
Protecting Parliamentary Procedure: Bridging the Gap in Institutional Memory with Artificial Intelligence

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Abstract: The intricate processes of law-making, government scrutiny and constituent representation in parliaments is anchored in a dual framework of written rules and institutional memory, often embedded by precedents. The retention of this institutional memory is crucial for maintaining parliamentary effectiveness amidst dynamic political environments. This paper explores the potential of Artificial Intelligence (AI) in preserving parliamentary procedural knowledge and addressing the challenge of 'institutional amnesia'. AI can enhance knowledge management systems by contextualising both explicit and implicit sources of information, ensuring the history and precedents of parliaments are retained and accessible. This paper considers the complexities of recording parliamentary procedures, emphasising the importance of institutional memory, which is often uncodified and held by long-serving members and staff. The frequent turnover in parliamentary personnel poses a significant risk to the continuity of institutional memory. AI, with its capabilities in data storage and analysis, offers a promising solution to this problem. The paper examines existing applications of AI in global parliaments, highlighting its potential to improve the accessibility and application of procedural knowledge. By integrating AI, parliaments can build intelligent repositories that support decision-making, member training, and the seamless transfer of procedural knowledge. However, the adoption of AI must be carefully managed to uphold democratic principles, ensuring transparency, accountability, and human oversight. Further, parliaments must carefully mitigate the cyber-security risks associated with AI, especially given the often sensitive nature of documents and records kept. This paper proposes a balanced approach, leveraging AI to preserve parliamentary precedents while maintaining the integrity and trust of the institution. Through this exploration, the paper aims to contribute to the evolving discourse on AI's role in enhancing parliamentary resilience and procedural continuity.

INTRODUCTION

The intricate process of law-making in parliaments involves a complex interplay between written rules and more implicit understandings of parliamentary procedure. Parliaments globally operate within this dual framework to ensure their effectiveness amidst political dynamics. The foundation of parliamentary procedure is anchored in legal frameworks prescribing the operational rules and protocols of the institution. These rules, often enshrined in constitutions and bills of rights, ensure that parliaments function within a defined legal

structure, safeguarding democratic principles, rights, and the separation of powers. While these elements are often documented, their application necessitates an interpretation infused with tacit knowledge—a deep, unwritten understanding of parliamentary norms and practices based on experience and internalised beliefs.

The importance of tacit knowledge poses an ongoing challenge for parliaments: how to retain it and ensure knowledge remains intact. This paper sets the foundation for a theoretical exploration of how AI can support the retention and application of parliamentary procedural memory. As parliaments face the challenge of maintaining institutional knowledge amidst frequent turnover of members and staff, AI presents a new frontier for preserving both codified and tacit knowledge. While AI's potential to enhance knowledge management has been widely discussed in other sectors, its application to the specific needs of parliamentary institutions remains underexplored. This paper delves into AI's capacity to support decision making, improve access to procedural knowledge, and enhance the education of new members, particularly in understanding the complex interplay between written and uncoded rules and norms that guide parliamentary procedure.

Rather than proposing specific AI solutions, this paper takes a broader theoretical approach to outline the possibilities and challenges of integrating AI into parliamentary systems. It considers how AI tools could be used to bridge gaps in institutional memory, but it also examines the limitations and risks of relying on such technology in a democratic setting. By focusing on AI's potential to preserve procedural memory, this paper aims to contribute to the ongoing discourse on parliamentary resilience, highlighting both the opportunities and the need for careful governance in adopting AI. The analysis will provide insights into how parliaments can leverage AI without compromising democratic principles such as transparency, accountability, and human oversight.

SOURCES OF PARLIAMENTARY PROCEDURE AND PRECEDENT

The work of parliaments to develop laws is complex requiring an ecosystem of written rules and procedures as well as precedents and other implicit practices. To ensure parliaments remain effective in a political environment, these institutions rely on a multitude of legal documents such as constitutions, legislation, standing or sessional orders and resolutions of a house. Parliamentary procedure is legal in nature governing the rules of the house(s);¹ in essence it sets out the rules of engagement within the parliament and how it should conduct business (such as questions, passage of legislation and rules of debate).

¹ John Waldeck, 'Legal Nature of Parliamentary Procedure'. *Cleveland State Law Review* 21(1) 1972, p. 87.

In Westminster-style (such as Australia or the United Kingdom) or similar legislatures (such as the United States), procedure is made up from a complex mix of written rules and unwritten conventions and precedents. This mix poses significant challenges for retaining and understanding parliamentary knowledge. Reliance on precedent to contextualise prescriptive rules adds a layer of complexity which can render parliamentary process opaque and inaccessible, even for those with experience of the system.

The UK Parliament identifies four key components of parliamentary procedure:

- Practice which is the general understanding established over the centuries and does not need to be formally written down.
- The Standing Orders which are the rules under which Parliament conducts its business and regulates the way members behave, and debates are organised.
- In the House of Commons Rulings from the Chair relate to decisions on procedure which have been referred to the Speaker for clarification. In the House of Lords, procedure is developed by the House itself through the Procedure Committee which considers any proposals for changes to Standing Orders.
- Other proceedings are controlled by Acts of Parliament which cover such things as taking the Oath or presenting Bills to Parliament.²

Documents explicitly outlining parliamentary procedure are often not prescriptive and require interpretation and the acceptance of tacit knowledge about the rules and practices of parliament. Parliamentary rules are designed to be enabling, facilitating the effective functioning of the house and its members, rather than restrictive, making it essential for them to remain flexible rather than rigid. It is the responsibility of parliamentary actors (e.g. members, presiding officers, clerks or other parliamentary officers) to interpret the intent of parliamentary procedure. This interpretation often relies on tacit knowledge.

‘Tacit knowledge’ refers to ‘personal knowledge embedded in individual experience and involving intangibles such as personal belief, perspectives and values’.³ Howells expanded on the definition of tacit knowledge contending it is ‘non-codified, disembodied know-how that is

² UK Parliament. 'Parliamentary Procedure'. Accessed at: <https://www.parliament.uk/site-information/glossary/parliamentary-procedure/>.

³ Femi Olan et al, 'Artificial Intelligence and Knowledge Sharing: Contributing Factors to Organizational Performance'. *Journal of Business Research* 145 2020, p. 607; Ikujiro Nonaka and Hirotaka Takeuchi, *The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation*. United Kingdom: Oxford University Press, 1995, p. 89.

acquired via the informal take-up of learned behaviour and procedures'.⁴ In the parliamentary context, tacit knowledge is the uncodified understanding of the practices and procedures of the parliament drawn from interpretation of codified rules or norms. A parliamentary actor's interpretation of the standing orders given in advice to a presiding officer or member is an example of tacit knowledge in action.

Parliaments rely on precedent to contextualise the rules of their work where codified procedure is not prescriptive. These precedents keep order in the chambers, assist with managing the practices of the institution and ensure that members are efficient in meeting their various obligations to the public. Precedent refers to past decisions, practices, and actions which guide or create a rule for how similar instances are to be addressed in the future. Generally, precedents contextualise written rules in legislation or standing/sessional orders however it can also be used to create common practices on which these documents are silent. For example, from 2016 to 2022 the President of the Legislative Council at the Parliament of Victoria (Australia) would give an Acknowledgement of Country following the Lord's Prayer at the commencement of a sitting day.⁵ Under the House's Standing Orders, only the Lord's Prayer was required.⁶ The consistent practice of delivering Acknowledgement of Country became a precedent for the House until it was formally adopted as a substantive rule in the Standing Orders from 2022.⁷

Precedents encompass not only formal decisions but also the nuances of debate, the subtleties of procedure, and the intricacies of committee work. This complexity is compounded by the fact that precedents can evolve, with new interpretations and applications arising as parliamentary contexts change.⁸ Whilst some precedents are codified into secondary documents such as procedure manuals or *Rulings from the Chair* books, not all are. Despite not being codified in writing, parliaments are still expected to respect their application and use them to provide a framework for operation. By relying on historical precedent, parliaments can ensure continuity and stability. However, appropriately interpreting and applying these precedents requires a deep understanding of parliamentary processes. This knowledge is essential to strike a balance between maintaining institutional continuity and adapting to modern expectations of parliaments and their members. Without this expertise, there is a risk

⁴ Jeremy Howells, 'Tacit Knowledge, Innovation and Technology Transfer'. *Technology Analysis & Strategic Management* 8(2) 1996, p. 92.

⁵ Victoria, *Parliamentary Debates*, Legislative Council, 9 February 2016, p. 1.

⁶ Legislative Council of Victoria, Standing Orders (2021) SO 4.02, p. 8.

⁷ Legislative Council of Victoria, Standing Orders (2022) SO 4.02, p. 11.

⁸ UK Parliament, *Erskine May*. Accessed at: <https://erskinemay.parliament.uk/information/preface>.

that precedents may be misapplied or become disconnected from contemporary legislative and procedural needs.

Reliance on precedent to guide contemporary practices is valuable to parliaments for several reasons. In parliaments, precedents:

- provide a sense of continuity and stability, ensuring that the current parliament avoids arbitrary decisions by carefully considering well-established historical and procedural contexts
- maintain the integrity and predictability of parliament's operations ensuring it is not subject to changing political climates
- guide parliamentarians, clerks and staff in situations where prescriptive rules are ambiguous or silent on the specific matters before the house
- promote fairness and equity in parliamentary proceedings ensuring decisions are not ad hoc or controlled by the governing party and instead are rooted in a consistent application of rules and norms. This role is particularly important for parliaments within democratic systems.⁹

It is clear that precedent is a central source of knowledge that helps parliament contextualise its rules and procedures, and it is most effective when properly documented. Tacit knowledge can become institutional memory when it is documented, even if it does not evolve into formal precedent. The act of writing down advice, interpretations, or informal practices allows this otherwise personal and experiential knowledge to be shared and preserved within the institution.¹⁰ While such documentation may not always result in a formal precedent, it still contributes to the broader institutional memory of parliament. Written records, including procedural notes, clerk advice, or interpretations of standing orders, ensure that valuable insights and understandings are accessible to future parliamentary actors. This process enables the continuity of knowledge that might otherwise be lost through turnover of staff and members, helping to maintain the stability and functioning of the parliament, even if those written insights do not carry the weight of an established precedent.

By recording these interpretations and informal practices, the parliament ensures that future decision-makers have a reservoir of institutional knowledge to draw upon, bridging the gap

⁹ Michael Kirby. 'Precedent Law, Practice and Trends in Australia', p. 12. Accessed at: https://www.michaelkirby.com.au/images/stories/speeches/2000s/vol60/2006/2150-Precedent_Law.pdf.

¹⁰ Sima Siami-Namini, 'Knowledge Management Challenges in Public Sectors'. *Research Journal of Economics* 2 2018, p. 1.

between individual experience and collective understanding.¹¹ Institutional knowledge is much more than a simple collection of facts. It serves as an active guide that shapes how procedures and practices are implemented. This deeply embedded understanding ensures that rules and processes are followed with a clear grasp of their historical significance and practical applications, thereby improving the process of lawmaking.

RETAINING PARLIAMENT'S INSTITUTIONAL MEMORY

The dispersion of parliamentary knowledge across formal and informal sources creates the collective knowledge of a parliament. This collective knowledge is vital to sustaining the practices of parliament but can make it challenging to locate and synthesise precedents to understand their application to current situations.

In parliaments, tacit knowledge—those informal understandings, norms, and practices that guide decision-making—can be recorded, but this is done inconsistently. Moreover, it is often documented for personal use only or easily lost, meaning much of this knowledge remains tacit and held by knowledgeable actors who will eventually leave or retire. While some tacit knowledge transitions into precedent, formalising it into the institution's collective memory, a significant portion remains tied to the expertise of individuals, making it vulnerable to loss.¹²

By establishing and documenting knowledge, parliaments build 'institutional memory.' This memory acts as a bridge, connecting the tacit, experiential knowledge held by parliamentary actors with the formal, codified rules of procedure. For instance, advice provided by clerks or parliamentary officers may offer interpretations of standing orders that clarify ambiguities or establish new norms. Even if this advice is not formally adopted or written into the rules, it may still influence future decisions and become an informal part of parliamentary practice. As such, institutional memory plays a vital role in preserving continuity and guiding the application of procedure, ensuring that the parliament operates with consistency while also adapting to new contexts and challenges. However, without proper storage or sharing of this knowledge, it does not embed itself in the deeper memory of the institution, risking loss of valuable insights.¹³ As such, institutional memory plays a vital role in preserving continuity and guiding the application

¹¹ Siami-Namini, 'Knowledge Management Challenges in Public Sectors'.

¹² Ellen C Martins and Nico Martins, 'The role of organisational factors in combating tacit knowledge loss in organisations'. *Southern African Business Review* 15 2011, p. 53.

¹³ Karl G Siewert and Pamela Louderback, 'The 'Bus Proof' Library: Technical succession planning, knowledge transfer, and institutional memory'. *Journal of Library Administration* 59 2019, p. 469.

of procedure, ensuring that the parliament operates with consistency while also adapting to new contexts and challenges.¹⁴

Without an accessible knowledge repository, the retention of parliamentary knowledge heavily relies on the tacit knowledge of long-serving members and parliamentary staff. This reliance makes parliaments vulnerable to the risk of ‘institutional amnesia’¹⁵ where the context and applicability of important precedents are lost. Turnover in parliamentarians and parliamentary officers—in particular clerks—creates gaps in institutional memory. Parliaments are particularly exposed to this risk among members during an election period which can see long-serving members retire or lose their seats, potentially leaving large procedural gaps in a new parliament.

The Parliament of Victoria’s 2022 election highlights the risk of losing institutional knowledge, even when examining just one of its houses, the Legislative Council. Before the election, the Clerk of the Legislative Council and several long-serving members announced their retirement.¹⁶ Together, they represented over 100 years of accumulated expertise. This created a substantial gap in institutional knowledge, affecting not only the Legislative Council but the entire Parliament. These individuals held a deep procedural understanding and historical knowledge of the parliamentary system, which is difficult to replace. Furthermore, the election brought about a shift in the House’s composition, with 20 new members elected to the Legislative Council.¹⁷ This transition underscores concerns about maintaining parliamentary traditions and preserving critical institutional memory.

The loss of institutional memory is not unique to parliaments. It is a risk for all organisations and is often studied in the context of the broader public sector. Tingle discussed the loss of institutional memory in Australia’s public service (which she described as ‘political amnesia’) and the consequences for policymaking in the country. Whilst the essay focuses on the memory of public servants and advisers, its contentions are relevant to the dilemma faced by parliaments: how to retain institutional memory. Tingle described the risks poor institutional memory can have in a democratic context:

Without memory, there is no context or continuity for the making of new decisions. We have little choice but to take these decisions at face value, as the inevitable outcome of current circumstance. The perils of this are manifest. Decisions are taken that are not informed by knowledge of what has worked, or not worked, in

¹⁴ Laura Tingle, ‘Political Amnesia: How We Forgot to Govern’. *Quarterly Essay* 60 2015, p. 4.

¹⁵ Christopher Pollitt, ‘Institutional Amnesia: A Paradox of the ‘Information Age?’’. *Prometheus* 18(1) 2000, pp. 5–16.

¹⁶ Victoria, *Parliamentary Debates*, Legislative Council, 21 September 2022.

¹⁷ Department of the Legislative Council, *Annual Report 2022-23*. Victoria: Parliament of Victoria, 2023, p. 1.

*the past, or even by a conscious analysis of what might have changed since the issue was last considered.*¹⁸

Interestingly, Tingle contested that technology is ‘acting against institutional memory’ by depleting the need for individuals to build their own knowledge which contributes to an institution’s memories.¹⁹ However, developments in AI and other forms of emerging technologies show possibilities for preserving institutional memory in a way which can catalogue information and educate newer actors (such as first term members) on how to apply this knowledge to contemporary situations.²⁰

For parliaments, retaining precedents and other forms of procedural knowledge is essential. Embedding new technological systems for preserving institutional memory can assist with several challenges currently experienced by parliaments, especially educating and training new members. Member education is a crucial component of the role of many parliamentary officers, particularly clerks. Procedure is an essential part of members’ education because of its importance to the core functions of parliament. In 2012, Ken Coghill (a former Speaker of the Victorian Legislative Assembly) found that 78.5% of training content received by parliamentarians focused on parliamentary procedure.²¹ The challenges associated with retaining and understanding parliamentary knowledge can extend to the functioning of parliamentary democracy. For new members, the steep learning curve associated with building a repository of precedents (or even the skills to find relevant precedents) can be a barrier to effective participation. This barrier can limit the capacity of members to conduct their business and represent constituents, potentially eroding the diversity of voices and perspectives in parliamentary debate and decision-making.²²

Retaining parliamentary memory is a multifaceted issue requiring a multi-pronged approach. Parliaments must ensure there are appropriate documentation processes for precedents and other forms of institutional memory which provide context to its written materials. These documents must also be accessible and digestible; without accessibility it is unlikely members or staff will engage with these documents, further risking institutional amnesia. By exploring

¹⁸ Tingle, ‘Political Amnesia’, p. 5.

¹⁹ Tingle, ‘Political Amnesia’, p. 82.

²⁰ Andrea Bencsik, ‘The sixth generation of knowledge management – the headway of artificial intelligence’. *Journal of International Studies* 14 2024, p. 91.

²¹ Ken Coghill, ‘How Should Elected Members Learn Parliamentary Skills’, in *Senate Occasional Lecture*. Victoria: Monash University, 23 November 2012, p. 14.

²² Cristina Neesham et al, ‘Educating and Training Parliamentarians’. *Australian Parliamentary Review* 25(1) 2010, pp. 46–47.

technological solutions to storing informal knowledge, parliaments can ensure there are sources to assist with the further functioning of parliament whilst also providing more tools for education. Emerging technology can provide a unique opportunity to improve knowledge management in parliaments by building intelligent repositories for information which can support members and staff to apply relevant knowledge to current situations.

DEFINING ARTIFICIAL INTELLIGENCE (AI)

Artificial Intelligence, a form of ‘emerging technology’, is not a new phenomenon despite its recent mainstream attention with the advent of programs such as ChatGPT making the technology accessible to a global audience. Whilst AI is only one form of emerging technology, it is the focus of this paper because of its potential applicability in solving the knowledge retention problem faced by parliaments. AI is a type of disruptive technology which has the capability to significantly transform organisational processes and practices. ‘Disruptive technology’ refers to a ‘set of emerging technologies that drastically transform the processes and operations’ of an organisation.²³ Other examples of disruptive technologies are the Internet of Things and recommender systems.

Despite its emergence as early as 1956,²⁴ there is no universally accepted definition of AI. Tobin described AI broadly as:

*... the theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages.*²⁵

A common feature of definitions of AI is the assertion that its intelligence can make sense of information collected from previous experience whilst managing uncertainty in future actions,²⁶ and that it can emulate human-esque cognitive tasks.²⁷

²³ Dimitris Koryzis et al, 'Disruptive Technologies for Parliaments: A Literature Review'. *Future Internet* 15 2023, p. 2.

²⁴ In 1956, Dartmouth College researchers examined how to make machines use language and solve problems like humans. Science, Innovation and Technology Committee, *The Governance of Artificial Intelligence: Interim Report*. United Kingdom: House of Commons, 2023, p. 6.

²⁵ James Tobin, *Artificial Intelligence: Development, Risks and Regulation*. United Kingdom: House of Lords Library, 2023, p. 2.

²⁶ Pär J. Ågerfalk, 'Artificial Intelligence as Digital Agency'. *European Journal of Information Systems* 29(1) 2020, p. 5.

²⁷ Hind Benbya, Stella Pachidi and Sirkka Jarvenpaa, 'Special Issue Editorial: Artificial Intelligence in Organizations: Implications for Information Systems Research'. *Journal of the Association for Information Systems* 22(2) 2021, p. 281.

Relevant to knowledge management, AI technology has three key features which can be used to preserve and elevate the use of institutional memory in parliaments:

- storage to collect information from multiple users in a variety of formats
- analysis features to process information and compare it to varying datasets/information to extract more valuable insights based on human prompts
- recommendation features to list the most important information to assist with decision-making.²⁸

It is important to emphasise that the success of AI in retaining and sharing institutional knowledge is still contingent on human oversight. For parliaments, this means that a relevant actor—such as a clerk, presiding officer, member or other person—is still responsible for contextualising the relevancy of the information. However, the interplay between AI and human agency has the capability to elevate the use of institutional memory by parliaments through establishing a repository of shared knowledge that can be applied to specific situations.

APPLICABILITY OF AI TO RETAIN PARLIAMENTARY PROCEDURAL MEMORY

For parliaments, the integrity and efficiency of its procedures are paramount because of their relationship to safeguarding important parliamentary principles such as democracy, transparency and accessibility. AI and other emerging technologies can assist with the work of parliaments to retain this knowledge. To ensure that the democratic principles of parliaments are maintained and to retain public trust, it is important that the use of AI (in any capacity) ‘aids, rather than overshadows, the critical human analysis that underpins parliamentary scrutiny’.²⁹

Whilst still a fledgling development in the global parliamentary network, there are some examples of legislatures using AI to elevate their work.³⁰ In 2020, the Inter-Parliamentary Union noted several uses, or investigations, of AI by parliaments in its *Innovation Tracker*:

²⁸ Cristina Trocin et al, 'How Artificial Intelligence Affords Digital Innovation: A Cross-Case Analysis of Scandinavian Companies'. *Technological Forecasting and Social Change* 173 2021, p. 9.

²⁹ Bussola Tech, 'The Future of Parliamentary Processes: Embracing AI in the UK's House of Commons'. Accessed at: <https://library.bussola-tech.co/p/the-future-of-parliamentary-processes>.

³⁰ Bussola Tech, 'The Evolution of Parliamentary Systems in the Age of Artificial Intelligence and Technology'. Accessed at: <https://library.bussola-tech.co/p/the-evolution-of-parliamentary-systems>.

- **South Africa:** exploring using a chatbot to assist members find information and perform tasks.
- **United States, House of Representatives:** used to analyse and summarise legislative documents, assisting with decision-making.
- **Japan:** using speech recognition technology to make videos searchable, improving public access to parliamentary proceedings.
- **Netherlands:** a speech recognition system to make reporting more accurate and streamline generating proceeding documentation.³¹

Integrating AI into parliamentary systems is not without challenges. The future of AI requires a careful balance between technological advancement and maintaining the institution's democratic functions.³² Consequently, embedding AI into parliaments is not just a technological prospect but a cultural one.³³ Parliaments must develop user frameworks for AI which have regard to transparency, accountability and privacy.³⁴

For AI to be successful in parliament, it is important that it remains human centric with oversight and accountability mechanisms.³⁵ When used appropriately, AI can promote transparency and efficiency in legislative operations by simplifying administrative tasks, facilitating digital public engagement,³⁶ and encouraging interparliamentary collaboration through improved information exchange.³⁷

Despite clear interest, one of the most underexplored applications of AI in parliaments is retaining and managing procedural knowledge. Parliamentary procedure is complex and can

³¹ Inter-Parliamentary Union, 'Artificial Intelligence: Innovation in Parliaments'. *Innovation Tracker 4 2020*. Accessed at: <https://www.ipu.org/innovation-tracker/story/artificial-intelligence-innovation-in-parliaments>.

³² Bussola Tech, 'Harmonizing Artificial Intelligence with Traditional Parliamentary Processes'. Accessed at: <https://library.bussola-tech.co/p/harmonizing-artificial-intelligence>.

³³ Bussola Tech, 'Harmonizing Artificial Intelligence with Traditional Parliamentary Processes'.

³⁴ European Parliament, 'Artificial Intelligence: Threats and Opportunities'. Accessed at: <https://www.europarl.europa.eu/news/en/headlines/society/20200918STO87404/artificial-intelligence-threats-and-opportunities>.

³⁵ Bussola Tech, 'Harmonizing Technological Advancement with Legislative Tradition: The Role of AI in Parliamentary Decision-Making'. Accessed at: <https://library.bussola-tech.co/p/harmonizing-technological-advancement>.

³⁶ Emma Armstrong, 'Digital Innovation and Public Engagement at the Scottish Parliament'. *Australasian Parliamentary Review* 37(2) 2022, p. 57.

³⁷ Fotios Fitsilis and Jörn von Lucke, 'Re-shaping Interparliamentary Cooperation through Advanced Information Sharing'. *Australasian Parliamentary Review* 38(1) 2023, p. 79.

require years to master (leaving the institution at risk of procedural amnesia). AI can address parliament's knowledge gap by:

- employing knowledge management systems to catalogue procedural rules, debates, decisions and advice, including cataloguing and updating old databases in outdated forms
- using decision support systems to assist parliamentarians to understand precedent and identify appropriate courses of action during proceedings (by analysing historical data)
- enhance member training and education on parliamentary procedure, AI tools can be used for interactive, adaptive and continuous learning on complex procedural matters.

A variety of sectors both within the public and private spheres are adopting the use of AI to transform their knowledge management. The concept of 'AI affordances' provides an appropriate framework for understanding the potential applicability of AI in retaining parliamentary knowledge. The affordance framework—first developed by James Gibson in 1979 in the field of ecological psychology³⁸—has since been applied to understand the potential of technology to assist with human goals (referred to as 'technology affordance').³⁹ AI affordance specifically considers the suitability of AI-offerings for specific goals.

Trocin, et al examined AI affordances for digital innovation noting its applicability to improving organisational performance across a variety of areas including decision-making, communication, recruitment and others.⁴⁰ For knowledge management, AI has the capacity to 'overcome human information processing constraints' such as speed or condensing multiple types of information.⁴¹ In the parliamentary context, AI used for knowledge management could be used to store, process and analyse multiple types of information (such as standing orders or notes from a clerk on advice to a member or presiding officer). Further, precedents can be built

³⁸ James J Gibson, 'The Theory of Affordances'. *The Ecological Approach to Visual Perception*. E-book: Psychology Press, 2014.

³⁹ Giulia Maragno et al, 'Exploring the Factors, Affordances and Constraints Outlining the Implementation of Artificial Intelligence in Public Sector Organizations'. *International Journal of Information Management* 73 2023, p. 3.

⁴⁰ Trocin et al, 'How Artificial Intelligence Affords Digital Innovation', p. 8.

⁴¹ Trocin et al, 'How Artificial Intelligence Affords Digital Innovation', p. 1.

into an AI's repository allowing it to intelligently assess the rules and procedures of parliament and apply them to modern situations with the right parameters.

Mansoori, et al explained that knowledge management is 'all about managing the flow of information' ensuring that the 'right people get the right information at the right time'.⁴² It achieves this through establishing processes used to identify, gather, and reinforce knowledge within organisations. The authors identified three critical elements of knowledge management: people, technology, and process; with people being the core component, accounting for 70% of its success.⁴³

Technology is an enabling component of knowledge management by facilitating processes and making knowledge accessible.⁴⁴ In particular, AI can elevate knowledge management by providing rapid access to targeted information and enhancing real-time decision-making. There are several forms of AI technology which could be employed by parliaments to strengthen its knowledge management. The below table outlines some of the potential applications of AI technology to create an intelligent knowledge management system in parliaments.

⁴² Saeed Al Mansoori, Said A Salloum and Khaled Shaalan, 'The Impact of Artificial Intelligence and Information Technologies on the Efficiency of Knowledge Management at Modern Organizations: A Systematic Review' in M Al-Emran et al (eds), *Recent Advances in Intelligent Systems and Smart Applications*. E-book: Springer Nature, 2021, p. 164.

⁴³ Mansoori, Salloum and Shaalan, 'The Impact of Artificial Intelligence and Information Technologies on the Efficiency of Knowledge Management', p. 164.

⁴⁴ Mansoori, Salloum and Shaalan, 'The Impact of Artificial Intelligence and Information Technologies on the Efficiency of Knowledge Management', p. 168.

Figure 1. Potential application of AI technology for retaining parliamentary procedural knowledge.⁴⁵

AI technology	Description	Applicability to parliaments
Natural Language Processing	A system to understand, interpret and generate human language.	Apply precedents to interpret sources of procedure such as standing or sessional orders.
Machine Learning and Deep Learning	A system to learn from data, identify patterns and make decisions with limited human intervention.	Using procedural sources and precedents, offer advice on dealing with a current situation in the House.
Semantic technology	Assists with understanding meaning and context of words within documents.	Apply precedents to derive meaning to procedural sources such as standing or sessional orders.
Expert systems	Uses rule-based algorithms to emulate decision-making.	Apply precedents or clerk advice to assist with procedural matters in the House.

Creating an intelligent knowledge management system for parliament's procedural knowledge can enhance the accessibility, organisation and analysis of this information. AI has the capacity to assist with efficiency in the application of parliamentary procedure by making precedents more accessible and contextual to the contemporary work of the institution. It can also assist with the education and training of new members addressing the challenges parliaments continually face when institutional memory disappears because of long-serving staff and member turnover.⁴⁶

RISKS TO PARLIAMENTS

The use of AI in parliaments requires careful consideration. Whilst there are not many examples of AI being used in this paper's proposed manner, there is a plethora of scholarship signalling the importance of parliaments retaining democratic and institutional principles when

⁴⁵ LeewayHertz, 'AI in Knowledge Management: Paving the Way for Transformative Insights'. Accessed at: <https://www.leewayhertz.com/ai-in-knowledge-management/>.

⁴⁶ Tingle, 'Political Amnesia: How We Forgot to Govern', p. 12.

using emerging technology in any capacity.⁴⁷ Although AI offers promising tools to preserve institutional memory and enhance knowledge management, its implementation in parliamentary systems is not without risks. These risks can be categorised into several key areas: over-reliance on technology, erosion of tacit knowledge, security vulnerabilities, ethical concerns, and reduced human oversight. While AI can process vast and varying datasets, the human capacity for nuanced interpretation of parliamentary proceedings remains irreplaceable.⁴⁸ This highlights the importance of balancing AI's efficiency with the critical role of human oversight to ensure legislative processes retain their integrity.⁴⁹

The adoption of AI in parliaments potentially poses significant challenges to fairness, transparency, explainability and accountability especially where automated decision-making systems are deployed.⁵⁰ Lord Sales (UK Supreme Court) noted these concerns:

*Through lack of understanding and access to relevant information, the power of the public to criticise and control the systems ... is eroded. Democratic control of law and the public sphere is being lost.*⁵¹

A significant risk is over-reliance on AI to the detriment of human expertise. While AI can efficiently store, analyse, and retrieve precedents, 'it is imperative to approach this with caution, ensuring that AI aids, rather than overshadows, the critical human analysis that underpins parliamentary scrutiny'.⁵² Human judgment remains essential in interpreting parliamentary procedures, which often involve unwritten conventions, precedents, and context-specific decisions. Over-reliance on AI may lead to a shallower application of procedural rules, neglecting their political or historical significance.

AI, when used for decision-making, runs the risk of diminishing human oversight in parliamentary processes. The efficiency of AI tools in providing procedural advice or summarising debates may lead to a temptation to bypass human judgment or reduce the level

⁴⁷ Mehmet B Unver, 'AI governance: Compromising democracy or democratising AI?'. Accessed at: https://www.research.herts.ac.uk/ws/portalfiles/portal/62206776/Paper_Democratic_AI_governance_Unver_final_1_August_2024.pdf.

⁴⁸ Bussola Tech, 'The Role of Artificial Intelligence in Transforming Parliamentary Operations' Accessed at: <https://library.bussola-tech.co/p/the-role-of-artificial-intelligence-d2a>.

⁴⁹ Unver, 'AI governance: Compromising democracy or democratising AI?', p. 2.

⁵⁰ Daniel Montoya and Alice Rummery, 'The Use of Artificial Intelligence by Government: Parliamentary and Legal Issues'. New South Wales: NSW Parliamentary Research Service, 2020, p. 6.

⁵¹ Lord Sales, *Algorithms, Artificial Intelligence and the Law*. Online: The Sir Henry Brooke Lecture for BAILII, 2019, p. 6.

⁵² Bussola Tech, 'The Future of Parliamentary Processes: Embracing AI in the UK's House of Commons'. Accessed at: <https://library.bussola-tech.co/p/the-future-of-parliamentary-processes>.

of scrutiny applied to parliamentary decisions.⁵³ This can pose a threat to democratic processes, where human deliberation, debate, and accountability are foundational principles. Therefore, it is crucial that parliaments maintain a clear distinction between AI as a tool for support and the final authority of human actors in interpreting and applying procedural rules. AI should ‘augment human capabilities rather than replace them...to ensure AI outputs are accurate and contextually appropriate’.⁵⁴

Ensuring human oversight of AI systems is even more crucial because, at present, it is not feasible to teach a system the values and principles that underpin parliaments, such as democracy, transparency, and accountability. While there have been recent initiatives in places like the European Union to guide AI technologies with values such as fairness and transparency, these efforts largely rely on the intervention of ‘human agents’.⁵⁵ These agents are responsible not only for designing AI systems in alignment with these principles but also for continually updating them to ensure that the systems reflect evolving values over time. Where value-based principles are embedded within AI systems, human oversight becomes essential not just for reviewing outputs but also for continuous monitoring and redesign to maintain these principles.⁵⁶ For parliaments, this means that human involvement is critical at every stage—from the initial design of AI systems to their ongoing governance. Continuous evaluation and adaptation would be necessary to align AI systems with the complex and evolving nature of parliamentary work, ensuring that these tools enhance, rather than undermine, the integrity of the institution.

Poorly implemented AI knowledge management systems can run counter-intuitive to their aim in preserving institutional memory. AI systems are designed to codify and store knowledge, but they may inadvertently contribute to the erosion of tacit knowledge, which is inherently difficult to capture.⁵⁷ Tacit knowledge in parliamentary systems encompasses the unwritten rules, norms, and cultural practices that guide decision-making. While AI can store explicit knowledge in the form of documented rules or precedents, the subtleties of human interaction

⁵³ Philip Meissner and Christoph Keding, *The Human Factor in AI-based decision-making*. E-Book: O’Reilly, 2021.

⁵⁴ Bussola Tech, ‘Using Artificial Intelligence in Legislative Services – Considerations from Society of the Clerks of the Table Africa Region Panel in Arusha/Tanzania’. Accessed at: <https://library.bussola-tech.co/p/artificial-intelligence-parliaments-socatt>.

⁵⁵ Ibo van de Poel, ‘Embedding Values in Artificial Intelligence (AI) Systems’. *Minds and Machines* 30 2020, p. 397.

⁵⁶ Poel, ‘Embedding Values in Artificial Intelligence’, p. 397.

⁵⁷ Paul M Leonardi and Jeffrey W Treem, ‘Knowledge management technology as a stage for strategic self-presentation: Implications for knowledge sharing in organizations’. *Information and Organization* 22 2011, p. 57.

and the interpretation of these rules may be lost over time.⁵⁸ As AI systems are increasingly relied upon, the depth and richness of institutional memory could diminish, leading to a more mechanistic and less flexible approach to procedure.

AI systems that manage sensitive parliamentary information are vulnerable to cyber-attacks, hacking, and data breaches. Parliamentary records, particularly those related to procedural advice, debates, and confidential deliberations, are often sensitive and politically charged. An AI system that holds such data could be an attractive target for malicious actors seeking to disrupt parliamentary processes or exploit confidential information. It is vital that parliaments implement robust security measures to 'ensure the authenticity of legislative data and its protection from cyber threats'.⁵⁹ The handling of sensitive information requires stringent data privacy laws and security protocols to mitigate these risks.

AI systems can be prone to biases based on the data they are trained on,⁶⁰ leading to unintended consequences in parliamentary decision-making. If AI tools are trained on incomplete or biased historical data, they may perpetuate and amplify existing biases in parliamentary procedure.⁶¹ For example, precedents that were historically shaped by unequal power dynamics or that favoured certain political interests could be reinforced by AI algorithms without proper scrutiny. This risks reinforcing any existing inequalities in the parliamentary system and undermining the fairness and impartiality expected in democratic institutions. Parliaments must therefore ensure that AI systems are transparent, regularly audited for bias, and subject to ethical guidelines that prioritise fairness and equality.⁶²

Along with biases, AI 'hallucinations', wherein AI systems generate incorrect or false information, can present a significant risk for procedural accuracy, particularly where inadequate systems or processes are adopted.⁶³ The risk of AI producing erroneous content necessitates caution against over-relying on these systems without human validation. The potential for AI to misinterpret or invent procedural precedents or information raises concerns

⁵⁸ Anna Trunk, Hendrik Birkel and Evi Hartmann, 'On the current state of combining human and artificial intelligence for strategic organizational decision making'. *Business Research* 13 2020, p. 896.

⁵⁹ Bussola Tech, 'Using Artificial Intelligence in Legislative Service'.

⁶⁰ IBM, 'Shedding light on AI bias with real world examples'. Accessed at: <https://www.ibm.com/think/topics/shedding-light-on-ai-bias-with-real-world-examples#:~:text=AI%20bias%2C%20also%20referred%20to,historical%20and%20current%20social%20inequality>.

⁶¹ Jake Silberg and James Manyika, 'Notes from the AI frontier: Tackling bias in AI (and in humans)'. *McKinsey Global Institute* 2019, p. 3.

⁶² Bussola Tech, 'Implementing Artificial Intelligence in the Legislative Process: Procedural and Administrative Challenges'. Accessed at: <https://library.bussola-tech.co/p/implementing-artificial-intelligence-parliaments>.

