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# THE USE OF ARTIFICIAL INTELLIGENCE AND BIG DATA TECHNOLOGIES IN PARLIAMENTARY JOURNALISM

**Mukhiddinova Aziza Fazliyevna**
SamSIFL, Faculty of Oriental Languages, 3rd year student of group 2408, "International Journalism" program
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**Abstract.** This article analyzes the opportunities, practical directions and risks of applying artificial intelligence and Big Data technologies in parliamentary journalism. The study is based on a qualitative review of academic literature, reports of international organizations, documented practical cases and relevant legal acts of the Republic of Uzbekistan. Seven main directions of use were identified, and for each of them the practical benefit and the ethical risk are described. The article proposes a three layer model that allows newsrooms to introduce these technologies under human editorial control.

**Keywords:** artificial intelligence, Big Data, parliamentary journalism, computational journalism, data journalism, automated journalism, transparency.

**Annotatsiya.** Mazkur maqolada sun'iy intellekt va katta ma'lumotlar texnologiyalarining parlament jurnalistikasida qo'llanilish imkoniyatlari, amaliy yo'nalishlari hamda ular bilan bog'liq xavflar ilmiy jihatdan tahlil qilinib, unda xorijiy ilmiy adabiyotlar, xalqaro tashkilotlar hisobotlari, hujjatlashtirilgan amaliy tajribalar va O'zbekiston Respublikasining tegishli me'yoriy hujjatlari o'rganilgan. Natijada parlament jurnalistikasida sun'iy intellektdan foydalanishning yetti asosiy yo'nalishi aniqlanib, ularning har biri uchun amaliy foyda va axloqiy xavf ko'rsatib berilgan. Maqola yakunida milliy parlament jurnalistikasi uchun texnologiyani insoniy nazorat ostida joriy etishning uch qatlamli tavsiyaviy modeli taklif qilinadi.

**Kalit so'zlar:** sun'iy intellekt, katta ma'lumotlar, parlament jurnalistikasi, hisoblash jurnalistikasi, ma'lumotlar jurnalistikasi, avtomatlashtirilgan jurnalistika, ochiqlik.

Parliamentary journalism serves as an invisible bridge between the people and the legislative power in a democratic society; an ordinary citizen cannot attend meeting halls every day and lacks both the time and specialized training to independently read through hundreds of pages of draft legislation texts. The journalist translates this complex process into accessible language, conveying to the public what proposals deputies have made, who voted and how, and how enacted laws will affect daily life. For this reason, the quality of parliamentary reporting is directly tied to citizens awareness of political processes and the effectiveness of public oversight over elected representatives. Modern parliaments generate vast amounts of documents and data every year, including verbatim transcripts, draft bills, committee conclusions, parliamentary inquiries, voting results, and financial reports. It is virtually impossible for a limited number of newsroom journalists to manually analyze each of these materials, leaving a constant possibility that critical information may be overlooked. A report by the Inter-Parliamentary Union notes that during the pandemic, parliaments need for digital tools increased sharply and they began showing interest in emerging technologies such as artificial intelligence.

The concept of Big Data, according to Mayer-Schönberger and Cukier, does not merely signify information of large volume. It denotes possibilities that yield new knowledge and value when analyzed on a large scale possibilities that cannot be generated on a small scale. Artificial intelligence, on the other hand, is a machines ability to perform tasks typically requiring human

intelligence, such as text reading, speech recognition, clustering similar phenomena, and uncovering hidden patterns. In journalism, these two technologies function side by side: Big Data serves as the raw material, while artificial intelligence acts as the tool extracting meaning from that raw material. Cohen, Hamilton, and Turner explained computational journalism as combining journalisms public accountability objective with computer science methods, and this approach constitutes the theoretical foundation of our article.

Nevertheless, existing studies have focused primarily on general news production and automated generation of financial and sports reporting, while features specific to covering parliamentary activities have not been studied separately or systematically. The distinct nature of parliamentary journalism lies in the fact that although its data is predominantly open and official, it remains politically sensitive; hence, a single error or misinterpretation can directly damage a deputys reputation and undermine public trust.

In Uzbekistan, the development of artificial intelligence has also become a priority direction of state policy. While Presidential Resolution No. PP-4996 of February 17, 2021, aimed at creating conditions for the rapid implementation of artificial intelligence technologies, Resolution No. PP-358 of October 14, 2024, approved the development strategy through 2030. These documents demonstrate that a technological environment is taking shape in the country, but the question of how they will impact parliamentary journalism has not yet been sufficiently illuminated scientifically. The purpose of the study is to identify the directions of applying artificial intelligence and Big Data technologies in parliamentary journalism, evaluate their benefits and risks, and formulate practical recommendations tailored to Uzbekistans context. To achieve this goal, first, key concepts and theoretical approaches were examined; second, foreign practical experiences were analyzed; third, directions of use and their inherent risks were systematized; and fourth, a recommended model adapted to national conditions was proposed.

