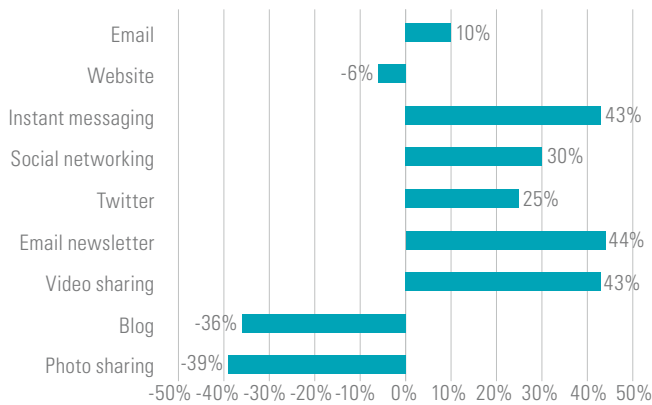
As noted in earlier reports, knowing how many members use which digital tools, and how well, can be a challenge. The share of parliaments unsure about member use of email was 6% but much higher in the case of instant messaging (24%) and email newsletters (31%).

Many barriers remain to greater member use of the internet to engage with citizens, primarily relating to skill and training deficits and information overload. According to half of the parliaments, members felt the need for more training in digital tools, with 38% feeling overwhelmed by the volume of online communication. There has been much public discussion about the downside of social media generally – and particularly about abusive conduct on such platforms as Twitter. In 2020, over a third of the parliaments (35%) encountered challenges with trust and security. Other widely identified challenges to engagement related to citizens' ability to use digital tools (37%) and societal barriers to internet access (33%).

Table 31. Barriers for members using digital tools to communicate with citizens (n=105)

Lack of skills and training to use tools among members	50%
Feeling overwhelmed with quantity of communication	38%
Lack of skills and training to use tools among citizens	37%
Security and trust in technology	35%
Citizens lack access to the internet	33%
Unable to trust the authenticity of communications being received	27%
Trying to give equal priority to on- and offline communication	24%
Communication received is unrepresentative	13%
Members' lack of access to the internet	10%

How parliaments communicate with the public

In 2016, social networks overtook broadcasting (radio and television) as the most widely used medium of communication between parliaments and the public. That trend continues: 76% of the parliaments reported use of that channel in 2020 (up from 70% in 2018). Twitter use remained constant at 68%, while the figure for internet-based video sharing rose slightly, from 62% to 66%. Use of instant messaging, mirroring the pattern seen in member communications, continues to grow among parliaments, rising to 34% in 2020 with another 16% planning on or considering it (up from 20% and another 20%, respectively, in 2018).

Figure 68. Methods for communicating with citizens (excluding websites and email) (n=111)

Social networks
Twitter
Video sharing
Parliament broadcast TV
Other TV channels
Parliament web TV
Instant messaging
Other radio
Parliament smartphone app
Alerting services
e-Consultation on bills
e-Petitions
e-Consultation on issues
Online polls
Parliament radio channel
Blogs
Online discussion group

■ Currently using ■ Planning to use ■ No plans to use
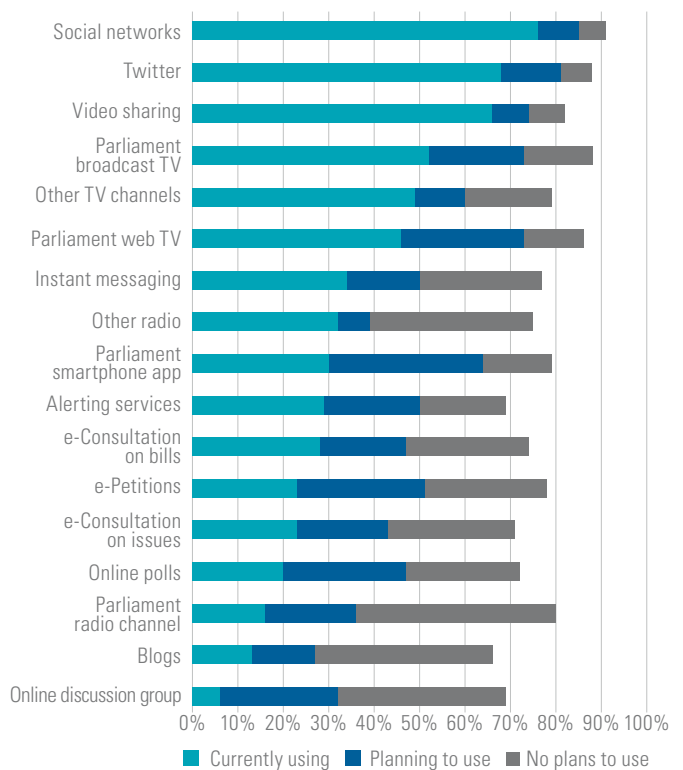
Use of such popular online services as social media, e.g. Facebook and Twitter, video sharing, e.g. YouTube, declined in 2020, as did the share of parliaments planning on or considering using them. This suggests that the use of such tools may be reaching a saturation point, with future increases levelling off. The use of more interactive and deliberative tools remains limited, but more parliaments are considering them; e-petitions, for example, were being used by only 23%, but 28% were exploring the option. Most notably, 30% reported the use of customized smartphone apps to communicate with the public, with another 34% planning on or thinking about doing the same.

Figure 69. Change in methods used for communicating with citizens between 2016 and 2018 (n=111)

● 2020 ● 2018 ● 2016
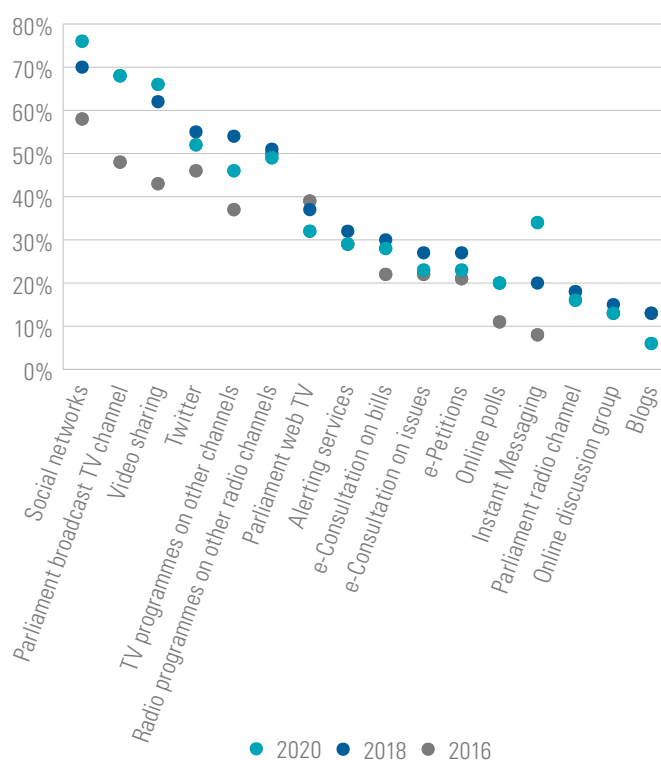
As shown in Figures 68 and 69, the least favoured communication methods in recent years have included parliamentary radio (still important but its use having declined throughout this series), blogs (with only 13% using them in 2020 and 39% not intending to) and online discussion groups (used by only 6%).

Committee communications

As discussed earlier, committees have been less inclined than plenaries to actively publish information on their work. They are nonetheless becoming significant users of online tools for external communication, drawing a wider public into the committee process and disseminating their work more effectively.

