Strengthening the Capacity of Parliaments through Development of Parliamentary Research Services

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Abstract. Parliamentary Research Services (PaRS) are indispensable components of democratic Parliaments. Their contribution lies not only in the provision of services related to data and knowledge, but also in the elevation of parliaments into first order national institutions, thus keeping up with their primary constitutional function as the legislative power in modern democracies. Within this framework, PaRS aim to be timely, objective, non-partisan and authoritative, thereby contributing to an informed national legislature, while counter-balancing governmental information superiority. For example, in contemporary digital times, PaRS need to find ways to comply with the processing of an ever increasing amount of information and data, in order to perform their institutional role. At the same time, PaRS will have to develop their capacity, in order to play a critical role in the planning and implementation of the parliament of the future, the digital Parliament.

This paper will concentrate on a comparative examination between the research services of the parliaments of Greece, Austria and Serbia, which because of their size and organization offer a common basis for concluding analyses. The set of guidelines for PaRS which was developed by the Inter-Parliamentary Union will serve as a point of reference for this comparison. The basic aspects of the successful operation of the above PaRS as well as their fundamental differences will be revealed. In the above framework, the central question of the ever diverging capacities for the collection and processing of information and data between parliaments and the executive will be addressed. The answer to this question goes well above the simple identification of the different structural factors among the above mentioned PaRS and demonstrates the central argument of the paper: PaRS are not disinterested subcomponents of the institutional function of parliaments, but active contributors to the independence of the digital parliament.

Key words. *Parliamentary Research Service, digital parliament, Hellenic Parliament, Austrian Parliament, National Assembly of Serbia, Inter-Parliamentary Union, Information and communications technology*

1   Introduction

Parliaments are organizations that heavily rely on tradition. For many parliaments this might influence their innovation potential, as the latter is often perceived as a root-breaker, an abrupt change in procedures and democratic principles that have been around for years and have been incrementally changed over the course of time. On the other hand, digital technology evidently changes societies and political behavior at an extraordinary pace, often with consequences that are not easily measured.

There are several signs which reveal that a paradigm shift is imminent, e.g. in the domination of social media in the policy arena, the penetration of artificial intelligence in governance applications etc., and yet Parliaments have long kept debates on such issues out of their agenda. Only a niche research field for years, it is only recently that a set of parliaments has invested energy and resources in the adoption of breakthrough technologies in core parliamentary functions, such as legislation and parliamentary oversight and their related processes (Schefbeck, 2011; Fitsilis et al., 2017).

This is where the role of PaRS comes in. The PaRS environment is not an under-researched field. Miller et al. (2004) presented a typology of research services and the scientific literature also offers PaRS reviews, as in the case of central and eastern European parliaments (Robinson and Gastelum, 1998). Recently, a PaRS survey in Central Europe and the Western Balkans' parliaments has been published (Papazoski, 2013). The majority of parliaments have established and further develop PaRS, mainly in order to offer high quality professional support to MPs, parliamentary services and external stakeholders. However, as parliaments gradually adjust not only to economic or social changes, but also to changes in technology and science, PaRS may contribute in the introduction of new technologies in the parliamentary context, as well as in offering significant support throughout the life-cycle of such technologies, i.e. design, development, implementation and operation, while remaining in close cooperation with the respective parliamentary IT units.

Through accumulation of scientific and technical experience and expertise over years, PaRS have now the potential to become drivers of innovation in many traditional parliamentary domains, such as openness, transparency and citizen's empowerment, thus establishing themselves in parliamentary consciousness as credible and therefore indispensable components of modern parliaments. PaRS bear this responsibility under particular pressure from budgetary restrictions, as has already been documented by Michalowski and Nawrocka (1999) and Missingham (2011). Considering the reluctance of many parliaments to implement radical changes, it may be up to PaRS to help overcome these obstacles that keep parliamentary procedures from evolution. Hence, it could be said that one of the main future goals for PaRS would be to ensure that Parliaments do not remain static entities but keep developing in accordance with societal and technological advancements.

