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Transformation of Ukrainian publishing in the digital age

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Abstract. The purpose of the study was to analyse the mechanisms of updating the publishing industry under the influence of digital technologies and identify patterns of transition to new formats for the production and distribution of book content. The work was based on an analysis of quantitative indicators, official reports, publications in industry periodicals, and open digital sources. The methodological framework combined a systematic and descriptive-analytical approach, which allowed identifying the relationship between market trends, automation of production processes, and the distribution of electronic formats. The results of the study showed the expansion of the structure of the publishing market. According to the state register, in 2023, there were 302 publishing entities operating in Ukraine, of which 270 were new, while in 2022, their number was only 152. The volume of book production increased by 73%, and the number of circulations – by 203%. In 2024, the number of active publishers exceeded 350, and the total circulation of books reached 33.3 million copies, which indicates a further recovery of the market after the military downturn. There was also an increase in the share of electronic sales: Publishing House 21, Laboratory, and The Old Lion Publishing House reported 15-20% of revenue from digital publications, Yakaboo – 28%, and Vivat – 4.2%. It was revealed that despite the active growth of the electronic segment, printed publications remained the main source of profit since the market for printed books was estimated at about UAH 1.4 billion, while digital – within 70 million. The study also summarised the structure of digital formats and platforms, including Yakaboo, Librarius, Abuk, PocketBook Reader, Kindle Store, Google Play Books & Audiobooks. It was determined that social media, in particular, TikTok and YouTube, became effective promotion channels, and event platforms such as the Book Arsenal ensured professional integration of Ukrainian publishers into the international community. The practical value of the study lies in the possibility of applying its conclusions to develop strategies for digital development of publishing houses, optimise editorial processes and form new approaches to communication with the reader

Keywords: electronic formats; distribution; content management; artificial intelligence; online libraries; social networks; subscription

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Introduction

The issue of transformation of the Ukrainian publishing industry has become relevant in the context of the growing influence of digital technologies, military challenges, and changes in cultural models of content consumption. The publishing industry has gone through a transition from a stable printing system to a flexible network ecosystem, where digital platforms, user data analytics, and integrated forms of distribution have begun to play a leading role. The need for a comprehensive examination of this process arose because the industry found heterogeneity, with some participants maintaining traditional production schemes, while others switched to electronic models, creating a new market architecture. The development of conceptual boundaries and types of transformations in this area was conducted by V.S. Kiryak (2024). The author identified three main areas of change – organisational, technological, and product – and showed that these areas developed unevenly, forming internal conflicts between the print and digital logic of production. Based on a comparative analysis of industry practices, it was proven that the success of adaptation depended on the integration of technological and communication strategies within a single publishing structure. In the philosophical dimension, Y. Zhang & S. Jin (2023) described the digital age as a megatrend. The obtained conclusions concerned the transformation of social and cultural institutions in the direction of network interaction, where digital capital replaced material resources. This approach allowed considering digitalisation of the publishing industry not as a technical process, but as a socio-cultural transformation that affected the values, forms of work, and perception of information. Empirical market parameters were analysed by O.P. Butenko *et al.* (2024). They established that after 2020, the Ukrainian book market experienced noticeable fluctuations associated with the emergence of independent publishers and an increase in the share of online sales. The researchers concluded that the activation of the electronic segment was not accompanied by the decline of the printing format, but created a hybrid model of the coexistence of both types of products. The regulatory area of transformations was covered by S.O. Karapetyan (2023). The author traced the evolution of the legal field from the post-Soviet model to European approaches that required transparency of licensing, protection of digital rights and standardisation of metadata. It was concluded that the formation of a regulatory framework for electronic publications has become one of the slowest links in the industry's adaptation. Y.S. Yatskiv & Y.V. Didenko (2021) made a contribution to the institutional perspective. Their developments within the National Academy of Sciences of Ukraine outlined mechanisms for supporting the scientific and publishing complex, improving the quality of publications and developing an open access infrastructure. The authors' findings showed that the sustainability of academic

book publishing depended on the balance between traditional peer review and digital knowledge dissemination services. Y.A. Ishchuk & M.L. Varlamova (2024) viewed digitalisation as a component of global creative industries. They proved that the development of e-book publishing created added value at the level of the chain from intellectual property to user communities. According to their conclusions, the competitiveness of Ukrainian publishers depended on the ability to combine economic and cultural mechanisms for creating content. Changes in the professional structure of editorial activities were outlined by O. Gerasimova (2025). The emphasis was placed on adapting editorial functions to cross-media content that combined text, audio, video, and interactive elements. The author found that editors have become digital project coordinators responsible for coordinating the technical and content components of the publication. The issues of design and application of artificial intelligence in publishing were considered by S.A. Vodolazka & T.S. Kravnikova (2024). They proved that machine learning tools helped speed up layout and visual optimisation, simultaneously creating ethical dilemmas regarding authorship and transparency of image creation. Their results indicated that the effectiveness of using artificial intelligence depended on the ability of editors to combine automation with human control.