This report shows a steady rise in website use by committees to communicate with citizens, to 82% in 2020 (from 75% in 2018 and 67% in 2016). There has been a similar increase in committee use of social media: from 35% in 2018 to 45% in 2020. In almost half (48%) of the parliaments' committees used email to respond to public submissions, and in 78%, used a website to publish their findings. Committees directly engaged or collaborated with the public via website in one-third of the parliaments, using social media for that purpose in 19% and email in 37%.

Table 32. How committees use digital and social tools to communicate with citizens (n=100)

	Email	Website	Social media
Communicating information about their work, scope and process	42%	82%	45%
Communicating the committees' position on issues	26%	59%	35%
Seeking submissions, comments and opinions from the public	39%	54%	26%
Direct involvement and collaboration between committees and members of the public	37%	33%	19%
Responding to submissions and comments received	48%	27%	15%
Publishing the findings or results of the committees' deliberations	13%	78%	31%

Priorities for communication

This section of the report examines the aims and priorities pursued by parliaments in communicating with citizens. Clear themes recurrent in such communications have been identified in this and previous reports, as reflections of what parliaments consider important. Their aim is largely to:

- **explain** what parliaments do and how they do it;
- **inform** citizens about current parliamentary activity; and
- **engage** citizens in the work of parliament.

In 2020, informing citizens on current policy issues and legislation, and engaging more of them directly in the political process, were identified as the top two objectives by 70% and 69% of the parliaments, respectively. Educating and explaining to citizens how parliament works and what it does was identified as important by 64% of parliaments. These figures are consistent with those reported previously, as shown in Table 33.

Trailing noticeably behind these top three, the objective of involving citizens in the legislative process was identified by 27% of the parliaments. Questions on two new objectives were included in the 2020 survey: improving the range and quality of expert input for decision-making (identified by 12%) and reaching out to minorities (11%). This last figure is noticeably lower than that for youth engagement (24%).

Efforts to engage youth, though not always cited as a priority, have shown signs of increasing. Half of the parliaments reported use of digital tools to communicate with young people in 2020, an increase from 42% in 2018 and 41% in 2016. Nineteen per cent neither used digital tools for this purpose nor planned to, the same as in 2018.

Table 33. Most important objectives in using digital communication (n=110)

	2020	2018	2016
Inform citizens about policy issues and proposed legislation	70%	68%	74%
Engage more citizens in the political process	69%	61%	62%
Explain what the parliament does	64%	68%	64%
Include citizens in the decision-making process	27%	29%	26%
Enhance the legitimacy of the legislative process	26%	21%	24%
Engage young people	24%	22%	14%
Improve policy and legislation	15%	15%	13%
Facilitate an exchange of views	14%	12%	12%
Explain proposed legislation	13%	18%	13%
Improve the range and quality of expert input into the decision-making process	12%	-	-
Reach out to minorities	11%	-	-

The barriers members face in effectively communicating by digital means were discussed earlier. The biggest has been a lack of familiarity among citizens with the legislative process and parliamentary operations, cited by 54% in 2020. Though less than in 2018, when it was identified by 69%, this barrier remains far ahead of any other. But as grounds for cautious optimism, the share of parliaments reporting no barriers to digital communication rose from 8% in 2018 to 11% in 2020. Online engagement processes can be problematic for parliaments given the risk that a small and unrepresentative few can dominate such forums. Another concern (for 27% in 2020) is the prospect of disinformation, which has long proliferated through social media and become an established fact of life.

Figure 70. Challenges parliaments face when communicating with citizens? (n=106)
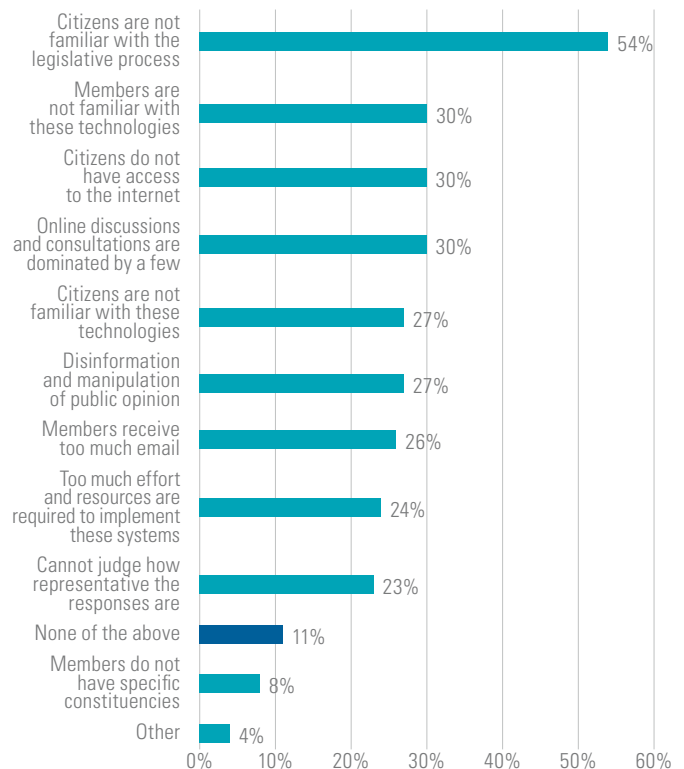
Despite the increasing communication among parliaments, their members and citizens, and the growing importance of civic participation and transparency, fewer than half of the parliaments in 2020 (43%) had formal policies regarding the retention of communications from the public. Even so, that figure is well above the level in 2018 (36%), perhaps reflecting the significant number of parliaments then intending to create such a policy going forward. In any event, 25% of the parliaments still have no such policy, nor plans to develop one.

Working with civil society

As emphasized in recent reports, partnerships provide an effective means for parliaments to reach a wider and more diverse audience. Civil society organizations (CSOs) and parliamentary monitoring organizations (PMOs) have been particularly important intermediaries in that effort. Many PMOs use publicly available open data, obtained from parliaments and elsewhere, to collate, analyse and critically highlight developments in parliament. Parliaments and PMOs increasingly work together to make data understandable and useful for citizens. This is beneficial all around, improving transparency and openness as a key to greater trust and accountability and enabling parliaments to reach new audiences through reliable intermediaries.

In 2018, 53% of the parliaments worked formally or informally to support the work of PMOs. In 2020 the figure rose to 63%, which largely reflected greater informal support (provided by 29%, up from 17% in 2018). As shown in Figure 71, 11% were planning on or considering collaboration with CSOs in 2020, while 26% were not, a decline in the latter case from 30% in 2018.

Figure 71. Parliaments working with civil society organizations (n=103)

- Working directly with CSO(s) — 34%
- Informally support CSO(s) — 29%
- Planning to work with CSO(s) — 11%
- Not working with CSO(s) — 26%
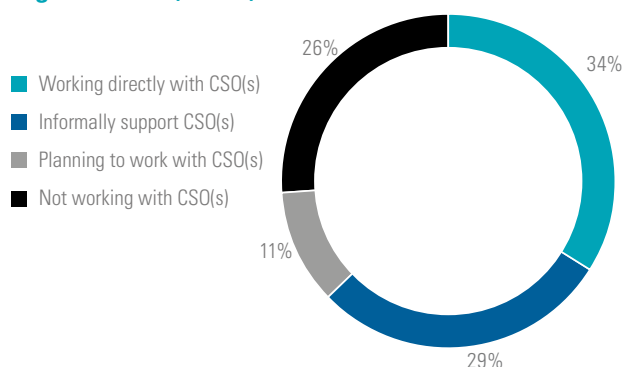
Assessing digital communication

Only 16% of the parliaments reported any formal assessment being conducted of their digital communication methods in 2020. Of the remaining 84%, two-thirds indicated they might consider such an assessment.