This paper presents the research services of 3 parliaments: Austrian Parliament (AUP), Hellenic Parliament (HeP) and National Assembly of the Republic of Serbia (NARS). While these parliaments are of roughly comparable in size and structure, their PaRS, or what is left of them, could not be more different. These inherent differences were the driving force for our research. The Inter-Parliamentary Union (IPU), as a point for world-wide parliamentary dialogue since 1889, and the International Federation of Library Associations and Institutions (IFLA) have been studying PaRS for years and recently published a set of related guidelines, which will also be considered in our research (IPU and IFLA, 2015). From now on we will refer to them as 'the IPU guidelines'.

At first, we will present the state of play in the PaRS under focus. The basic characteristics of the PaRS will be revealed and put against each other and against the IPU guidelines. We will also highlight how these research services assist their parliaments in the adoption of new technologies. At the same time, analysis will show to which degree parliaments are future-proof and whether PaRS are adequately equipped to back their Parliaments on technology issues in a sufficient way. The paper will close with a summary and an outlook on the future of PaRS, which contains a systematic approach necessary for PaRS to add value to parliaments and maximize their fingerprint on parliamentary evolution.

2   Method and research questions

The AUP, the HeP and the NARS were chosen because for one they have similar organizational structures and, second, because they represent parliaments with different evolution paths. Of particular interest for the choice of the parliaments to be studied has been the fact that both Greece and Austria are EU member states, while Serbia is a candidate country. Austria is a federal republic with a population of 8.7 million. Austria has a bicameral system and its Parliament comprises 183 MPs in the National Council and 61 MPs in the Bundesrat (combined average is approx. 1 MP for every 35.650 people). Greece, with a population of approximately 11 million, has a unicameral system. The Hellenic Parliament consists of 300 MPs (approx. 1 MP for every 36.660 people). Finally, Serbia has also a unicameral system and its national assembly consists of 250 MPs. The Serbian population is estimated at 7.1 million people (approx. 1 MP for every 28.400 people). It is obvious that these parliaments have a similar capacity of MPs (244, 300 and 250, respectively) and also a very similar MP to population ratio. Their research services present many similarities but also differences, which are going to be discussed in the following sections.

As members of the scientific Service of HeP we are in the position to present its structure and operation in a reliable and accurate way. In addition, we have been delivering technical assistance to the National Assembly of Serbia for 2 years in the course of the parliamentary EU Twinning project 'Strengthening Capacities of the National Assembly of the Republic of Serbia in the EU Integration Process'[1]. Within the aforementioned project the research group of the Serbian parliament has been studied extensively. Furthermore, HeP has a long cooperation track with the AUP, as we jointly conducted 3 research projects within the 7th Framework Programme with focus on parliamentary procedures and openness, i.e. LEX-IS, NOMAD and ARCOMEM (Fitsilis et al., 2017). The parliaments under focus are members of the European Centre for Parliamentary Research and Documentation (ECPRD) network and additional information regarding PaRS operation and prospects may also be found there.[2]

There are 3 specific research questions that sparked our interest and drove us throughout this still on-going study. The first research question is whether parliamentary innovation (and more specifically technology innovation) is somehow linked to the evolution of PaRS, and vice versa. In a second step, it is interesting to clarify whether technology alone is able to transform parliamentary operations (second research question). Finally, the question whether the IPU guidelines alone are sufficient to measure and to forecast PaRS efficiency needs to be addressed (third research question). These are the main questions that sparked our research and which we will try to answer below.

A structured approach is used to approximate the answers to the above questions. After identifying the main areas of PaRS operation we examine the ways in which scientific developments in sectors such as management and IT may contribute to the development of parliamentary functions, including the strengthening of the parliamentary administration. It is crucial to assess whether PaRS are the drivers of change, rather than any other internal parliamentary departments or external stakeholders, such as consultants, professional bodies, and research institutes.