Despite the breadth of these approaches, several issues remained unresolved. There was no comprehensive vision that combined market dynamics, editorial innovations, and platform infrastructure into a common model of the Ukrainian publishing space. There was also a lack of a systematic description of digital distribution channels covering both commercial and open platforms. The study aimed to clarify how digital technologies are changing the structure of the Ukrainian publishing market, editorial processes, and mechanisms for distributing book content. Several consecutive tasks were envisaged to achieve this goal: determining the structure and trends of market changes in the context of digitalisation and military factors; analysing the introduction of digital technologies in production and editorial processes; systematising electronic formats, platforms, and social communication channels for distribution and feedback from the reader.

Materials and Methods

The examination of the processes of transformation of Ukrainian publishing in the digital age was conducted on the basis of systematic, descriptive and analytical approaches. The work was based on materials recorded in official reports, professional publications, corporate blogs of publishers, scientific articles, and open digital platforms. In the initial stage, statistical and empirical data were collected from official sources: H. Sukhorukova (2024) the and analytical report A. Shurenkova

& O. Prochuhanova (2024). Based on these sources, a quantitative analysis of changes in the market structure was conducted – the dynamics of registration of new entities, output volumes, circulation, and the share of electronic publications in total production. The next stage of the study was devoted to the analysis of internal changes in production and editorial processes. The third stage included a description of the practical implementation of digital technologies in publishing houses in Ukraine. For this purpose, the cases of Laboratory (n.d.), Publishing House 21 (n.d.), and The Old Lion Publishing House (n.d.) companies were considered. The sources were corporate blogs, open comments from publishers' representatives, and analytical articles, in particular P. Gorlach (2024), Total audio! Will audiobooks... (2024). Based on these materials, a comparative description of the share of electronic sales in the revenue structure of various publishers, types of formats (ePub, PDF, audio) and monetisation models (direct sale, subscription, subscription) was conducted.

The fourth stage consisted in systematising data on the use of digital technologies in editorial and production processes. For this purpose, information on the implementation of automatic proofreading systems, metadata processing tools, and content management platforms was summarised. An analytical generalisation of materials was conducted to pinpoint the key challenges of automation, helping identify structural problem areas. During the fifth stage, content analysis with elements of a comparative method was applied, enabling the evaluation of the functional features of platforms, their access models, directory structure, and ways to integrate user services. The analysis of electronic formats and platforms used the official resources of leading Ukrainian services, in particular, Yakaboo (n.d.), Librarius (n.d.) and Abuk (n.d.). In addition, the functionality of PocketBook Reader (n.d.), Kindle Store (n.d.), and Google Play Books & Audiobooks (n.d.), applications were accounted for, which provided for comparing access models and features of their directories. The sixth stage concerned the assessment of social and communication mechanisms of digital book publishing. The sources were materials about the media activity of publishers in TikTok, YouTube, and during the events of the Book Arsenal 2023-2025 (M. Kabatsiy... 2024; V. Rudzinska, 2025; Results of the XIII Book..., 2025). A qualitative content analysis was applied to specify forms of interaction between publishers and the audience, types of communication strategies, and ways to promote book content in the digital environment. Popularisation formats such as booktoks, video reviews, and professional meetings of publishers with foreign agents were analysed. A synthetic interpretation method was used to summarise the results, enabling the combination of statistical data, descriptive observations, and examples of industry practices into a single model.

Results

Transformation of the publishing market in the context of digitalisation

Since the mid-2010s, Ukraine has seen a gradual but noticeable transformation of the publishing market structure due to the rapid development of digital technologies. Traditional large printing houses are gradually losing exclusivity in their production and distribution processes to the benefit of new players – independent and digital platforms. The latter are able to adapt more freely to changes, respond more flexibly to audience requests, and use minimal infrastructure (for example, cloud services, distribution over the internet). In a structural sense, this manifests itself in several ways. Firstly, some major publishers create their own digital divisions or subsidiary brands that specialise exclusively in e-formats, while maintaining the traditional print wing. Secondly, there are publishing houses that initially work as digital platforms or startups – without a large print base: they are engaged in the purchase of rights, layout, and distribution of digital publications. For example, the publishing house Laboratory (n.d.), founded in 2020, positions itself as multi-format (printed books, e-books, audiobooks). Such players can implement innovative models more flexibly and respond faster to changes in readers' practices. A shift in the structure also occurs at the level of the number of market participants. According to sources, in 2023, in the State Register of publishers (n.d.), 302 subjects were introduced, of which 270 were new (as of 2023, in 2022, there were only 152 of them). In 2024, the number of active publishers in Ukraine exceeded 350, and the total circulation of books was approximately 33.3 million copies (Sukhorukova, 2024). This increase indicates the entry of new entities, in particular, small and flexible ones, into the publishing space. Therewith, the publishing industry in general shows an increase in the volume of products: in 2023, the volume of book output increased by 73% compared to 2022, and the number of circulations – by 203%. It is estimated that the volume of the book products market in 2024 amounted to about UAH 8 billion (Ukrainians bought 33 mln books..., 2025). In the issue of the ratio of print and digital publications, there is a clear trend towards an increase in the share of digital formats. For example, as of the end of 2017, 33% of the surveyed Ukrainian publishers stated that they produced e-books, which was recorded as part of a study conducted by the Ukrainian Association of publishers and book distributors (Zhenchenko, 2019). Often these electronic versions were printed copies-static formats with a fixed layout (86.4% of cases) or with a "smooth layout" (18.2%) – that is, those that can be adjusted to the screen. In other words, at an early stage of digitalisation, most publishers simply converted already printed texts.