Overall, the experience of digital engagement has been a source of many useful lessons. Public engagement is being welcomed in a way that can strengthen the ties between parliament and citizens, with increased awareness and understanding of how parliaments work lowering barriers to engagement. Increased engagement, however, comes at a cost; parliaments will need to pay it for their engagement to be effective:

> Parliaments should plan for success – if new digital tools are adopted by the public at a high rate, the increased demand needs to be matched by staff availability/resourcing.

Internet access has been a particularly challenging issue in reaching audiences beyond the internet's reach, including large rural communities and dispersed populations.

Respondents reported benefits from targeting specific audiences, particularly young people. Engagement is helped by keeping content simple and using plain language, avoiding possibly unfamiliar parliamentary language. Parliaments report significant success engaging through social media and live-streamed content, either through social media or their own web assets. On the downside, discussion on contentious or popular topics in the social media can easily be derailed, overtaken, even hijacked by a vocal minority. This creates more "noise" and digression than useful content. Responses from parliaments recognized the need to manage these conversations proactively and moderate the debate when necessary.

It is important not to consider digital communications and content separately, each in isolation, but to view them as a whole, including both online and offline resources. Several respondents reported success with organizing blended events, both online and face-to-face, and with integrating online campaigns with events taking place in parliament.

Summary

The growth previously seen in the use of web-based tools for communicating with citizens has continued, with 81% of the parliaments reporting increases in 2020. Seventy-six per cent reported all or most members using email to communicate with citizens, with 43% using websites and 56% using social media. Member use of instant messaging for this purpose has also continued to rise, from 14% in 2016 to 39% in 2020. Use of instant messaging by parliaments themselves has also increased, with 34% reporting such use. Despite the barriers described to effective use of social media – the skill and training deficits, the information overload and others – 76% of the parliaments continue to use that channel, with 35% reporting challenges with trust and security.

While the use of social media and smartphone apps has increased (to 30% in the latter case), more interactive and deliberative tools have been slow to catch on; 23% of the parliaments reported use of e-petition systems.

This report shows a steady rise in digital communication by committees: 82% of the parliaments reported such use in 2020, up from 75% in 2018 and 67% in 2016. Committee use of social media was reported by 45%.

The top two objectives indicated for the use of such tools was to inform citizens about policy issues and proposed legislation (for 70%) and to engage more people directly in the political process (69%). Lower-ranking objectives included better public understanding of what parliaments do and how they work (important for 64%) and use of digital tools to communicate with young people (50%).

A unifying thread throughout the series has been the work parliaments and their PMOs are doing to make data understandable and useful for citizens. In 2018, 53% of the respondents worked directly or informally to support the work of their PMOs, compared to 63% in 2020, largely reflecting a rise in informal collaboration. Overall, important lessons have been learned from using digital tools to engage with citizens, including the need for proper planning and resourcing and the importance of audience-appropriate language and proactive management of online conversations, to avoid undue domination or subversion.

Inter-parliamentary cooperation

The benefits of strong relationships between parliaments have been documented throughout this series, but now, as parliaments and nations battle the pandemic, collaboration, networking and mutual support are more vital than ever. Specific responses to the pandemic are discussed in the special section of this report, Lessons from the pandemic. This section examines how parliaments are cooperating in networks and benefiting from mutual support through more systematized interaction.

Networks

An important development in promoting networks has been the new Centre for Innovation in Parliament (CIP), established by the IPU and several member parliaments to promote mutual support and the exchange of ideas. In the field of openness and transparency, parliaments around the world continue to engage with the Open Government Partnership (OGP),[8] with regional parliamentary networks (in Europe, Australasia and Latin America) and in groups of thematically connected parliaments (such as the Commonwealth Parliamentary Association (CPA) or the Portuguese-language parliaments). Parliamentary libraries are strongly represented through their membership of the International Federation of Library Associations and Institutions (IFLA) as well as regional parliamentary library associations.

Parliaments are working with or receiving support from the IPU, UNDP and such NGOs as InterPARES and the National Democratic Institute (NDI). All but one of the respondents were IPU members and 79% were members of at least one other network; that was a notable increase from 2018 (68%), and part of a continuing rise since 2008. Forty-six per cent were members of more than one network.

Table 34. Inter-parliamentary network membership (n=116)

|	
Commonwealth Parliamentary Association (CPA)	38%
European Centre for Parliamentary Research and Documentation (ECPRD)	47%
International Federation of Library Associations and Institutions (IFLA)	52%
Open Government Partnership (OGP)	15%
Other	35%

The Covid-19 pandemic has led to increased collaboration and sharing of ideas, information and applications among parliaments, as evidenced in the Slack channel hosted by ECPRD and the CIP's network-based regional and thematic hubs, which have been a key to building collaboration. The hubs have held meetings and webinars and hosted several active chat groups for parliamentary staff. More information on such collaborative efforts can be found in the section Lessons from the pandemic.

8   The OGP is not a parliamentary network per se but encourages participation from parliaments in Member States.

The supply of support

The largest share of support provided by parliaments in 2020 related to legislative process and procedures, which 31% supported. The second largest was parliamentary oversight (27%). Support for ICT planning was provided by 19%, with another 31% indicating willingness to offer it. Only 10% provided support in social media or open data use, but with many more willing to offer it in future. Twenty-two per cent supported other parliaments in citizen engagement and outreach.

Figure 72. Parliaments providing or willing to provide support (n=116)
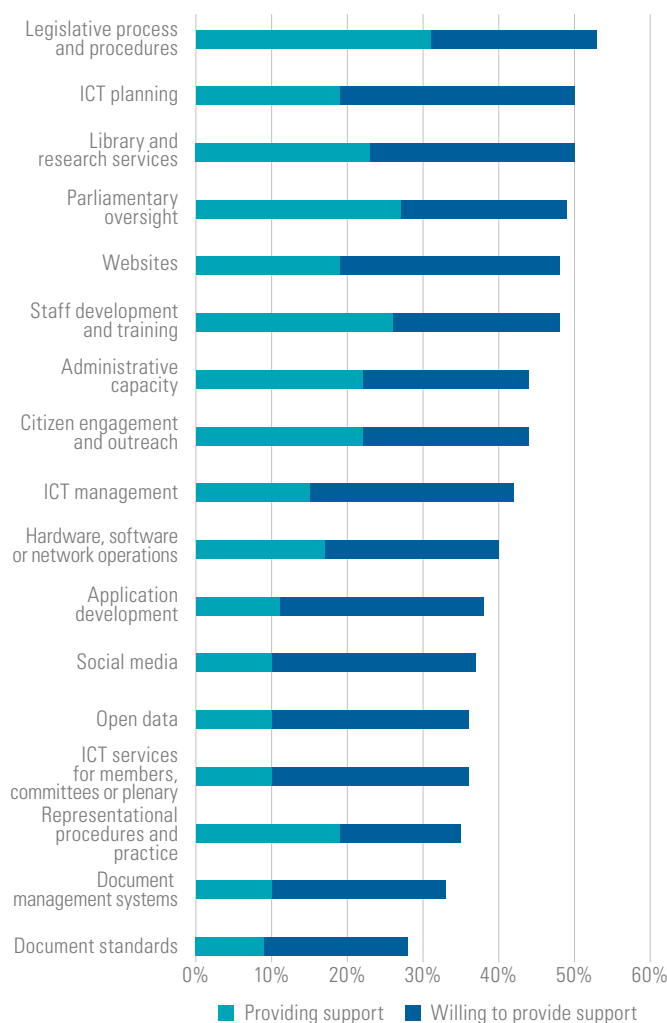
Demand for support

Sixty-nine per cent of the parliaments reported receiving external support in 2020, up considerably from 47% in 2018. Of those, the support received by 44% came from other parliaments; that received by 54% came from organizations outside parliament (including the IPU and UNDP, for example). Sixty-eight per cent of the parliaments identified operational areas requiring but not currently receiving support, though desired.