On the one hand, the range of PaRS operations within a technology life-cycle may vary from pure Research and Development (R&D) to consultation services for technology assessment. The term "research" is used here in the classical sense for significant contributions of PaRS to technological fields which may impact parliamentary operations, rather than just "applying" commercial off-the-shelf (COTS) technical solutions. It should be noted that basic research may rather be not useful for PaRS to conduct, mainly due to limitations on scope, personnel and

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[1] See official website: http://www.parlament-twinning.eu/ (accessed on 6.7.2017)

[2] See https://ecprd.secure.europarl.europa.eu (accessed on 4.7.2017)

budget. Nevertheless, applied research in cooperation with external stakeholders, such as Universities, Research Centers etc., e.g. in the framework of national or international research framework programmes, is possible, as has been demonstrated in the cases of the HeP and AUP PaRS.

3   Study of Parliamentary Research Services

Study of the related literature in combination with the IPU guidelines reveal the main areas of PaRS operation. These can be within the legal, political, financial, historical, technological and other domains. Here it must be taken into account that some parliaments have founded dedicated and independent units for the study of state budget issues (Parliamentary Budget Offices - PBOs)[3]. Another, but rather rare, objective of PaRS is to examine ways in which scientific developments may affect parliaments and society at large. This is often described with the term scientific foresight, an example of which can be found within the European Parliament Research Service (EPRS).[4]

Using outdated parliamentary practices to tackle pressing contemporary and unknown future issues is a matter of concern. In times of social and technological evolution PaRS can and should contribute in the development of appropriate technologies which can be consequently implemented by parliaments. At the same time, they should be willing to adopt and test non-technology innovation, such as novel project management methods, good administrative and parliamentary practices. Moreover, in times of crises PaRS can build a stable connection between parliaments and society. In order to achieve this goal, research personnel of PaRS can be benefited in its tasks from state-of-the-art legal instruments, as well as from advanced administrative managing of information and communications. This, however, goes beyond the demands for administrative effectiveness in parliamentary administrations. Novel methods of research and technology in the hands of PaRS are more than a tool to perform an efficient business-as-usual. They assume a potential for the advancement of parliament in the national institutional environment by counterbalancing governmental superiority in the processing and analysis of information.

In order to intercept those seemingly different contributions of technology and innovation one should start by identifying the basic clients and products of PaRS and their differentiation among our samples (AUP, HeP and NARS). The undeniable need to exploit the advancements in Information and Communications Technology (ICT) should not be mistaken as an alteration in the orientation of the research services as ICT is only the means to an end. Next, the main characteristics of the 3 research services in focus will be presented followed by a broad review of the IPU guidelines context.

3.1   Austrian Parliament

Roughly a decade ago (2006) a scientific service 'original: Wissenschaftlicher Dienst' has been formed in AUP, as a distinct administrative unit with four departments: Information and publication, Library, Literature documentation, and Parliamentary documentation, archive and statistics. The original scope of this service has been corresponding directly to a PaRS, in the sense that it had the task of elaborating scientific studies on topics of parliamentary relevance. However, studies could only be conducted in individual cases at the request of the President of the National Council, thus limiting the outreach and efficiency of the service.

After the dissolution of this service, the above departments were rearranged and their competencies were transferred to various other administrative units. The term 'scientific

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[3] An example can be found in the case of the Greek PBO: http://www.pbo.gr/ (accessed on 6.7.2017)
[4] See https://epthinktank.eu/author/stoablogger/ (accessed on 6.7.2017)

service' is used informally, when referring to the newer service under the name 'legal, legislative and scientific service'. The 'new' scientific service is comprised of 6 departments: [5] Constitutional legal issues, Scientific parliamentary basis work, Budget service, Legal issues of the parliamentary directorate, Library, and Information services. It primarily has the task of providing legal advice in administrative and procedural questions. Hence, in its operation, this service seems not to fulfil a primary function of PaRS, i.e. the study of substantial issues of parliamentary relevance. This gap is partially filled by an in-house high-level consultation on parliamentary research directly linked to the Vice Director (legislative). It needs to be underlined though that when such positions operate outside the scientific service context, their footprint may be limited as the outcomes may not be caught in the institutional memory.