The research relies on a qualitative approach. Since the topic is still novel and rapidly evolving, it is advisable to understand it not through numbers, but through deep examination of the substance of existing experiences. An important aspect should be emphasized separately: no new survey or experiment was conducted in this article, and therefore the presented results represent conclusions derived from analyzing and generalizing existing sources. Four primary methods were utilized in the study. The first is academic literature analysis, which involved studying articles published in Digital Journalism as well as monographs on computational journalism and data journalism. The second is observational analysis of documented practical experiences, examining sources detailing Brazils Operação Serenata de Amor project and newsroom automation adoption. The third is regulatory document analysis, encompassing Uzbekistans legislation on artificial intelligence development and personal data protection. The fourth is comparative and systematic generalization, through which identified directions were compared against uniform criteria namely data type, technology applied, practical benefit, and risk. The limitations of the study must also be openly stated. A large portion of sources is in English and pertains to developed journalism markets, whereas the practice of using artificial intelligence in Uzbekistans parliamentary journalism remains insufficiently documented at present. Therefore, some conclusions regarding national conditions rely on comparing observed global practice with local regulatory foundations.

Analyzed sources indicate that mass media utilize artificial intelligence across three stages: information gathering, content production, and audience distribution. Adapting this general classification to parliamentary journalism yields seven specific directions, each linked to a distinct type of parliamentary data. The first direction is automatic speech-to-text transcription of meeting speeches. Parliamentary sessions last for hours, and journalists cannot listen to every address in full; thus, speech recognition systems converting audio recordings into text save valuable time. Once text is ready, a journalist can search and locate a specific deputys statement or term in seconds. However, the accuracy of such systems for the Uzbek language may be lower than for

English due to fewer language resources and deputies mixing formal terms with colloquial phrasing; hence, every quotation must be verified against the original recording. The second direction is analyzing draft laws and amendments using text analysis tools. Draft bills often span hundreds of pages, and the specific articles modified in second readings are not immediately obvious. Natural language processing techniques compare versions and highlight modified clauses, while topic modeling categorizes large document sets by subject. As Stray notes, machine learning is particularly valuable in investigative journalism when document volume exceeds human capacity, though verification of results remains the journalists responsibility.

The third direction is analyzing and visualizing voting results and deputy activity data. Each individual vote appears as a simple entry, but thousands of records collected over years collectively reveal where a deputy held a consistent stance, when factions agreed, and when they diverged. Data journalism practice provides detailed methods for rendering such tabular data understandable to general readers through graphics and interactive pages.

The fourth direction is financial oversight over deputies expenses. Brazils Operação Serenata de Amor project serves as a vivid example: its software, Rosie, analyzes federal deputies expense claims and flags suspicious cases, such as expenses claimed in different states on the same day or unusually high restaurant bills. As one creator noted, flagged cases are personally verified by humans if necessary meaning the software merely raises suspicion, while humans draw final conclusions. This experience offers another vital lesson: because open expense data formats were initially lacking at the national level, project authors had to solve that problem first; thus, for AI to function effectively, parliamentary data must be published in machine-readable formats.

The fifth direction is automated news generation based on templates. Carlsons research shows that automated journalism has spread primarily in fields relying on structured data like finance and sports, altering notions of journalistic labor and authority. Graefes guide similarly explains that algorithms yield best results when precise structured data is available and message formats are repetitive. Parliaments contain exactly such repetitive forms: agendas, voting tallies, and brief notices of law adoptions. Automatically generating such texts frees journalists time for analytical and explanatory reporting, but as Marconi emphasizes, newsroom automation should serve to augment human labor, not replace it.

The sixth direction is fact-checking deputies public statements against open data. AI can extract numerical or verifiable claims from text, allowing journalists to compare those claims against official statistics or prior documents. This direction currently requires the greatest caution, as determining the truth or falsity of a claim demands an understanding of political context that machines cannot fully comprehend. The seventh direction is audience personalization and distribution. Conversational bots can assist citizens in finding answers to queries like which law affects my neighborhood, while recommendation systems offer readers parliamentary content on topics of interest. However, if recommendation algorithms display only previously favored topics, essential yet unglamorous parliamentary issues risk being overlooked. A summarized view of these identified directions is presented in Table 1.

**Table 1. Main directions of applying artificial intelligence and Big Data in parliamentary journalism**

| Direction | Technology | Opportunity / Benefit | Main Risk |
|---|---|---|---|
| Speech-to-text transcription | Speech recognition, automatic translation | Rapidly extracting text from meeting audio and searching within it | Errors in names/terms, scarcity of Uzbek language resources |
| Document analysis | Natural language | Locating key | Misinterpreting |

| | | | |
|---|---|---|---|
| | processing, topic modeling | modifications in multi-hundred page bills | political context |
| Voting analysis | Databases, visualization | Demonstrating deputy and faction activity patterns | Erroneous conclusions if data is incomplete |
| Financial oversight | Anomaly detection, machine learning | Bulk screening of suspicious expense claims | Risk of launching unfounded accusations |
| Automated news | Template-based text generation | Fast, uniformly structured brief notices | Lack of analysis and deeper context |
| Fact-checking | Claim extraction, data cross-referencing | Checking statements against open statistics | Misclassification, turning into political disputes |
| Auditorium personalization | Recommendation systems, chatbots | Assisting citizens in finding relevant laws/news | Information bubbles, one-sided coverage |