The largest shares of the support received in 2020 related to staff development and training (received by 48%), legislative process and procedures (35%), parliamentary oversight (31%) and application development (30%). In all areas but

one, more respondents received support from organizations outside parliament than from other parliaments, the exception being legislative processes and procedures.

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

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

Given the extent of collaboration and support occurring, with around 44% of respondents both providing and receiving inter-parliamentary support, it is perhaps surprising that only 22% had some form of committee to oversee that activity. Another 26% of parliaments were considering the idea, but for the time being, a full three-quarters had no mechanism for overseeing parliamentary support.

Gaps in support

The survey revealed significant areas of unmet demand for support among parliaments. According to the 2016 and 2018 reports, the supply deficit was greatest in the newer, emergent areas of ICT – open data, citizen engagement and social media. The pattern in 2020 was slightly different. The demand for support continued to be greatest in relation to open data (wanted by 51%), followed by more traditional parliamentary or ICT practices, such as document standards, ICT services, ICT planning and application development. But demand for support is high across all the areas examined.

A continuing challenge thus far is that the level of support available from fellow parliaments falls far below the amounts needed. As shown in Figure 74, there is an inverse relationship between the areas where support is in demand and the areas where it is available.

Figure 74. Gap between demand for and supply of support (n=80)

- Parliaments wanting support
- Parliaments providing support
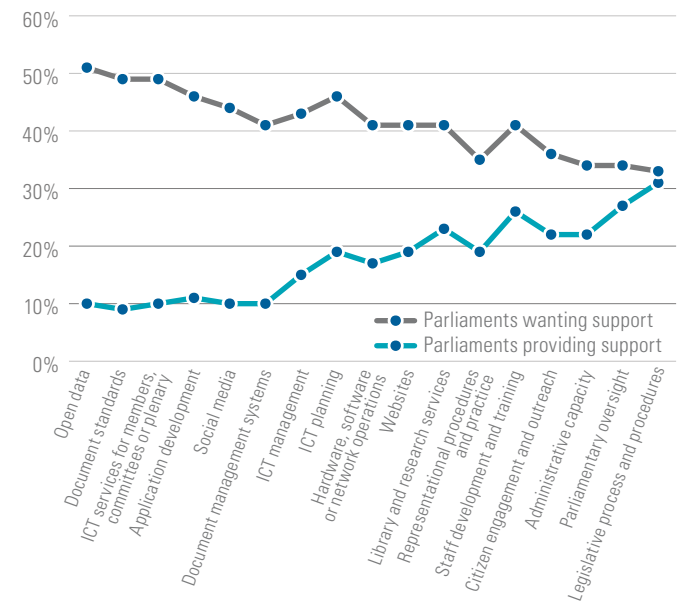
Figure 74 makes it clear that parliaments willing to support others often need help to do so, and underscores the important role non-parliamentary organizations have played in supporting parliaments, it also highlights the mission of the CIP to promote inter-parliamentary support, collaboration, innovation and good practice. Launched only a short time ago, in late 2018, the CIP was known to 83% of the 2020 respondents, with 27% currently participating in at least one CIP hub or project and a further 43% indicating an interest in doing so.

Figure 75. Awareness of the Centre for Innovation in Parliament (n=111)

- Yes and participating
- Yes and would like to participate
- Yes but no plans to participate
- Not aware
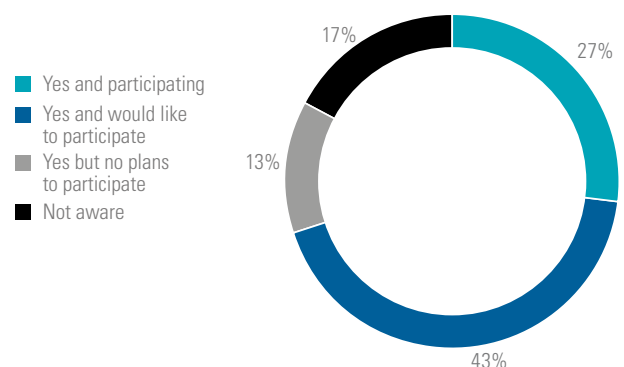
Summary

Previous reports in this series have indicated a rise in inter-parliamentary support for emerging technologies, such as open data, social media and the web. The data for 2020, on the other hand, suggest a swing back to support for more traditional parliamentary and ICT functions: legislative procedure, oversight and staff training. Combined with other findings, this change suggests greater acceptance and use of these new technologies as parliamentary "business as usual". But a note of caution is warranted here. While dramatically accelerating inter-parliamentary collaboration in some areas, the onset of Covid-19 in 2020 has disrupted it in others, radically altering strategic priorities.

Overall, collaboration has remained strong, with parliaments working through global, regional and thematic alliances to share ideas and good practice: 79% have indicated membership of at least one such network. Respondents considered the CIP a positive catalyst for inter-parliamentary collaboration during the pandemic (as discussed in more detail in the special section on the lessons learned from Covid-19).

Challenges reported in previous reports remain, with demand for support in use of the new digital applications continuing to outstrip the supply of help available from fellow parliaments. This again underscores the continuing importance of support from non-parliamentary organizations in building capacity and strengthening networks.

Measuring the digital maturity of parliaments

The growing digital maturity of parliaments documented in this series reflects more than the quantity or range of new tools. The more important story is increasing effectiveness in the application of digital technology to support parliaments and their stakeholders, and in the methods developed to plan and manage it. Details uncovered by the 2020 survey offer insight into specific areas of ICT as used in participating parliaments; this chapter is an effort to contextualize and frame them as a granular image of digital maturity. It is based on an analysis and ranking of a specific subset of responses to the survey (n=116).

But parliamentary governance is not football, nor this chapter a league table. As repeatedly cautioned by individual parliaments and previous reports, any measurement based on unverified self-evaluation, and sometimes incomplete data, must be treated as generally indicative only. It is valuable nonetheless as an overall picture of relative maturity among parliaments and the strengths and weaknesses of individual digital programmes, for reflection as parliaments plan future development in this area.

The findings reveal a continuum of digital maturity, with no point representing complete "digital maturity" for any parliament. The indices shown below do, however, re-enforce a particularly consistent finding of past reports, as repeated in the main body of this one: digital maturity is broadly a function of national income – more advanced in higher-income countries (though not always the very highest), with those in lower-income countries usually lagging behind. In terms of the World Bank's ranking of national income, the highest-scoring parliament (with 71%) ranks not in the highest, but in the upper-middle income bracket, as do three others among the top-10 scorers, with all others remaining in the highest-income category. Five of the top 10 are European, three Latin American and one situated in the Pacific region. The parliament ranked tenth-highest scored 62%, compared to 19% for the tenth-lowest and only 7% for the very lowest. Only four of the lowest-ranking parliaments, however, are lower-income countries, a reminder of the subjective character of much of the data provided. The quality of data also bears on each parliament's ranking, particularly at the lower end. If parliaments providing incomplete data is excluded, most of the lowest-ranking parliaments are in Africa – though European, Latin American and Pacific region parliaments also fall in that category.