Approaches to the fulfillment of the function of PaRS in regard to data analysis and elaboration of informative reports are provided by the budget service 'Budgetdienst', which has been created in the context of the Federal Budget Reform Act for the consultation of MPs on matters of federal budgetary law. Its focus, however, is limited on issues of budgetary relevance and rather resembles the function of a typical PBO. The interesting feature here is that this service is embedded within the PaRS and it does not constitute a separate entity.

3.2 Hellenic Parliament

A provision on the establishment of a scientific service within the Hellenic Parliament is contained in the 1975 Greek Constitution according to which 'a scientific service to the Parliament may be established through the Standing Orders to assist Parliament in its legislative work'.[6] This fact alone, which is rather seldom in the worldwide parliamentary practice for establishing the parliamentary administrations, elevates the service in the institutional environment. Moreover, together with the relevant organic law,[7] they provide for the scientific and operational independence of the service.

The scientific service consists of the Scientific Council, which answers directly to the Speaker of the Parliament, and three directorates:[8] the First Directorate of Scientific Studies, the Second Directorate of Scientific Studies and the Directorate of Scientific Supervision. Within these directorates there is a further organizational sub-division in 9 departments. In addition, the President of the Scientific Council exercises the scientific supervision of the Parliament's Library, the Benaki library, the collections of political personalities and the Directorate of IT & New Technologies. The scientific supervision of the library and/or other administrative units is a fundamentally different approach compared to the one applied in the AUP PaRS, where the library constitutes a department within the research service.

The scientific outputs of the Greek PaRS are centered on 4 areas: a) high-level in-house consultancy through the Scientific Council, b) legal reports on bills and law proposals, c) archiving and documentation of parliamentary material, and d) technical assistance at the level of the parliament and in the international stage. Legal reports are the main scientific products of the scientific service and legal databases, e.g. NOMOS,[9] and sources for case-law in domestic and European courts are frequently accessed during the drafting procedure. A detailed presentation of the legal report elaboration process is presented by Fitsilis and Bayiokos (2017).

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[5] See AUP organigram: https://www.parlament.gv.at/POOL/SWBRETT/90000/0005/1-2017_A_Organigramm.pdf (accessed on 7.7.2017)

[6] Article 65 § 5 C. (1975)

[7] Article 160 Parliamentary Standing Orders (1987)

[8] The latest HeP organigram may be accessed here: http://www.hellenicparliament.gr/UserFiles/f3c70a23-7696-49db-9148-f24dce6a27c8/ORGANOGRAMMA%20GR%20%209%208%202016_1_2.jpg (accessed on 7.7.2017)

[9] See NOMOS web site: https://lawdb.intrasoftnet.com/ (accessed on 10.7.2017)

3.3 National Assembly Republic of Serbia

The research service (better: research group) of NARS is to be found within the Library of the National Assembly, which again is a department within the legislation sector.[10] The research group in the NARS supports the work of MPs, parliamentary bodies, e.g. the Speaker, committees and parliamentary groups, and the administration. The group may be also consulted by MPs at the committee stage of drafting legislation. Hence, within the general framework of enacting legislation, the contribution of the research group is of vital significance. Its main output are research documents and other knowledge related products for clients, internal and external to the parliament.

With regard to the resources utilized for the preparation of the research products, these may broadly categorized as follows: Legal database of national registration (commercial), Library of the NARS (books, journals and historical transcripts), ECPRD data, internet sources, such as the IPU, IFLA via an association with the National Library etc.

The contribution of the research group refers mainly to an analytical overview (background dossier) of domestic and EU law that is utilized in parliamentary committees. The committees in turn inform the assembly on research findings. In general, a pro-active approach is followed by preparing all relevant reports and providing all necessary information, thus assisting considerably the legislative and oversight functions of the NARS before the final adoption of law proposals by the Plenum. Recently a dedicated Document Management System (DMS) has been customized specifically for the research group. The system, which is operational since 2014, has been proved to advance the document mining and archiving capabilities of the researchers, thus increasing their working efficiency.