The analysis revealed that as technologys capabilities expand, its risks grow equally serious. The first risk is overreliance on machine output. Broussard terms this phenomenon technochauvinism, warning against the flawed belief that computer-generated results are inherently more objective than human judgment. In parliamentary journalism, such trust is especially dangerous, as a single erroneous statistic or mistranslated quotation can ruin a deputys reputation and destroy newsroom credibility.

The second risk pertains to data quality and analytical bias. Lewis and Westlund demonstrated that as Big Data enters journalism, modes of knowledge creation, professional skills, economic models, and ethical issues evolve together. If parliamentary data is only partially digitized, algorithms will draw conclusions based solely on that subset, leaving unrecorded activities outside the analysis and resulting in a skewed perception of deputies.

The third risk involves personal data protection. Even though parliamentary sessions are public, citizen petitions, visitor logs, and staff personal details might fall into analyzed datasets. In Uzbekistan, such instances are regulated under the Law On Personal Data, making it imperative for newsrooms to define clearly in advance what data is submitted for automated processing.

The fourth risk concerns transparency and accountability. Diakopoulos shows that providing open information to audiences on how algorithmic systems operate and what data they rely on is becoming an essential condition of journalistic accountability. The fifth risk is external: as AI capabilities for creating synthetic audio and video expand, materials falsifying deputy speeches may emerge, necessitating newsroom verification protocols for unverified recordings.

Target indicators of Uzbekistans strategy include increasing the volume of AI-based software products and services to $1.5 billion, raising the share of AI-driven services on the Single Interactive State Services Portal to 10%, and entering the top 50 countries in the Government AI Readiness Index. Official sources also note the approval of Big Data lists to be formed across social and economic sectors. Although these metrics are not explicitly directed at parliamentary journalism, they establish the legal and political groundwork for expanding open data and digital infrastructure. If parliamentary activity data is included in these lists and published in machine-readable formats, journalists will gain opportunities to build analytical tools similar to the Brazilian experience.

The obtained results align with the central view in international research: artificial intelligence yields optimal outcomes when functioning as a tool to augment journalists, rather than replace them. Diakopoulos also highlights areas where automation and human labor complement each other, emphasizing that newsroom decisions remain paramount when working with algorithms. Our analysis reinforces this view in parliamentary journalism: no matter how open the data may be, evaluating its political significance remains uniquely human. On this basis, a three-layer model is proposed for parliamentary journalism. The first layer is the Data Layer, wherein information on parliamentary activities verbatim transcripts, draft bills, voting tallies, and expenditure records is collected in open, machine-readable formats. The second layer is the Analysis Layer, utilizing AI tools for speech recognition, text comparison, and anomaly detection, though their outputs are treated as preliminary signals requiring verification. The third layer is the Editorial Control Layer, where journalists cross-check machine outputs against original sources, evaluate political context, and assume publication responsibility.

Several principles are recommended for practical model implementation. First, every material produced with AI assistance must transparently disclose this to the audience, as transparency is vital to maintaining trust. Second, strict compliance with legal requirements governing personal data must be upheld, limiting information sent to external services. Third, training journalists in data literacy and algorithmic error recognition is essential; otherwise, even sophisticated tools will be misused. Finally, developing a specialized language corpus for Uzbek parliamentary speech will significantly enhance speech recognition system accuracy.

The studys limitations highlight future research avenues. First, testing the proposed model in partnership with a newsroom or parliamentary press service to measure empirical outcomes is warranted. Second, conducting surveys and interviews among parliamentary journalists to ascertain their attitudes toward and needs regarding technology would be valuable. Third, examining changes in audience trust toward AI-assisted news through separate experiments represents a fruitful direction.

In conclusion, artificial intelligence and Big Data technologies offer significant utility across seven key directions in parliamentary journalism: speech-to-text transcription, document analysis, voting result analysis, financial oversight, automated news generation, fact-checking, and audience personalization. These technologies enable journalists to examine large volumes of parliamentary data faster and more thoroughly, delivering more comprehensive and accessible information to citizens regarding legislative processes.

At the same time, technological risks overreliance on machine outputs, data bias, personal data protection issues, lack of transparency, and synthetic media threats must be carefully managed. To this end, a three-layer model comprising data, analysis, and editorial control was proposed, ensuring final accountability remains with the journalist. For Uzbekistan, key practical priorities consist of publishing parliamentary data in open, machine-readable formats, advancing journalists digital skills, and developing Uzbek speech recognition resources. Implementing these steps will position artificial intelligence as an effective tool for strengthening public oversight and expanding citizens access to information in national parliamentary journalism.

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