Figure 76. All digital maturity scores
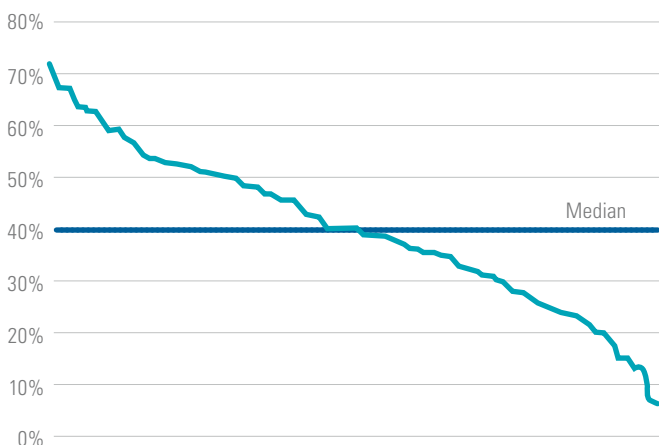
It is useful to analyse the scores by region. For reasons related to sample size, the scores for Asia and the Pacific are combined, as are those of participating parliaments in the Caribbean, Latin America and North America. The median score for all parliaments was 40%, down from 43% in 2018 and 2016.

Figure 77. Range of scores by region
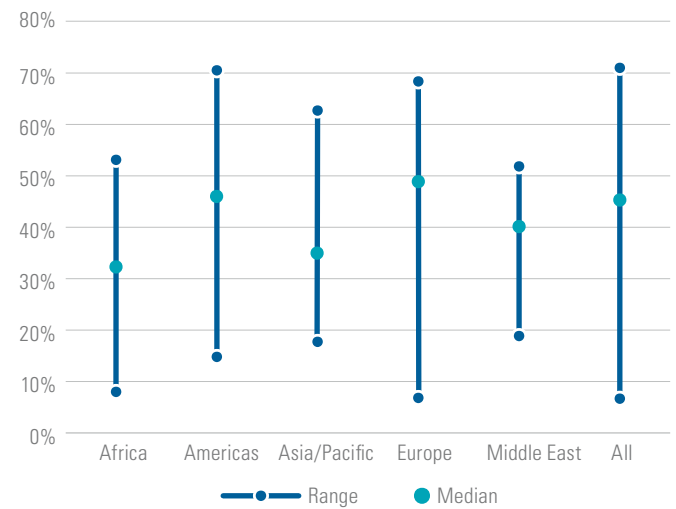
These data show African and Middle Eastern parliaments tending to rank among the lower half, along with one small European parliament. Parliaments in the Americas rank highest, followed by those in Europe and Asia/Pacific. As highlighted in Table 35, African parliaments fall once again towards the lower end of the rankings, with those in the region's lower and upper deciles both ranking lowest relative to the corresponding deciles of other regions. European parliaments show the highest median score and highest upper-decile score, while the highest individual score went to an American country. The distance between highs and lows indicates significant disparities within regions as well. The range covered by parliaments in the Asia/Pacific region, for instance, extends from the well resourced, in high-income countries, to those in low-income, developing countries, reflecting very different stages of digital maturity.

Table 35. Range of maturity score by region

	Lowest	Highest	Median	Lower decile	Upper decile
Africa	8%	54%	32%	28%	37%
Americas	15%	71%	46%	50%	46%
Asia/Pacific	18%	63%	35%	31%	38%
Europe	7%	68%	49%	35%	55%
Middle East	19%	52%	40%	-	-
All	7%	71%	45%	19%	62%

Evaluating the median scores by theme, core ICT systems and infrastructure are relatively mature and relatively well provided for in most parliaments. But many parliaments also show gaps in processes, systems and resources that require attention. As in previous reports, the weakest area remains internal oversight and engagement with strategic ICT deployment, despite the progress shown in this report and the overall increase in digital maturity. This area has been in flux, however, particularly owing to the pandemic, so it is still too early to draw definite conclusions from the data. A new category of digital maturity, innovation, was added for 2020, with the data showing significant variation between the top and lowest-ranking performers, as discussed in more detail below. As in previous years, analysis of performance by chamber size has revealed little; some of the large parliaments rank poorly, and some of small ones quite highly. National income level continues to be a stronger indicator of digital maturity.

Figure 78. Median scores by category for all, upper-decile and lower-decile parliaments
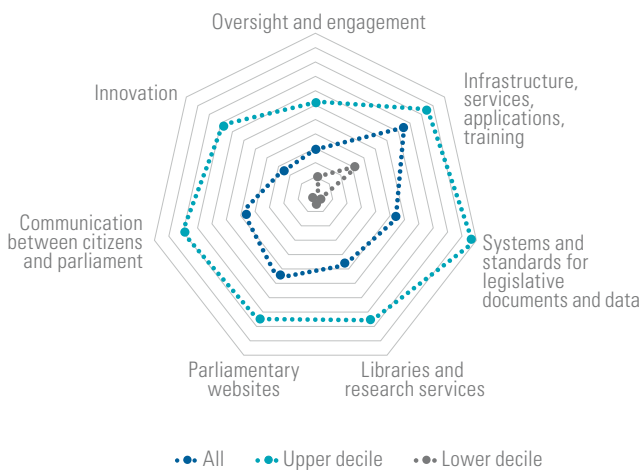
This report again shows that, as complexity increases and new tools, platforms and methods emerge, parliaments in low-income countries are consistently less likely, or able, to implement them. The digital maturity of parliaments in low-income countries has trended generally upward over the last three surveys, with fewer ranking near the bottom. This may in some cases reflect significant efforts to improve, but the churn in participating parliaments makes it is difficult to draw firm conclusions.

As before, countries of lower-middle income account for a significant share of the less digitally mature parliaments, raising questions about the level of support they enjoy. A striking anomaly in recent reports is a drop-off in the maturity of parliaments in high-income countries. There appear to be two causes for this: first, incomplete survey data for this category of respondent; and second, the failure of a few European parliaments to quantify several answers on external communications, particularly on the part of members, indicating a lack of formal data on the subject. This suggests that the overall digital maturity of such parliaments is higher than indicated by the figures.

Figure 79. Digital maturity plotted against income level
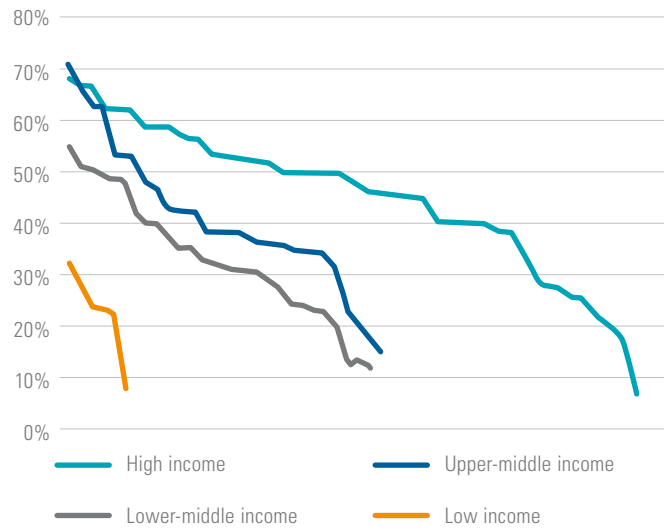
The data gathered for these reports do not permit valid year-on-year comparisons of digital maturity. But last year's survey, if the outliers are excluded, suggests continuing advancement in digital maturity across parliaments generally. It also reflects persistent challenges and gaps, as seen in previous reports, particularly as a function of national income level. The data for 2020 indicate a rise in the maturity of strategic planning and internal parliamentary oversight of ICT, showing technologies better integrated with those functions, a trend expected to continue or possibly accelerate after the pandemic.