3.4 IPU guidelines

In this section, the basic directions of the IPA guidelines shall be presented. Beforehand it should be noted that the IPA guidelines 'should not be construed as strict recipes to be followed' (IPU and IFLA, 2015: 43). The guidelines distinguish between 5 key phases in establishing a PaRS. Each of these phases consists out of a number of steps. These steps represent certain considerations, which could be used when building a research service from scratch. On the other hand, using a reverse engineering step, the same guidelines could be used to check existing PARS against the idealized construct the IPU guidelines represent. Hence, they may be used as a quality standard, when assessing or developing an existing research service. In the table below (Table 1) we summarize the basic IPU guidelines (5 phases and 13 steps).

Governance of the PaRS and the placement of the service within the administration (step 1) turns to be important for its perception as a vital organ within the parliamentary establishment. The Greek scientific service, for instance, is directly linked to the Speaker of the Hellenic Parliament, whereas the research group at the NARS is a unit within the Library, which again is a department in the legislation sector. The positioning of the PaRS against the parliamentary library is also interesting to consider. In NARS, the research group is a subordinate library unit. On the contrary, in AUP, the library is a department within the research service. HeP is offering a third option. Here the library is a directorate outside the scientific service, upon which the president of the scientific council exercises scientific oversight.

The means of creation of a research service and its scope are determined in step 2. At this point the rather unique case of the Greek scientific service should be mentioned, as its base for establishment is provided by the Constitution. This provides for a stable operational and administrative regime, as opposed to the Austrian case, where major rearrangements have taken place in the past decade.

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[10] See NARS organigram: http://www.parlament.rs/national-assembly/organisation-and-support-service.508.html (accessed on 10.7.2017)

Some differences also exist for accessing the service (step 3). The Greek Scientific Service does not respond to requests by MPs (either individual or committee requests), however its products are widely accessible. On the contrary, in NARS, the research group may respond to requests from MPs. However, the requests are addressed to the research group through the secretaries of committees or through advisors at the parliamentary groups. The main scientific products provided also vary between the PaRS examined above (step 4). In AUP, it is legal advice in administrative and procedural questions, in HeP, it is the legal reports on bills and law proposals, and in NARS, it is research documents and knowledge related products.

PaRS operation is described in phase c. Both HeP and NARS PaRS own documents that regulate their conduct with the stakeholders (step 5). The scientific service in HeP has its internal rules of procedure and the research group in NARS is governed by the "Rulebook on the procedure of setting the requests for the creation of the research work of the National Assembly of Serbia". All services seem to operate under a stable framework over a period of several years with the appropriate staff appointed to them (step 6). However, in contemporary times of technological and societal evolution PaRS will need to adjust in order to continue to offer their services in a timely and efficient manner. This massive strengthening of capacity of PaRS could be achieved through:

a. the expansion of current facilities and the employment of new personnel (a difficult prospect under budgetary restrictions),
b. the cooperation with external stakeholders (see also step 12), or
c. through sufficient outsourcing of certain research activities, whenever high expertise is demanded. In any case, PaRS should have the supervision role and be responsible for the integration of the expert knowledge to the final report.

Phase/Guideline
Phase a: **Governance**
1. Determine where PaRS will be located in the organization
Phase b: **Define the mandate**
2. Establishment and objectives 3. Identify who may access the service 4. Determine what types of services will be offered
Phase c: **Determine how the research service operates**
5. Adopt a Service Charter and criteria for prioritizing demands 6. Identify staff requirements 7. Establish a process for quality control 8. Secure access to a range of information sources 9. Define information management requirements 10. Establish means of promotion and evaluation
Phase d: **Make the most of partnerships**
11. Build partnerships within the parliamentary administration 12. Set up partnerships with other research services
Phase e: **Reporting to Parliament**
13. Establish ways to report to parliament

Table 1: PaRS phases and steps (IPU and IFLA, 2015)

A quality control process, in the project management sense, does not seem to be in place (step 7) and the PaRS management is responsible for the quality of the scientific products. Since each of the above PaRS has a focus on a different product, the respective information sources also display a certain variance (step 8). In any case the parliamentary library offers a basis of securing and accessing such resources.