In Ukraine, in 2024, printed books remained the leading reading format, while electronic and audio retained relatively niche positions. However, the share of digital

sales in publishers that are actively developing them is gradually growing. For example, Publishing House 21 (n.d.), Laboratory (n.d.), The Old Lion Publishing House (n.d.) noted that e-books accounted for 15-20% of revenue. Yakaboo (n.d.) (together with audiobooks) reports a share of up to 28%. Thereby, in the publishing house Vivat (n.d.), the share of digital sales is 4.2%. KSD (n.d.) in 2024, sold more e-books in five months than in the whole of 2022, accounting for 65% of the volume of 2023 (Gorlach, 2024). As for audiobooks, they are still a less significant segment. It is estimated that sales of audiobooks are between 5 and 10% compared to the circulation of paper books (Total audio! Will audiobooks..., 2024). Although this indicator is still low, it points to a gradual diversification of content forms. According to a study by the Ukrainian Institute of Books and Info Sapiens, most adult readers preferred printed publications. In the same study, it was stressed that reading indicators in the Ukrainian language are growing, and the number of those who regularly read books is also increasing (Shurenkova & Prochuhanova, 2024). The Yakaboo platform reported steady growth in sales of electronic and audiobooks, although the company does not disclose the exact share of these segments in revenue. Additionally, in its corporate blog, Yakaboo stated that the digital segment remains one of the most dynamic areas of development (Yakaboo in 2024: Growth..., 2024). The data show a combination of stable print dominance and a gradual strengthening of the position of digital formats, without detailed disclosure of shares for individual publishers. Thus, despite the development of digital formats, the dominance of the print market remains substantial in terms of volume and financial indicators. According to one of the leading retailers, the volume of the electronic market in Ukraine is about 70 million UAH, while the market of printed books is about 1.4 billion UAH (Melnik, 2023). This disparity demonstrates that the digital segment is still an addition, rather than the dominant format. However, in the face of military challenges, digital content has received an unexpected boost. One of the reasons was the frequent power outages and the inability to physically move to bookstores or libraries: the digital format allows reading on devices independently. According to the Ukrainian Institute for the Future, in 2022-2023, 17% of respondents bought e-books, which is more than in 2020 (5%) (Report on the results..., 2023). According to the results of the All-Ukrainian survey Info Sapiens in September 2024, 2% of adult respondents purchased at least one e-book under the three-month measurement window, while 97% did not make such purchases (Shurenkova & Prochuhanova, 2024).

In the context of the specialisation of publishers, there was not just an expansion of the range, but the formation of format niches focused on different models of content consumption. Some publishers work mainly with electronic formats, concentrating on the release of adaptive ePub files and PDF versions that are correctly

displayed on mobile devices. Examples include electronic collections of fiction and non-fiction literature presented in the Laboratory (n.d.) publishing house, which positions itself as a multi-format project and releases digital versions in parallel with printed ones. Another group of publishers focused on audiobooks: such series were actively developed in the catalogues of the Old Lion Publishing House (n.d.) and Publishing House 21 (n.d.). The presence of a stable audience of audio formats stimulated investment in studio recording and the launch of thematic audio lines. A separate layer of the market consists of publishing houses that implement multimedia and interactive solutions. This segment is represented in the educational sphere: interactive manuals created on the basis of video materials, animations, tests, and additional digital modules were distributed in the format of electronic textbooks developed on the basis of specialised electronic platforms. Such products make educational content more dynamic and adaptive to remote formats, which is critical in the face of military restrictions. Textbook publishers are active in this niche. Specifically, Genesa began systematically offering free PDF versions of its printed textbooks to provide access to the material in the face of logistics disruptions and the need for distance learning (Electronic textbooks, n.d.). These electronic textbooks, in addition to duplicating the basic content, contained additional explanatory elements, illustrative diagrams, and interactive fragments that were used in school practice along with printed analogues. Multimedia tools are also actively used in publications focused on school and extracurricular programmes. For example, e-learning complexes integrated with video tutorials and animations are already an integral application to printed publications of certain educational projects (Interactive textbooks (video), n.d.).