The measurement last year of maturity in innovation,[9] plotted in Figure 80, shows national income correlating closely with active innovation, as seen in other areas. But that is not the whole story: the strongest innovators were parliaments not in the highest, but in the upper-middle income bracket. On the other hand, a higher percentage of those in high-income countries considered themselves likely to sustain innovative practices. Encouragingly, parliaments in countries of high, upper-middle and lower-middle income have performed better in innovating, with narrower gaps between income categories, than in other areas surveyed. A cause for concern, on the other hand, is the lagging innovation among parliaments in the lowest-income countries, suggesting a lack of resources sufficient to generate fresh thinking and harness new ideas, as seen among better-resourced parliaments. The risk of these countries falling further behind has been exacerbated, during the pandemic, by radical innovation and accelerated digitalization in the wealthier countries.

Figure 80. Maturity of innovative practices
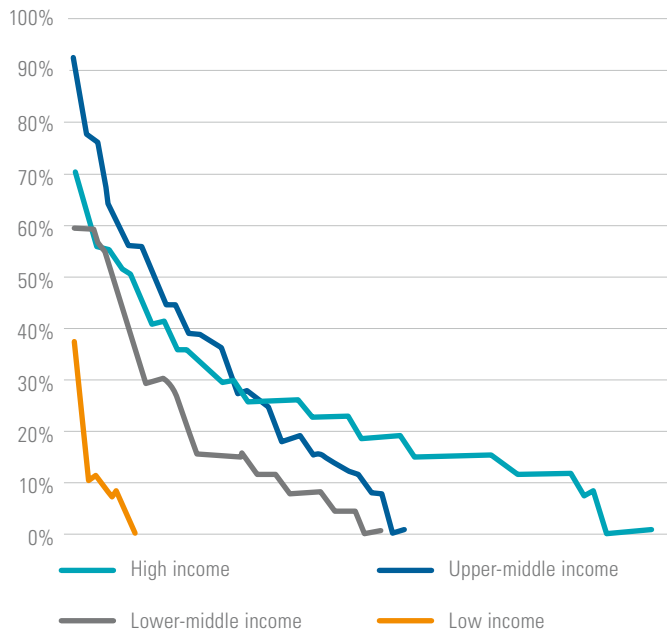
9   Innovation was measured by analysing survey data on formal and informal innovative practices, responses to the Covid-19 pandemic and the use of AI-based systems.

The changing nature of the e-Parliament

Starting with the first World e-Parliament Report in 2008 and through bi-annual updates thereafter, this series has tracked the evolution of ICT within parliaments and societies. The final section of this sixth edition, for 2020, maps and places in context changes observed throughout the series.

The series has also documented the challenges and opportunities parliaments face in their use of ICT. The picture it paints is one of great potential, but constrained by limitations to funding, knowledge and receptiveness to new ways. A narrative running through all the reports depicts parliaments as procedurally formal as well as information-intensive environments. Another continuing theme, since 2008, has been the significant discrepancies observed between parliaments according to national income level.

Defining the e-Parliament

As the thinking about e-Parliaments evolves, so too must the definition. This was revised ahead of the 2018 report. The definition today is broader than originally envisaged, encompassing technology but also governance, transformation and efficiency:

> 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.

Significant gaps

The first report in 2008 highlights the importance of ICT as a tool to help bring parliaments closer to citizens, but with little to show at this early stage in the way of progress, apart from static publishing and very limited attempts at interactivity. This first report finds many parliaments lacking a systemic view of ICT, and "a significant gap between what is possible with ICT and what has actually been accomplished by parliaments so far". In short, the 2008 Report captures the early stages of a technological wave that would prove both disruptive and transformative over the following decade.

The importance of strategy

The 2010 World e-Parliament Report finds e-Parliaments building on strategic pillars: "active engagement, a clear vision, strategic planning, broad-based management and adequate resources"; weaknesses in each of these areas are identified in the report. Forty per cent of the parliaments lack a strategic planning process, for instance, and only 43% have adopted a vision statement. The report highlights the importance of standards for the systems being used to manage digital documents but notes limited progress since 2008 in adopting such systems. Fewer than half of the parliaments have them and only a quarter use XML for any of their parliamentary documentation.

By 2012, while many previously reported challenges remain, limited but important progress has been achieved. Political leadership is more engaged in setting ICT goals and objectives. Mobile devices and applications are being adopted more rapidly than expected. And XML is increasingly being used to manage bills. More parliaments have systems for managing plenary and committee documents, and more collaborate and share information, or intend to, on technological improvements. Considerable progress is being made towards an international XML-based standard for parliamentary and legislative use, a key milestone in a parliament's digital maturity, making data easier to publish and exchange across internal systems. These examples are not intended to be accepted uncritically, however. It remains to be seen how progress in creating a standard will result in parliaments adopting it, and whether its cost and complexity will be barriers for some parliaments.

As the 2012 report highlights, parliaments in the lowest-income countries are overcoming challenges and starting to close the technology gap. Even so, key indicators continue to correlate closely with national income level, including use of XML, closeness with citizens, technology uptake and knowledge about parliament.

Putting parliaments online

Among the ways ICT has improved the work of parliament, those considered most important, according to the 2012 survey, are the ability to publish more information and documents online, greater capacity to disseminate these, and timelier delivery of information and documents to members. Such improvements are bringing greater public openness and transparency, for members and parliaments alike. Basic ICT services, such as personal computer support, systems administration, web publishing and network operations, are also being improved.

As of 2012, the biggest communication challenge for most parliaments is not access to technology but citizens' knowledge about parliament. Over half the parliaments cite limited citizen understanding of the legislative process as a primary obstacle. Considerably fewer cite member inexperience with technology. Most parliaments identify access to financial and staff resources as particularly difficult challenges. Parliaments in countries of all income levels report financial constraints, with those in even the highest-income countries indicating ICT staffing as their biggest challenge.

As noted in the 2012 report, transforming legislatures into modern institutions able to use technology effectively requires a strong commitment to transparency, accountability and accessibility. Internet access has become available in almost all parliaments, and wireless access in most. A culture based on soft skills and transparency is being nurtured within political leadership and among members, consistent with parliament's mission as the people's representative and with the values of citizens in an information age. As the report observes:

> Promoting genuine dialogue with citizens and not just one-way communication goes hand-in-hand with greater transparency.

The digital parliament is a reality

By 2016, continuing deep changes are being reported in the operational and cultural landscape of parliaments. Digital parliaments have taken on lives of their own, interacting with stakeholders in ways unimagined when the series began. Parliaments are more open and outward-facing, internal systems are stronger and processes, while still challenging, are improving. Digital parliaments mirror the world around them, with social networks allowing easier and more frequent contact between citizens and MPs. Web-based technologies are expanding the availability of documentation, multiple forms of content and open data. Yet, a more troubling pattern also remains clear: in the newly emerging areas of ICT, such as open data, many parliaments remain hampered by limitations in budgets, acquiring good practice and international donor support, a problem particularly acute in low-income countries.

Parliaments face challenges in areas apart from technology per se. Many are strategic and require a systemic approach, requiring political and institutional commitment. Too few parliaments have end-to-end strategic planning processes and, when they do, too few value their senior ICT staff or trust in their leadership and vision. Digital functions are too often seen as a technical issue, better left to ICT management and technical staff. Yet parliaments are also more aware that for ICT to be transformative, MPs must take the lead in achieving greater openness and citizen participation.