It can also be argued that the introduction of custom IT systems positively affects PaRS operation, from improving internal work-flows to enhancing the Service's communication with external stakeholders (step 9). This can be demonstrated with some figures in the case of the HeP scientific service. From 2000 till 2015 (16 years) 1574 laws have been passed through the parliament. The scientific service has issued legal reports to 739 of them (47%). Efficient handling of these reports, e.g. management, data mining and archiving, is not possible without the implementation of a state-of-the-art DMS. This has been demonstrated in the case of the NARS research group, which has employed a custom DMS for the management of the entire document life-cycle. The HeP scientific service is currently operating an internal repository, but is looking forward to migrate to a more advanced DMS.

Promotion of the role of PaRS is interlinked to the development of an effective communication strategy (step 10). When it comes to communication, PaRS should ensure that their scope and operation is perceived by both internal and external stakeholders. From the 3 PaRS in question, only the one in NARS has a proper communication strategy in place, which was developed during the aforementioned Twinning project. Another successful example of a PaRS that owns, and implements, such a communication plan is the EPRS.

Certainly, there is a strong bond between ICT and communication. A visible and easy-to-use web portal containing a public repository of the service's own products is indispensable for PaRS in the digital age, and yet parliaments need do more to satisfy the relevant IPU guideline 'the research service may become the corporate memory for the analytical work of parliament' (IPU and IFLA, 2015: 32).

Phase d of the IPU guidelines is about partnerships (steps 11 and 12). The respective stakeholder analysis for partner identification and the handling of partner relations is part of the communication strategy. External partnerships, which could include academic institutions, other research services, public agencies, national/international organizations, private stakeholders etc., will also play a major role in the development of knowledge products in the future (see also step 6 above). Finally, reporting (step 13) is of paramount importance as a means of communication with the service's stakeholders and for providing structured feedback on the nature and quality of the knowledge products.

4   Analysis and evaluation

Following the presentation of the 3 PaRS and the initial discussion based on the IPU guidelines it becomes clear that technology, in terms of ICT and innovation, including also the non-technological aspect such as procedural and methodological advancements (good practices), are inherent in most of the 13 underlying steps. Hence, we attempt a deeper analysis of the issues concerning the application of ICT technologies within parliamentary administrations and, especially, within the research services. This allows us to draw certain conclusions on how the introduction of ICT can substantially assist the function not only of PaRS but of the Parliament in general. On the other hand, it becomes clear that systematic utilization of ICT raises many challenges which need to be addressed. Modern digital technology, however useful, may tackle administrative inefficiency but it can also be the root of much greater institutional concerns. For instance, constitutional or legislative crowdsourcing initiatives, if not properly studied and conducted, may undermine the deep foundations of parliamentarism as a representational system.

An issue that needs to be addressed is certainly the limitation of partisan interference (IPU and IFLA, 2015: 17). PaRS need to stand out in the 'informal' competition with external think tanks and research centers services, as the later may be partisan, affected by political parties or serve certain political interests. As governmental or political party resources may outnumber parliamentary funding, a clear strategy for the strengthening of PaRS should be in place in order to counterbalance the dominance of biased information and research. This is of particular importance as impartiality, independency, accuracy and comprehensibility seem to be the main qualities which are expected by both MPs and the general public when using the ICT tools (UN, 2012).

Advancements on ICT may indeed positively influence many different parliamentary sectors. The adoption of new methods and technologies in administrational procedures has the potential to significantly reduce bureaucratic delays, e.g. due to a high amount of requests. In addition, PaRS should be prepared to consult parliaments in upgrading their administrational processes and ICT systems, in order to provide more effective services for MPs and citizens. For instance, the legislation process could be accelerated and become much more transparent should all stakeholders were able to access and process it electronically (OPPD, 2010).