⁶³ Michele Salvagno, Fabio Silvio Taccone and Alberto Giovanni Gerli, 'Artificial Intelligence hallucinations'. *Critical Care* 27 2023, p. 1.

about the reliability of AI-assisted decision-making. However, the extent of ‘hallucinations’ can depend on the specific application in use. If designed with narrow, rule-based constraints, AI hallucinations can be reduced by strictly adhering to codified parliamentary procedures. Conversely, if the adopted model is employed for broader interpretative tasks (i.e., generative AI models), the risk of misleading outputs increases.⁶⁴ Non-expert users may struggle to discern AI-generated errors, necessitating safeguards such as expert oversight or verification mechanisms, like processes in place for managing AI biases.⁶⁵ Addressing this issue explicitly would be valuable for AI adoption in legislative environments. Failing to acknowledge AI’s limitations could lead to misplaced trust in its outputs or create a culture of distrust resulting in the failed uptake of systems, reinforcing the need for critical evaluation in its deployment.⁶⁶

Given these risks, it may be more desirable for parliaments to invest in the development of purpose-built AI systems specifically designed to uphold the unique requirements. Purpose-built AI systems can better address the nuanced demands of parliamentary procedures and mitigate concerns such as bias, security vulnerabilities, and the potential erosion of tacit knowledge.⁶⁷ However, such an endeavour poses significant resourcing and funding challenges; an area where many legislatures are already constrained. The investment required to develop purpose-built AI solutions is substantial, with a variety of sources reporting that custom AI solutions can cost anywhere between US\$5,000 to US\$500,000.⁶⁸ Moreover, the complexity of designing AI systems that integrate seamlessly with existing parliamentary frameworks while maintaining flexibility and human oversight adds to the difficulty. Consequently, while the creation of customised AI systems may offer the most viable solution to ensuring that the use of emerging technology in parliaments remains aligned with democratic principles, the practical barriers to achieving this must be carefully considered.

⁶⁴ Select Committee on Adopting Artificial Intelligence (AI), *Final Report on Adopting Artificial Intelligence (AI)*. Canberra: Parliament of Australia Senate, 26 November 2024, p. 43.

⁶⁵ Bingcheng Wang, Pei-Luen Patrick Rau and Tianyi Yuan, ‘Measuring user competence in using artificial intelligence: validity and reliability of artificial intelligence literacy scale’. *Behaviour & Information Technology* 42 2023, p. 1327.

⁶⁶ Michele Salvagno, Fabio Silvio Taccone and Alberto Giovanni Gerli, ‘Artificial Intelligence hallucinations’, p. 1.

⁶⁷ MIT Technology Review, ‘Purpose-built AI builds better customer experiences’. Accessed at: <https://www.technologyreview.com/2024/04/02/1090164/purpose-built-ai-builds-better-customer-experiences/>.

⁶⁸ For example: NextGen Invent Corp, ‘Artificial Intelligence Cost Estimation: How much does it cost to build an AI-powered app?’. *Medium*, 2023. Accessed at: <https://nextgeninvent.medium.com/artificial-intelligence-cost-estimation-how-much-does-it-cost-to-build-an-ai-powered-app-d937442ca995>.

CONCLUSION

The integration of AI into parliamentary systems represents a pivotal opportunity to address one of the most pressing challenges modern legislatures face: the preservation of institutional memory. AI's potential to support parliaments in maintaining their institutional memory, particularly in the context of frequent personnel turnover, offers a significant advance in ensuring continuity, stability, and procedural integrity. By creating intelligent repositories and decision-support systems, AI can bridge the gap between codified rules and the informal understandings that shape parliamentary practice, helping parliaments navigate complex procedural environments with greater efficiency and clarity.

AI's ability to store, analyse, and recommend information offers a promising avenue for addressing the challenges of knowledge retention in parliamentary systems. By building intelligent knowledge management systems, AI could assist in bridging gaps caused by turnover, ensuring that precedents and procedural knowledge remain accessible and applicable. However, because of the risks associated with the integration of AI into these sensitive political environments—such as over-reliance on AI systems, the potential erosion of tacit knowledge, and heightened concerns over transparency and accountability—parliaments should prioritise the development of purpose-built AI systems. These systems should be designed specifically for the legislative context, with security, ethical considerations, and parliamentary oversight built in from the outset.

Developing AI solutions tailored for parliamentary use ensures that the specific needs of democratic institutions are addressed while mitigating potential risks. Purpose-built AI systems can enhance parliamentary decision-making by providing timely access to data, offering predictive insights for future legislative issues, and preserving procedural knowledge. Additionally, these systems must be adaptable and resilient to the dynamic nature of parliamentary work, offering flexibility while safeguarding institutional knowledge.

As AI increasingly becomes integrated into legislative workflows, the importance of human oversight cannot be overstated. Parliamentarians and clerks must remain engaged with these systems, ensuring that human judgment, experience, and intuition are not sidelined. By embedding AI into purpose-built systems, parliaments can strike a balance between innovation and tradition, ensuring that the adoption of AI complements—rather than threatens—the human elements that define parliamentary democracy.

Ultimately, AI's role in parliaments must be seen as a complement to the rich tradition of human expertise and judgment that has guided these institutions for centuries. When implemented thoughtfully and through carefully designed, purpose-built systems, AI can enhance the efficiency, accessibility, and continuity of parliamentary procedures, safeguarding institutional memory for future generations. However, it is only through careful governance, rigorous ethical standards, and an unwavering commitment to democratic principles that parliaments can fully harness the potential of AI while preserving the integrity and trust of their institutions. This intentional, cautious approach ensures that AI serves to strengthen, rather than undermine, the democratic processes that parliaments were created to uphold.