The 2016 report looked for the first time at partners outside parliament, finding active and effective collaborators in the parliamentary monitoring organizations (PMOs). Parliaments can gain more from these intermediaries by publishing and disseminating their data more extensively.

Towards greater openness

The 2018 World e-Parliament Conference in Geneva served as launchpad for the fifth World e-Parliament Report. That year's report shows a shift from a singular focus on technology, as reflected in earlier reports and in parliaments themselves, towards a wider view, bringing governance, strategy and communication into the picture – and, based on this bigger picture, updating how "e-Parliament" is defined. The report shows openness and collaboration continuing between parliaments but increasing with civil society and the public at large, with parliaments publishing and broadcasting more actively and using more accessible and reusable media. Internally, parliaments work more effectively, more efficiently and with greater accountability.

Significant efforts are under way by 2018 to bring parliaments closer to the people, and to the world. They increasingly take the form of two-way processes, offering greater opportunities for citizen involvement. Openness and public accountability continue to improve. More parliaments use open data, and more are turning to the communication platforms people use most. Strategic planning is the norm, but not always guided by a larger vision of what ICT can achieve, or followed by processes to monitor, measure and review progress in achieving it. Continuing challenges include the gaps between parliaments in high- and low-income countries; difficulties with available funding, staffing and cultural adaptation;

knowledge and skill deficits among staff and members; and general confidence in technology.

Parliaments require support across the full spectrum of digital applications, from planning and back-end systems to open data and citizen engagement. The IPU's Centre for Innovation in Parliament, which was also launched at the 2018 at the Geneva conference, was in part a response to that demand. The key finding in 2018 is that digital systems are now an integral part of governance as well as technology in most parliaments. The rise in adoption of XML has levelled off, but use of social media continues, and instant messaging has increased significantly since 2016. In the same way, digital broadcasting and video streaming have overtaken traditional broadcasting. Limited knowledge about parliament is seen as the biggest barrier to greater citizen engagement. A third of parliaments collaborate with PMOs to address such barriers.

Barriers to greater use of ICTs, for both staff and members, include training and skill deficits and heightened concerns over security. More inter-parliamentary support is needed in such areas. Members increasingly rely on mobile technologies in their work. Among those surveyed, all members under 30 years of age use them, as do 96% over 60. This may contribute to members' considering themselves highly competent communicators, comfortable with digital publishing, though fewer feel as confident in more interactive spaces.

The rise of innovation

As found in the 2018 report, new ways of working require a cultural shift as much as a technological one, and commitment from all parts of parliament and beyond. Innovation is not inevitable, it is driven. In the case of parliaments, the drivers are public pressure for openness and transparency and political commitment within the institution. Over-management stifles innovation: many of the parliaments innovating successfully have learned to let go. Innovation happens through partnership. Working with PMOs, academia and other partners brings in fresh thinking and new solutions. In view of the global events since 2018, these findings seem both timely and prescient.

Appendices

Appendix A – Research design

This research was based on a survey and several focus groups. As in years past, the main section of the report examines how parliaments answered the survey questions, over the full range of ICT-related issues covered. The special section on Covid-19 responsiveness and lessons learned was prepared by compiling answers to an additional set of survey questions, together with input from focus groups and information gathered, during the pandemic, by the CIP.

Survey of parliaments

This year's report presents an up-to-date data set and makes comparisons with the data and trends seen in the five earlier reports. The reader is advised that survey questions have changed over time and that the parliaments participating and the data collection methods used have varied. In addition, the surveys for the first three reports were conducted at two-year intervals but were followed by a four-year gap, between the third report, in 2012, and the fourth, in 2016. Reports since then have gone back to two-year intervals. In addition, for all but the latest report, the surveys were conducted the prior year (i.e. in 2017 for the 2018 report). For 2020, owing to the pandemic, the survey could not be conducted until late in the fourth quarter of the same year (2020).

The survey questions for this latest report have been largely derived from the 2016 and 2018 reports, with only minor modifications to improve wording or explore emerging findings from the previous survey. Additional questions (or options within existing questions) were included on public engagement and internal innovation practices. 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 standard sections totalling 103 questions, plus one additional section on Covid-19 responsiveness, containing 10 questions. There are open-text as well as multiple-choice questions, and several matrix questions with related sub-questions. Where questions were carried forward from the 2018 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 amended to reflect new or emerging technologies or remove redundant ones. New questions tend to reflect the emerging or growing use of tools or technologies since the last survey.

Table 36. Number of questions in 2020 parliamentary survey by section

About the parliament	5
Oversight and management	14
Infrastructure, services, applications and training	20
Systems and standards for creating legislative documents and information	10
Library and research services	9
Parliamentary websites	19
Communication between citizens and parliament	14
Inter-parliamentary cooperation	7
Total in standard sections of the survey	98
Parliament's response to coronavirus	10
Total questions in survey	108

Survey recruitment and sample

The survey of parliaments was conducted between September and December 2020 and distributed to all member parliaments of the IPU (though one respondent was not an IPU member). Subnational, regional or transnational parliaments were excluded. A separate response was sought from each parliamentary chamber. The survey was designed primarily to be completed online, but was also made available as a downloadable document in Microsoft Word format or, upon request, via email. 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 directly 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 came from **116 parliamentary chambers** in **91 countries**.[10] Since the population (parliaments) is small, the sample is considered representative but not statistically significant. This means that the results are valid for the respondents only – not for extrapolation to speak for all parliaments. For example, a survey finding that 100% of the 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 presented, it has been interrogated using a process of thematic analysis, in which data is analysed to identify emergent patterns (themes) and then organized to give meaning to the topic.

While comparisons are made in this report with data sets from previous surveys, the parliaments taking part in each survey differ. Since 2016, 128 parliaments have completed surveys but only 42% have completed all three (2016, 2018 and

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10 One further response was received after the data had been processed. This was not included in the analysis but is included in the published open data set.

2020). A further 23% have completed two surveys, with 34% completing one only.

Focus groups

The second phase of primary research for this report was a set of focus groups organized by the CIP in conjunction with the CIP hubs. These focus groups were designed to explore how parliaments responded to the Covid-19 pandemic, how they used ICTs in doing so and what lessons they learned. Participants in the focus groups, mostly senior ICT or communications staff, were recruited based on membership of the following hubs:

- East African Hub

- Hispanophone Hub

- Open Data Hub

- Pacific Hub

- Southern African Hub

There were four semi-structured focus groups: one was a combined meeting of the Southern and East African Hubs, hosted by the Parliament of Zambia. The others were organized jointly with the CIP by each of the Hub hosts, which were the Brazilian Chamber of Deputies, the Chilean Chamber of Deputies and the New Zealand Parliament. Focus groups were held in the last week of January and first week of February 2021.

In the case of the three regional groups, participants were asked to consider and answer four questions in advance, and then share their answers by completing an online survey. The questions were as follows:

1. What have been the biggest challenges the parliament has faced during the pandemic?

2. How have you responded to these extraordinary conditions?

3. How much of what has been implemented has been adopted or could be adapted for future parliamentary/ legislative work?

4. What has been the learning that could impact future planning in your parliament?

For the Focus Group conducted by the Open Data Hub, participants were asked to illustrate their answers with case studies from their own parliaments. This was done using an online collaboration tool (Miro) with the answers shared among all participants prior to the focus group. All focus groups were held virtually, using Zoom. The Hispanophone Hub conducted its focus group in Spanish. All the others were in English and all were facilitated by the CIP. The audio/video recordings and transcripts, the facilitators' notes and pre-meeting surveys were subjected to inductive thematic analysis.