Policy communication is an area in which the PaRS can prove to be of particular value. Digital versions of papers, agendas and reports that are being discussed within parliamentary institutions, e.g. in parliamentary groups, committees but also administration units, are often neglected by the relevant stakeholders due to the fact that the parliament is not accustomed to utilizing these new technologies efficiently. This is a matter of concern, as it results in limited citizen's engagement. The enhancement of the electorate's engagement can be achieved through providing the relevant information in a simple and comprehensible digital form. As a result, the interactivity between the Parliament and the citizens will be strengthened. This seems to be the case for the Portuguese Parliament as Leston-Bandeira (2007) suggests.

The terms e-governance and e-democracy are becoming more and more popular as they are interlinked with democracy, freedom and transparency of the political system (Lee, Chang and Berry, 2011). In order to guarantee effective communication between citizens and the parliament, it is necessary to establish the use of web 2.0 tools on a large scale, as transparency may also play a decisive role in the public acceptance of political decisions. Broad utilization of new technologies will enable society to easily follow parliamentary activities and track specific bills or other parliamentary documents. Still, initiatives such as open government data, remain under-utilized by the majority of national parliaments as politicians are often sceptical on the negative effects they may have on their image, since public control will inevitably be intensified.

Nevertheless, the evolution of ICT and its implementation within parliaments may be delayed but it most certainly will not stop. When this happens, PaRS should be prepared to take over the project management role in the introduction of such technologies by coordinating a set of parliamentary experts and external consultants, e.g. legal and information professionals, communication experts etc. Modern technology has also the potential to advance the quality of PaRS products by making specialized, hard-to-find information accessible and manageable, or improving layout and presentation. Using advanced software, systems and services PaRS may counteract phenomena of non-authoritative products and results such as unspecified or generalized information, complicated layout and presentation, plagiarism or inability to synthesize data.

One should not forget the need for coordinating the various activities and responsibilities within PaRS, an activity which could prove extremely time consuming in the absence of the necessary ICT infrastructure. Being able to retrieve information quickly and accurately is becoming increasingly necessary. Thus, as the amount of available reports and information stacks up in an exponentially, PaRS needs to adopt new developments in ICT in order to continue to do

business as usual. The PaRS examined above, even though being far from optimal, have already a customized DMS in place (NARS), or they are preparing to engage new technologies as in the case of HeP (Fitsilis and Bayiokos, 2017).

The application of state-of-the-art ICT also offers many new possibilities, since several knowledge products can only be produced by such means. Such examples are statistical boards, information packages, information visualization, and comparative analysis. More importantly, when applied to open governmental data, visual representation can be crucial towards ameliorating the perception of (non-expert) citizens in complex, contemporary matters. This may have a positive effect on civic engagement in public affairs (Windhager et al., 2016).

Another issue in relation to the introduction of ICT in the parliamentary environment may be the absence of a specific mandate to the PaRS. It is not rare to meet phenomena such as overlapping duties with other services, e.g. the IT administrative unit. A confusing mandate may seriously limit the authoritative spectrum of the PaRS, thus restricting its freedom of function. A detailed charter would be very helpful in that sense (see step 5 of the IPU guidelines). The establishment of a common services system between the PaRS, the IT administrative unit and the parliamentary library, e.g. through a Memorandum of Understanding (MoU), could also prove useful. At the end, these three are inevitably interlinked.

The adoption of novel ICT does not come without a price, literally. Introducing new technology in parliaments is usually a costly procedure, raising questions about funding and the Return on Investment (ROI). Some services may refrain from modernizing their equipment and processes in order to avoid additional costs for designing, establishing and maintaining the necessary equipment. Hence, it is necessary to assure the sustainability of the introduction of ICT. This can only be accomplished through guaranteed allocation of funds in the parliament's budget, which is mainly a political decision (Donker and van Loenen, 2016). Considering claims that in numerous occasions the government officials and parliamentarians themselves view these new technologies with fear as they comprehend that this will increase their accountability, it is obvious that they may refrain from approving a budget to implement and sustain a new technological infrastructure (Rumbul, 2016).