Of great importance is the impact of a full-scale war on the publishing sphere. As a result of the hostilities, some publishers lost access to their premises, logistics chains, or equipment. There was a need to relocate businesses to safer regions, which was accompanied by additional costs, adaptation, and risks. Relocated enterprises face problems of access to financing, loss of suppliers, lack of qualified personnel, along with difficulties in restoring infrastructure in a new location (Polishchuk *et al.*, 2025). In a publishing context, this means that those who were forced to migrate preferred digital formats because they were less dependent on physical infrastructure. For example, the production and distribution of electronic versions is mostly conducted remotely, without the need for printing houses or storage of large batches. This provides flexibility and minimises logistics risks. In addition, the war has accelerated the use of digital platforms as a means of preserving cultural content and providing access to books in a war zone or during evacuation. If the physical premises of bookstores were destroyed or inaccessible, online versions became the only way to deliver the text product

to the reader. This transition has also spurred changes in business models: publishers are increasingly using licenses, subscriptions, and pay-per-view models, or digital content subscriptions that provide flexibility in an unstable infrastructure.

Digital technologies in production and editorial processes

In the publishing industry, the introduction of technologies that automate editorial operations, redefine the role of editors, and open up opportunities for using artificial intelligence and analytics to predict readers' interests is becoming increasingly noticeable. In this context, automation covers such processes as layout, proofreading, project management – while its potential is accompanied by certain challenges related to the unification of text, the loss of individual style and the reduction of people in the chains of work. The profile of editorial work is also changing: from classical editing to content management, curating digital formats, and controlling metadata consistency (Andriushchenko & Berezhna, 2024). The use of artificial intelligence and big data analysis in production processes encourages publishers to better understand the audience and adapt products at the personalisation level. In particular, automation of layout and proofreading can speed up the work of publishers. Automatic text formatting systems-with style templates, built-in typography and structural organisation rules, allow reducing the contribution of manual work. In such

systems, some proofreading tasks can be performed by algorithms that detect typos, missing letters, or formatting incompatibilities (for example, uneven margins or different header styles). In journalistic and scientific publications, researchers already use artificial intelligence-based tools to automatically proofread texts and stylistically edit them (more than standard editors) while maintaining consistency of style and tone for academic writing purposes. For example, NLP (Natural Language Processing) tools integrate grammar matching checks, punctuation, stylistic recommendations, and even sentence rearrangement (taking into account the purpose of communication) (Kousha & Thelwall, 2024).

In the field of book publishing and publishing production, project management automation is mainly implemented through digital management systems (project management) and CRM platforms that coordinate the stages of editing, design, printing, and distribution (Rodzvilla, 2024). This approach allows tracking task status, deadlines, responsibilities, and communication between authors, editors, illustrators, and designers in a single interface. This reduces the risk of data loss or duplication of resources and simplifies control over the execution chain. Thereby, it is important to integrate such systems with tools for automatic proofreading, version generation, or building electronic formats in order to avoid gaps between stages and ensure the integrity of content. In the process of automation in editorial and publishing work, several key challenges arise (Table 1).

Table 1. Challenges of automation of editorial and publishing processes and possible ways to overcome them

Challenge	Core issue	Possible solutions
Standardisation of texts	Algorithms require formalised rules (style patterns, formatting, citation) that can unify texts and reduce the scope for creative or individual characteristics of the author.	<ul style="list-style-type: none"> ✓ Use flexible templates with the ability to customise for different genres. ✓ Involving the editor for final stylistic verification. ✓ Development of combined algorithms that take into account stylistic differences.
Risk of loss of uniqueness	Algorithms for reformulating or optimising sentences can blur the author's style, reduce the tone or character of the text, which is critical for artistic and creative genres.	<ul style="list-style-type: none"> ✓ Installation of limited intervention of algorithms (for example, only technical edits). ✓ Using AI as an auxiliary tool, not a final editor. ✓ Clear recommendations to authors and editors regarding the preservation of the author's style.
Reduction of personnel functions	Algorithmic optimisation reduces the need for manual work of editors, proofreaders, and designers, which can lead to loss of competence and reduced quality in the case of complex or non-standard texts.	<ul style="list-style-type: none"> ✓ Retraining of personnel for working with digital tools. ✓ Transfer of functions to new areas (content management, working with metadata, multimedia). ✓ Implementation of combined models, where algorithms perform routine tasks, and a person controls the quality.