In total, **49 parliamentary chambers were represented in the focus groups**,[11] with participants primarily drawn from senior ICT officers within each chamber. A full list of participants is provided in Appendix B.

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11 This figure includes bicameral parliaments with a single ICT department (such as South Africa and the UK), representatives from individual ICT departments in lower and upper houses (such as Italy and Brazil), unicameral chambers, three transnational parliamentary bodies (European Parliament, SADC Parliamentary Forum and Pan-African Parliament) and one subnational parliament (New Caledonia).

Appendix B – Parliaments taking part in the research

	Survey of parliaments			Focus groups		
	Unicameral	Lower House	Upper House	Unicameral	Lower House	Upper House
AMERICAS						
Argentina		●				●
Brazil		●	●		●	●
Canada		●			●	
Colombia					●	
Chile		●			●	
Costa Rica	●			●		
Dominican Republic				●		
Guyana	●					
Mexico		●	●		●	
Nicaragua	●					
Paraguay		●				
Peru				●		
Suriname	●					
Trinidad and Tobago		●	●		●	●
Uruguay		●	●		●	
United States of America		●				
ASIA						
Afghanistan		●	●			
Armenia	●					
Azerbaijan	●					
Bangladesh	●					
Bhutan			●			
China	●					
India		●				
Japan		●	●			
Malaysia		●	●			
Maldives	●					
Mongolia	●					
Myanmar		●	●			
Nepal		●	●			
Pakistan		●	●			
Sri Lanka	●					
Thailand		●	●			

	Survey of parliaments			Focus groups		
	Unicameral	Lower House	Upper House	Unicameral	Lower House	Upper House
EUROPE						
Albania	●					
Andorra	●					
Austria		●	●		●	●
Belgium		●				
Croatia	●					
Cyprus	●					
Czech Republic		●	●			
Denmark	●					
Estonia	●			●		
Finland	●			●		
France		●				
Germany		●				
Greece	●					
Hungary	●			●		
Iceland	●					
Ireland					●	●
Israel	●			●		
Italy			●	●		●
Latvia	●			●		
Lithuania	●					
Luxembourg	●					
Malta	●					
Montenegro	●					
Netherlands		●				
Norway	●			●		
Poland		●				
Portugal	●					
Romania		●				
San Marino	●					
Slovenia		●	●			
Spain		●	●		●	●
Sweden	●					
Switzerland		●	●		●	●
Ukraine	●			●		
United Kingdom		●	●		●	●

	Survey of parliaments			Focus groups		
	Unicameral	Lower House	Upper House	Unicameral	Lower House	Upper House
MIDDLE EAST AND NORTH AFRICA						
Bahrain			●			
Egypt	●					
Iran	●					
Iraq	●					
Jordan		●	●			
Morocco		●				
Qatar	●					
PACIFIC						
Australia		●	●			
Fiji	●					
New Zealand	●			●		
Vanuatu	●			●		
SUB-SAHARAN AFRICA						
Angola	●					
Botswana	●					
Burundi			●			
Central African Republic	●					
Djibouti	●					
Eswatini		●	●			
Ghana	●			●		
Kenya		●	●		●	●
Lesotho		●	●		●	●
Madagascar				●		
Malawi	●					
Mauritius	●			●		
Mozambique	●					
Namibia		●	●			
São Tomé and Príncipe	●					
Senegal	●					
South Africa		●	●		●	●
Zambia	●			●		
Zimbabwe		●	●		●	●
OTHER CONTRIBUTORS						
European Parliament				●		
Pan-African Parliament				●		
SADC Parliamentary Forum				●		
New Caledonia				●		

Appendix C – The World e-Parliament Report series

The series of World e-Parliament Reports, published in 2008, 2010, 2012, 2016, 2018 and 2020, helps the parliamentary community ensure that their use of digital tools follows good practice; the reports highlight emerging trends and areas for strategic focus and improvement. The series is useful for civil society organizations wishing to build working relationships with parliaments and wanting to better understand what parliaments around the world are doing in terms of public participation. This report can be read as a stand-alone document or a continuation of the series begun in 2008. It follows the structure of the 2016 report, 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. Since 2016, each report has included additional special sections, on parliamentary monitoring organizations (PMOs) in 2016, and on member use of ICT in 2018. The special section in this report covers experiences and lessons learned by parliaments from Covid-19, sharing examples of parliamentary good practice in responding to the pandemic. 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 the 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. As the series has become established it 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 World e-Parliament Conferences held in 2007, in Geneva, and 2009, in Brussels.

The third report in this series, in 2012, continued the process, revising the survey to obtain more up-to-date data and highlight emerging 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. That third edition drew also from the World e-Parliament Conference in 2010 (Midrand, South Africa) and from various other forums and meetings addressing issues around the digital 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. As part of the design of this new report, the IPU considered the key emerging trends and decided that it was an opportunity to vary the format; the main parliamentary report was made smaller but key data were kept to permit the continued monitoring of previously reported trends. New questions were added to represent

the rapid rise of social tools. Social media, mentioned in one passing comment in 2008, had overtaken traditional broadcast technologies by 2016, becoming the pre-eminent communications media for parliaments. A second survey was added in 2016, with the intention of changing the topic for each new report. The 2016 survey, of PMOs, was carried out with support from the National Democratic Institute. It proved 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 report was launched at the 2016 World e-Parliament Conference in Valparaiso, Chile, which also conducted the first inter-parliamentary "hackathon".

The understanding of what an e-Parliament consists of has evolved since the expression was coined for the 2008 report. The 2018 report revisited the definition, making it broader than originally envisaged, to encompass technology but also governance, transformation and efficiency. It incorporates a flexible understanding of people, process, architecture, data and good governance, and a strategic sense of how digital tools and services can improve the openness, accessibility and accountability of work in parliament:

> 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 2018 report paints a positive picture of parliaments being improved through the technologies they have adopted. It shows openness and collaboration continuing between parliaments but increasing with civil society and the public at large, with parliaments publishing and broadcasting more actively and using more accessible and reusable media. Internally, parliaments were working more effectively and efficiently, with their work being tracked and recorded more accurately.

The trend towards parliamentary openness continued in 2018. More parliaments used open data and more turned to the communication platforms people used most. In the planning and management of ICTs, the trends seen in previous reports persisted that year. Strategic planning was the norm but was not always guided by a larger vision of what ICT could achieve, or followed by processes to monitor, measure and review progress. The gaps between parliaments in high- and low-income countries, as well as difficulties in available funding, staffing and cultural adaptation, were persistent, continuing challenges, as were the knowledge and skills of staff and members, and their confidence in technology.

As they had made clear in 2016, parliaments still required support across the full spectrum of digital applications, from planning and back-end systems to open data and citizen engagement. The IPU's new Centre for Innovation in Parliament is in part a response to that demand.

Members of parliament, surveyed directly for the first time in 2018, revealed their increasing reliance on mobile technologies as a normal part of their work, considering themselves competent communicators comfortable with digital publishing. Despite the uptake of social media, however, the broadcast model of communication was still prevalent. Another first in 2018 was an examination of

parliamentary innovation. Parliaments had historically been seen as risk-averse and resistant to innovative practices. Pressure for openness and transparency from the public and political commitment were helping to change such perceptions, but with centralization often hampering progress. After the dramatic events of 2020, and the rapid innovation forced on many parliaments, the 2018 report's conclusion appears prescient indeed:

> New ways of working require changes in culture as well as technology and a commitment from all parts of parliament and beyond.

Inter-Parliamentary Union

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