Issues of privacy, confidentiality and ethics need also to be tackled in a calculated way. In the new technological environment, private communication of both parliamentarians and citizens need to be protected. Technology may be evolving fast, but this does not mean that every facette of it is ripe enough to enter the parliamentary environment. PaRS have to claim the role for themselves to guide the adoption of technologies in a controlled manner. Besides the technical matters to be solved, one should not neglect the complicated legal framework that needs to be altered and the institutional arrangements that need to be made in order to introduce new methods and technologies in the parliament. The changes and the necessary approach need to be customized to each institution. After all, each parliament carries its own culture, functions and norms. What may work for the Parliament in Austria may not be as effective in Greece, Serbia or elsewhere. Not only are the institutions themselves different but also the MPs. For instance, certain MPs may be more willing to adjust in newly introduced practices or technologies, while others may oppose them, due to their unwillingness to become more accountable.

5   Conclusions and outlook

During an ongoing study of PaRS the services of 3 parliaments have been studied against the general IPU guidelines for parliamentary research services. Analysis of the 3 PaRS confirmed that scientific competence does not have necessarily to relate to an internal rigid administrative structure. On the contrary, more mature parliamentary institutions, such as the AUP, can afford

even to drastically reform PaRS without compromising their ability to innovate and evolve. Also advancements in technology seam to gradually affect PaRS, e.g. the introduction of a state-of-the art DMS system in the research group of NARS, and the planning of an advanced web repository in the HeP scientific service.

The IPU guidelines themselves have already undergone a long road of development and seem capable of providing sufficient advice for developing PaRS or to ex-post characterize an existing service. Nevertheless, as the evolution of parliaments and PaRS is continuous, the IPU guidelines need to be revised on a frequent basis. Hence, in a future revision they could be further advanced by offering a consistent methodological approach. Furthermore, several parts, such as the 'digital environment' and the 'information management' sections, need to be more detailed to depict recent advancements in ICT technology.

In a second step, advancements in ICT technology have been studied and the role of research services in their adoption in parliamentary environments has been discussed. The need of reforms in order to strengthen not only the functions of PaRS but also to facilitate operations and services of the Parliament in the digital era cannot be disputed. This prospect can only be seen as part of a long-term strategic plan which includes a specific and detailed drafting of a communication and digital strategy. Applying new techniques without considering their interaction with other sectors or services could obstruct the effectiveness of parliamentary operations instead of ameliorating them (OPPD, 2010). The latter is especially true for parliamentary libraries, which are inevitably interconnected with PaRS. Both need to cooperate in order to secure high-quality synthetic information (IPU, 2008). Since each institution is different, any reform effort should be customized to meet the specific needs of a particular Parliament. This does not mean that it is impossible to extract certain general conclusions which could be used as guidelines, but one should examine carefully each aspect and need of a particular parliament before applying any new operating practice or technology. PaRS could support and guide parliaments through this difficult process, for example by establishing a systematic consultation networks with the main recipients of their services and products.

The introduction of ICT technology to PaRS is but one of the many proposals to reform parliaments. Others include the electronic vote, civic participation and active involvement in sessions or direct interaction with MPs (OII, 2008). These of course are mere suggestions and there are several issues of technological and societal maturity underpinning their application. At the same time there is an increasing demand for more complex and synthetic information in order to better comprehend contemporary reality. PaRS have the potential to provide internal and external clients with independent, well-researched, timely, structured, and concentrated knowledge products, thus counterbalancing partisan information flows or even governmental superiority in analysis and dissemination of information.

As this is a study still in progress, we aim at analyzing more research services in an effort to reveal common characteristics but also fundamental differences. The IPU guidelines will continue to be the point of reference in our research and we intent to propose several additions and improvements in the near future.

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