Source: compiled by the authors on the basis of S.P. Horbach & W. Halffman (2020), K. Kousha & M. Thelwall (2024)

Table 1 describes the structural consequences of the introduction of automated technologies in editorial and publishing processes and demonstrates that their impact extended simultaneously to the content, organisational, and professional levels. It records the transition from traditional control procedures to models in which algorithmic solutions partially determined the rhythm and nature of text processing. The presented

problems indicate a change in the balance between technical optimisation and the need to preserve semantic integrity, which required the adaptation of internal editorial approaches. The proposed workarounds highlight the need to integrate automated operations into hybrid models, where key content decisions remain within the realm of human responsibility. Thus, the effectiveness of automation was determined not only by

the capabilities of algorithms but also by the ability of editorial structures to adjust their own standards and production practices. Automation in publishing processes is a factor in changing the entire organisational logic of editorial offices, rather than just a technical tool. Its implementation requires the integration of technological and humanitarian competencies: editors must work not only with text, but also with algorithms, metadata, and content management systems. This contributes to the formation of new professional profiles that combine knowledge of language culture and digital technologies. In addition, automation increases the dependence of publishers on high-quality software configuration, because even minor errors in algorithms can have large-scale consequences for the entire body of publications. Ultimately, the balance between technical capabilities and human expertise becomes a key factor in efficiency: technology provides speed and unification, while the human factor guarantees the content flexibility and cultural relevance of the product. In this context, the role of editors is transformed. Instead of focusing solely on manual error correction and lexical intervention, they are increasingly working as content managers, digital text version coordinators, and are responsible for metadata, formatting standards, media element matching, quality control of automatic changes, and text adaptation to different platforms. They perform the functions of validating automatic corrections, controlling stylistic consistency, checking the integration of multimedia inserts, and converting content to various formats (PDF, ePub, HTML).

With the growing volume of data and metadata about readers, publishers are increasingly using big data analysis and machine learning tools to predict readers' interests and adapt product strategies. For example, a publication can analyse behavioural data (frequency of views, clicks, time spent on a page) from the sales platform to identify topics that are gaining popularity and predict potential bestsellers. Audience clustering algorithms are also used, which segment readers by interests, age, or consumption style, and form recommendation modules or editorial decisions based on them. In the publishing field, such approaches have already been covered in the context of academic and scientific writing, where AI can optimise suggestions to reviewers, structure metadata, and improve search indexing of articles (Sytnyk, 2024). Notably, the use of artificial intelligence in editorial work has its limitations. Not all adjustments can be made algorithmically – algorithms are often weaker in interpretive, contextual cases (for example, metaphors, cultural allusions, subtle stylistic nuances). There is also an ethical issue: automatic changes may disregard the author's intention or style, and responsibility for the final text should remain with the human being.

Electronic formats, online platforms, and social communications

In Ukraine, digital formats cover three large blocks: text e-books and audiobooks for mass reading; multimedia and interactive publications (primarily in the educational segment); distribution platforms and aggregators that form the access infrastructure (Table 2).

Table 2. Structure of digital formats in Ukraine, their features and advantages

Main block	Description	Features	Advantages
E-books and audiobooks for mass reading (1)	Digital editions in ePub, PDF, MOBI and audio formats are available through mobile applications and platforms (Yakaboo, Librarius, Abuk).	<ul style="list-style-type: none"> ✓ Support for multiple formats and offline access. ✓ Ability to sync between devices. <ul style="list-style-type: none"> ✓ Availability of local and international catalogues. 	<ul style="list-style-type: none"> ✓ Reduce printing and logistics costs. ✓ Wider accessibility for users anywhere. ✓ Increased engagement of the audience that consumes content in various formats.
Multimedia and interactive publications (educational segment) (2)	Electronic textbooks, tutorials with integrated video, audio, AR/VR components. Examples: Genesa, Osvita.	<ul style="list-style-type: none"> ✓ Interactivity and dynamic content. ✓ Ability to adapt to training platforms. ✓ Additional multimedia functions (tests, illustrations, animations). 	<ul style="list-style-type: none"> ✓ Improving the quality of the educational process. ✓ Optimisation of perception of complex information. ✓ Support for distance learning and inclusion.
Distribution platforms and aggregators (3)	Online book distribution systems (Yakaboo, Librarius, Google Play Books & Audiobooks, Kindle). They form a digital infrastructure for publishers and readers.	<ul style="list-style-type: none"> ✓ Centralised content access system. ✓ Mechanisms for DRM protection and analytics of user data. ✓ Integration with payment systems. 	<ul style="list-style-type: none"> ✓ Expanding the sales market for publishers. ✓ Content consumption analytics. ✓ Simplified access to Ukrainian books abroad.

Source: compiled by the authors on the basis of the H. Sukhorukova (2024), A. Shurenkova & O. Prochuhanova (2024)

Table 2 summarises the multi-level structure of digital formats formed in the Ukrainian publishing industry, which shows that each segment of digital content performed excellent functions in the book distribution ecosystem. The distribution between mass-reading products,

educational resources, and infrastructure services that provided technical conditions for accessing content was recorded. The presented grouping indicates that digitalisation was not limited to the emergence of an alternative to printed books, but created an independent system

of formats with different production and use logic. This structural differentiation allowed for tracing how digital solutions worked at different levels: from daily text consumption to integrating complex educational products and building distribution channels. The first block includes the growth of the catalogue of electronic and audiobooks in National applications: for example, Google Play stated that the Yakaboo mobile application provides access to more than 20 thousand electronic and audiobooks and is positioned as the largest electronic library in Ukraine; the application is available on iOS and Android and supports offline reading and listening, which is critical for the continuity of access during infrastructure failures (Yakaboo: Read/listen..., n.d.). The second block – multimedia and interactive materials – is largely represented in the educational segment: national platforms, in particular, Librarius (n.d.) emphasise the secure file format model and mobile access, and offline/online operation; in addition, the service, starting in 2021, reported a library with thousands of works and a gradual transition to an audio and subscription model (Meri, 2021). Among aggregators and international platforms that are relevant for Ukrainian users, the key ones remain Kindle Store (n.d.) and Google Play Books & Audiobooks (n.d.). The Kindle Store works with its own formats (AZW/AZW3/KFX), has a wide geographical availability, and offers models like Kindle Unlimited; DRM specifics make it difficult to port content between devices. Thereby, in 2025, Amazon announced the termination of the “Download & Transfer via USB” function, which affects the ability to locally back up purchased books and further emphasises the dependence of users on closed ecosystems (Amazon’s killing..., 2025). Google Play Books & Audiobooks, in turn, provides a single library for e-books and audio on different operating systems (Android, iOS) with offline mode and synchronisation, which simplifies promotions and access of Ukrainian readers outside of specialised applications.

Online libraries and open access services in Ukraine form a separate layer of infrastructure. The National Library of Ukraine named after V.I. Vernadsky (NBUV) (n.d.) supports digital collections (electronic catalogue, Digital library, resource Ukrainika) that provide open access to digitised funds and scientific periodicals; these resources serve as a cultural and scientific depository and often serve as a reference source for bibliography. In the segment of fiction and humanitarian literature, free access is provided by the Chtyvo (n.d.) e-library, which positions itself as an online library of Ukrainian-language works. Such services increase the cultural visibility of texts and keep the reader in the Ukrainian Information field, but at the same time create tasks for commercial publishers to correctly license, delineate rights and build hybrid monetisation models (for example, part of the catalogue is publicly available, part – commercial releases with added value in the form of audio, annotated publications, etc.). Event infrastructure plays the role of a point

of concentration for digital formats and professional contacts. In 2024 (30 May – 2 June), Kyiv’s Book Arsenal attracted 35,000 visitors (compared to 28,000 in 2023), featured 100 Ukrainian publishers and 5 bookshops, and hosted over 160 events (including thematic exhibition projects) (“Book Arsenal-2024” was... 2024). In 2024, the festival launched the Book Arsenal fellowship program (2024) – a B2B mechanism that invited seven publishers/agents from seven European countries for meetings on rights and cooperation, creating a channel for Ukrainian electronic and audio products to enter adjacent markets (Kabatsiy, 2024). According to the results of 2025, the organisers reported on more than 200 events and ~30 thousand visitors, which indicates a stable professional demand for the platform for rights, merchandising and technological presentations (in particular, for audio/e-formats) (Results of the XIII Book..., 2025).

The development of local platforms is accompanied by a variety of products and business models. Librarius (n.d.) works as an application/library with elements of DRM (its own secure format) and offers rental or purchase of e-books, emphasising the focus on combating piracy; however, reviews for readers emphasise that the closed format makes it difficult to export files to third-party readers (e.g., e-ink devices). Yakaboo (n.d.), in addition to retail, holds the publishing division Yakaboo Publishing, which participates in leading Ukrainian book fairs, in particular, the “Book Arsenal”, and works with a niche non-fiction offer (mainly projects on information hygiene, health, financial literacy). Such examples show that local players combine the roles of retailers, publishers, aggregators, and app owners, providing a full cycle – from contracting rights to delivering content to mobile ecosystems. Audio platforms have formed a separate segment of digital infrastructure focused on the consumption of book content in audio format and separated from text-centric services. The Abuk (n.d.) app functions as a specialised service for playing audiobooks, which provides catalogue ordering, support for stable access, and the possibility of serial placement of audio products. PocketBook Reader (n.d.) supports a combined usage model, allowing users to read electronic texts and listen to audio files, which enables its use on various types of devices, including e-ink readers. The functioning of these services expands the existing digital distribution channels and contributes to the structural separation of audio format as an independent component of the market. The interaction of multiple platforms creates prerequisites for the accumulation of data on audio content consumption patterns, which provides for considering the audio segment as a stable element of the digital ecosystem of book publishing. Social media and digital marketing work as a multiplier of demand for electronic formats. In TikTok (BookTok), Ukrainian users form niche communities where they explicate preferences and launch waves of recommendations; collections of Ukrainian booktokers, I. Yurchenko (2022), recorded

the appearance of specialised accounts associated with publishing SMM teams or independent reviewers, which contributes to the organic coverage of new products and the catalogue. In the YouTube segment Ukrainian BookTube/Shorts covers both large generalising videos (“the best/worst books of the year”) and thematic analytical channels; in particular, the Speka media review highlights the channel PROLIT (Yulia Tipusiak) as an example of educational content with reviews, trend analysis and discussions about the book market (Rudzinska, 2025). The presence of a stable pool of video blogs/books means that some of the publishers’ marketing activities are moving to the format of partnerships with creators who show “unboxings”, readers’ diaries, and collections of content, which encourages transitions to applications and conversion to subscriptions/purchases. Project events such as Book Arsenal integrate offline interactions with digital delivery; the presence of large platforms and publishers within the event guarantees a quick transfer of interest to online sales and expands the networks of rights holders for digital releases. The Book Arsenal fellowship program (2024) provided targeted meetings with rights holders, which is the basis for subsequent broadcasts of the catalogue of Ukrainian e-books and audiobooks to other markets through local aggregators, library services, or global stores. Notably, the interaction between platforms and open access is not zero-sum. Scientific and cultural digital libraries (NBUV, Ukrainika) perform the function of long-term preservation and citation, while commercial applications solve the tasks of convenience, recommendations, and monetisation. For a publisher, these are different channels of the same ecosystem: OA (Open Access) collections increase the visibility of authors and topics, while commercial platforms convert interest into sales; OA analytics in science shows that the growth of open access can redistribute traffic sources and requires updating communication strategies. In the practice of Ukrainian applications (e.g., Librarius), technical solutions such as banning the export of files from the application (to limit piracy) co-exist with offline reading modes, which aligns the protection of rights with the needs of users in unstable connection conditions.

As for AR/VR (Augmented Reality/Virtual Reality) and interactive solutions for mass book reading, in Ukraine they are still concentrated mainly in education and niche projects; profile cases are more inherent in educational platforms and the textbook segment, while mass retail platforms rely on expanding the audio catalogue and improving recommendations/mobile UX (User Experience). This is consistent with global dynamics: the market is growing at the expense of subscriptions and recommendation mechanics, rather than urgent mass migration to AR/VR books. Confirmation of priorities is the development of subscriptions (for example, Kindle Unlimited (n.d.)), along with the promotional activities of local services (opening access, affiliate programmes

during crises and events). Social networks create a measure of rapid demand testing for publishers and platforms: videos of “top books of the year/results of the half-year” in the Ukrainian segment of YouTube/Shorts regularly collect thousands of views; regardless of the ratings of specific bloggers, such reviews serve as aggregators of demand signals (BooksVIT, 2024; Bookmark – blog about books, 2024). In TikTok, Ukrainian collections of booktokers record the activity of accounts associated with both publishing SMM teams and independent readers; for the publisher, this means micro-segmentation and the possibility of A/B tests of creatives (covers, “hooks”, quotes) before launching digital releases.

Thus, the development of digital formats and distribution channels in Ukraine indicates the gradual formation of an independent ecosystem of book publishing, where technical, communication, and analytical elements interact as a single cycle. Publishers are increasingly integrating electronic tools not as an auxiliary resource, but as a strategic component of publishing policy. Thereby, the market is moving from a model of simple digital duplication of paper books to creating content designed directly for the online environment. This changes the role of authors and editors who must work in an interdisciplinary field – from text engineering to user analytics. A new type of reader interaction is being formed, based on a constant dialogue between the platform and the user. The digital transformation of book publishing in Ukraine appears not only as a technological update but also as a change in the cultural model of production and consumption of texts.

Discussion

The results confirmed that the digitalisation of the Ukrainian publishing market took place as a gradual but systematic process, in which the growth of the role of online platforms was accompanied by the transformation of business models and editorial functions. This approach was consistent with the conclusions of J.B. Thompson (2021), who pointed out that the global publishing industry was going through a similar stage of transition from a material to a hybrid structure, where electronic formats co-existed with print, but changed the logic of distribution. In the British context, digital publications appeared as a reaction to technological pressures and changes in consumer habits, while in Ukraine, the impetus was the crisis of physical infrastructure due to the war. Both cases showed that digitalisation did not displace printing, rather reformatted its role. However, in contrast to the global market, where J.B. Thompson (2021) emphasised the threat of monopolisation by platforms, Ukrainian publishers remained in the phase of decentralised development, which created a more competitive environment among small players. The role of digital platforms in changing the publishing economy coincided with the analytical findings of A.M. Osadci-Baciu *et al.* (2024), who argued that online

aggregators define communication patterns between authors, publishers, and consumers in addition to redistributing profits. In the Ukrainian reality, this function was performed by Yakaboo, Librarius, and Google Play Books & Audiobooks, which simultaneously acted as tools for monetisation and statistical analysis of demand. The difference from Western models was that the platforms in Ukraine had not yet reached the level of consolidation typical of Amazon or Kobo. However, in both cases, digital tools formed a new type of interdependence between content and data, turning reading into a process that simultaneously produces information about the consumer. The development of digital business models in Ukrainian publishing houses had common features with the concept of F. Hall (2022), which defined digital book publishing as an industry where the main asset is not physical circulation, but data flows. The results of this study showed a similar trend: the key factor in efficiency was not printing resources, but the ability to manage digital processes – from layout to user analytics. The difference was in scale, as F. Hall (2022) analysed the highly developed UK market, where publishers have a sustainable digital infrastructure, while the Ukrainian sector operated in crisis conditions. However, both contexts have shown that the profession of editor is becoming a digital content manager responsible for coordinating the technological and humanitarian aspects of production. An analysis of the transition from classical models of book publishing to a platform as an ecosystem revealed similarities with the reasoning of K. Spjeldnæs (2022). The researcher considered the process of “platforming” as a shift from publishing to service, where recommendation algorithms, licensing policies, and user interaction play a key role. In Ukrainian conditions, a similar process was manifested in the emergence of such aggregators as Yakaboo or Librarius, which not only distributed books but also provided communication between the publisher and the reader. Unlike the Scandinavian market, where K. Spjeldnæs (2022) observed a high degree of standardisation, Ukrainian platforms left more room for experimenting with formats, combining DRM protection with open access. Both models confirmed that platforms have become not just a sales channel, but an institution that forms new social relations in the publishing sector.

The use of artificial intelligence in editorial work revealed similarities with the findings of M. Khalifa & M. Albadawy (2024), who defined AI as a productivity tool rather than a complete replacement for human labour. Within the Ukrainian market, automation of layout, proofreading, and analytics was really considered as a way to reduce the time and cost of the publication. Similar to the observations of M. Khalifa & M. Albadawy (2024), algorithms detected technical errors, matched styles, but could not adequately reproduce the author’s style. In local conditions, automation had not only an economic but also a security function because digital processes allowed publishers to work remotely

during military restrictions. In this context, the similarity was to understand AI as an auxiliary mechanism, while the difference was in the social context of its use. A. Klamet (2020) showed that for small publishers in Europe, digitalisation was both a chance and a challenge: it opened up access to a wider audience, but created dependence on technical resources. Ukrainian results presented a similar balance. Small independent publishers have used digital platforms to reduce production costs and support distribution in the face of infrastructure disruption. As in the case of Austria and Scotland, described by A. Klamet (2020), limited financial resources were offset by innovative formats. While the author recorded the problem of cultural dominance of large markets, Ukrainian publishers faced rather infrastructure challenges. The similarity was that digitalisation equalised the capabilities of independent actors, giving them autonomy from print monopolies.

The use of digital technologies in global book publishing was consistent with the systematisation proposed by M. Manzura (2025), which classified tools by production stages – creation, editing, publication, analytics. The results of this study displayed a similar logic: automation of editorial processes and integration of big data into marketing analytics have become the most active areas of technology implementation. However, while M. Manzura (2025) focused mainly on standardised tools of the global market (Adobe InDesign, Overleaf, Grammarly Business), the Ukrainian sector adapted technologies to local conditions, using combinations of free and open-source solutions. Both approaches have demonstrated that digitalisation is no longer limited to technical operations, but acts as a means of restructuring the publishing ecosystem. A study by T. Saikaly (2023) highlighted the transformative role of artificial intelligence in the publishing industry through automated content management, demand forecasting, and error reduction. These results partially confirmed these findings: AI was indeed used to process metadata, structure text, and predict readers’ interests. The difference was in the degree of technological implementation: T. Saikaly (2023) analysed large-scale corporate platforms, whereas in Ukraine, the use of AI remained mostly fragmented and focused on specific tasks (proofreading, audience segmentation). Both systems proved that the integration of machine learning helped to improve the accuracy of management decisions, but required the participation of a specialist who could interpret the results of algorithms. In the context of the automation risk assessment, the results were consistent with the conclusions of L. Liu (2023), who emphasised that technological simplification of processes carries the risks of content standardisation and loss of cultural specificity. The analysis of the Ukrainian material confirmed a similar trend: algorithmic editing can level the author’s style and reduce the variability of language structures. However, in contrast to the Asian context, where L. Liu (2023) analysed

the mass publishing industry, the Ukrainian situation showed that the editor's creative control was preserved even in a digital environment. