

Building a unified digital ecosystem of the legislative process in a bicameral parliament: inter-chamber electronic document flow and the open data principle

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Abstract

The article substantiates the concept of a unified digital ecosystem of the legislative process in the bicameral Oliy Majlis of the Republic of Uzbekistan, understood as the end-to-end electronic environment covering the life cycle of a draft law from legislative initiative through examination in the Legislative Chamber and approval by the Senate to promulgation and publication. Based on the constitutional laws on the chambers of the Oliy Majlis, the Law on Normative Legal Acts and the acts establishing the unified electronic system of norm-drafting, the author identifies the points at which the digital continuity of the legislative cycle is currently interrupted, above all at the inter-chamber stage and at the interface between governmental drafting systems and parliamentary procedures. Comparative material on the United States Congress, the European Union inter-institutional document exchange, the German Bundestag and Bundesrat and the Federal Assembly of Russia is used to formulate architectural and legal principles of the ecosystem: single authentic electronic text, procedural event logging, interoperability standards and open parliamentary data by default. Proposals are made on amendments to the standing orders of the chambers and on a statutory list of open parliamentary data.

Keywords: Bicameral parliament, Oliy Majlis, Legislative Chamber, Senate, digital ecosystem, electronic document flow, legislative process, open parliamentary data, interoperability, authentic text

Introduction

Bicameralism multiplies the procedural complexity of law-making: a draft law in a two-chamber parliament passes through at least two full cycles of committee examination and plenary consideration, an inter-chamber transmission stage, potential conciliation procedures and interaction with the head of state at promulgation. Each transition between institutional custodians of the text is a point at which delays, discrepancies between versions and losses of procedural information may arise. Digitalization promises to eliminate these frictions, but only if it is designed as a single ecosystem rather than as a set of disconnected departmental systems: a chamber that digitalizes its internal workflow while exchanging scanned letters with the other chamber has automated fragments of the process without transforming the process itself.

In Uzbekistan the constitutional architecture of bicameralism was established by the constitutional laws of 12 December 2002 on the Legislative Chamber and on the Senate of the Oliy Majlis, which regulate the powers of the chambers, their sessions and inter-chamber procedures, including joint sittings and the transmission of adopted laws for approval [1, 2]. The digital infrastructure of norm-drafting has meanwhile developed primarily on the governmental side, through the unified electronic system for the development and coordination of draft normative legal acts created pursuant to the 2018 Concept for improving norm-setting activity [3]. The research problem addressed in this article is the design of the legal and architectural model that would extend digital continuity across the entire legislative cycle of the bicameral parliament and anchor it in the principle of open parliamentary data.

Main Analyses

The concept of a unified digital ecosystem requires precise definition. It denotes an electronic environment in which a

draft law exists as a single authentic digital object from the moment of its introduction, all procedural actions of both chambers are performed upon or recorded against this object, every institutional participant works with the same current version, and the complete procedural history is preserved as machine-readable data. Four legal consequences follow from this definition. First, the ecosystem presupposes the rule of the single authentic text: at any moment of the process there exists exactly one legally operative electronic version of the draft, and amendments are recorded as structured changes to it rather than as parallel documents. Second, procedural actions — registration, committee referral, adoption in readings, transmission to the Senate, approval or rejection, submission for signature — acquire the form of logged electronic events with legal effect, which transforms the standing orders of the chambers into an executable procedural specification. Third, the ecosystem requires interoperability standards, since the Legislative Chamber, the Senate, the governmental drafting system and the publication infrastructure of the National Database of Legislation are operated by different institutions, without common document formats and interfaces, integration degenerates into manual re-entry. Fourth, the data generated by the ecosystem are by their nature public information about the exercise of legislative power and therefore fall under the open data principle unless a specific ground for restriction applies.

The national legal basis supports this concept to a substantial degree. The constitutional laws on the chambers establish the openness and publicity of their sittings and define the inter-chamber procedure for the consideration of laws [1, 2]. The Law on Normative Legal Acts consolidates the requirements for drafts, their examination and official publication [4]. The Concept approved by Decree No. PF-5505 expressly required the transfer of all stages of norm-

setting into electronic form, the creation of the unified drafting system, the prompt publication of draft texts and analytical materials after each reading and the online broadcasting of parliamentary deliberations [3], while Decree No. PF-6218 on the comprehensive systematization of national legislation modernized the publication end of the cycle [5]. The 2024 programme of law-making activity introduced systematic legislative planning, which presupposes machine-processable information on the state of every planned draft [6]. and the 2026 measures on artificial intelligence in the Legislative Chamber assume, as their infrastructural precondition, precisely the structured digital environment described above, since analytical systems and the comparative-law tools envisaged by the programme can operate only on well-formed legislative data [7]. What the current framework lacks is the normative consolidation of the ecosystem as such: the rule of the single authentic electronic text, the legal force of logged procedural events and the obligations of the chambers regarding open data.

Comparative experience clarifies the available architectural choices. The Congress of the United States, though bicameral and institutionally decentralized, achieves ecosystem effects through data standardization: bill texts and status information of both the House and the Senate are published through Congress.gov in the machine-readable United States Legislative Markup, so that the unity of the process is ensured at the level of open data even where internal systems differ [8]. The European Union demonstrates the interoperability model: the legislative procedure involving the Commission, the European Parliament and the Council is supported by inter-institutional document exchange built on common standards, with the public register of documents and the multilingual publication infrastructure providing end-to-end traceability of every procedural file. In Germany, the joint documentation and information system for parliamentary materials operated for the Bundestag and Bundesrat shows that two constitutionally distinct chambers can maintain a common documentary infrastructure without prejudice to their autonomy [9]. In the Russian Federation, the system of support of legislative activity channels the entire life cycle of a draft law — from introduction through readings in the State Duma and consideration by the Federation Council to signature — through one electronic environment in which each procedural action is recorded, which represents the most centralized variant of the ecosystem. The comparison suggests that the choice is not between centralization and autonomy as absolutes: the ecosystem can be built either as a single shared platform of both chambers or as interoperable chamber systems bound by common standards and a common open-data layer, and the constitutional equality of the chambers is compatible with both variants provided that governance of the shared infrastructure is exercised jointly.

The doctrinal foundations for the national model are supplied by Uzbek legal scholarship. O.Z.Mukhammadjonov, investigating the formation of the organizational and legal foundations of the bicameral parliament, demonstrated that the effectiveness of bicameralism depends on the procedural coordination of the chambers [10]. the digital ecosystem is the contemporary form of such coordination. E.Kh.Khalilov's analysis of the development of the supreme legislative body emphasized

the institutional continuity of parliamentary procedures [11], which in the digital environment translates into the requirement of complete and permanent procedural records. U.Kh.Mukhamedov's theory of the systematization of legislation, with its insistence on the technological dimension of systematization [12], grounds the integration of the parliamentary ecosystem with the National Database of Legislation, so that the promulgated law enters the systematized corpus without media discontinuity. R.R.Khakimov's research on the balance of powers highlights the procedural guarantees of inter-institutional equilibrium [13], applied here, it warns that the shared infrastructure of the chambers and its interfaces with the executive drafting system must be governed by rules that prevent any single institution from unilaterally controlling the legislative data flow.

On this basis the architecture of the national ecosystem can be formulated through four legal principles presented in continuous exposition. The principle of the single authentic text requires amendment of the standing orders of both chambers to establish that the electronic version of the draft maintained in the parliamentary system is the sole authentic one, that amendments are introduced as structured revisions and that the paper form, where used, is derivative, this eliminates version discrepancies at the inter-chamber stage, where the Senate must receive not a static copy but the same digital object with its full amendment history. The principle of procedural event logging gives legal significance to the electronic record of every action provided for by the constitutional laws on the chambers — registration, referral, readings, transmission, approval, rejection, conciliation, submission for signature — with qualified time-stamping, so that the electronic log becomes the authoritative evidence of compliance with the legislative procedure, a matter of direct constitutional relevance since violations of procedure may affect the validity of the adopted law. The principle of interoperability mandates common standards for legislative documents and metadata across the governmental drafting system, both chambers and the publication infrastructure, the international standard Akoma Ntoso for the markup of legislative documents offers a ready basis for the national profile [14]. Finally, the open data principle requires a statutory list of parliamentary information published by default in machine-readable form: texts of drafts at every stage, committee opinions, transcripts and results of plenary sittings including voting data, the procedural log of each draft, and the schedule of sittings, the Declaration on Parliamentary Openness provides the internationally recognized reference for the scope of such publication [15], and integration with the national open data portal ensures a single point of public access. Exceptions from openness — protection of personal data and legally protected secrets — must be defined narrowly and applied to specific data elements rather than to entire categories of documents.

The implementation sequence follows from the analysis. The first stage is normative: amendments to the standing orders of the chambers consolidating the four principles, and a joint act of the chambers on the governance of the shared digital infrastructure, adopted on the basis of the parity logic inherent in the constitutional laws [1, 2]. The second stage is infrastructural: the connection of the parliamentary environment with the governmental unified drafting system, so that a draft developed by the executive enters parliament as a structured digital object rather than as a file attachment,

and with the National Database of Legislation at the publication end [3, 5]. The third stage is the deployment of the open-data layer and of the analytical services envisaged by the artificial intelligence programme of the Legislative Chamber, for which the ecosystem provides the data foundation [7]. At each stage, the measurement framework of the Inter-Parliamentary Union's e-parliament reporting can serve as the external benchmark of progress [16].

Conclusion

The study substantiates the concept of the unified digital ecosystem of the legislative process as the target model for the digitalization of the bicameral Oliy Majlis. The ecosystem is defined by the single authentic electronic text of the draft law, legally significant logging of procedural events, interoperability of the systems of the chambers, the government and the publication infrastructure, and openness of parliamentary data by default. Comparative analysis shows that this model is compatible with the constitutional autonomy of the chambers, since it can be realized either through a jointly governed shared platform or through interoperable chamber systems bound by common standards.

For its implementation the article proposes amendments to the standing orders of the Legislative Chamber and the Senate consolidating the authenticity of the electronic text and the evidentiary force of the procedural log, a joint act of the chambers on the governance of shared digital infrastructure, the adoption of a national legislative markup profile based on the Akoma Ntoso standard, and the statutory consolidation of a list of open parliamentary data with narrowly defined exceptions. The realization of these measures would close the digital discontinuities of the inter-chamber stage, create the data foundation for the analytical and artificial intelligence services already programmed for the parliament, and give the constitutional principles of openness and publicity of parliamentary activity their contemporary, machine-readable form.

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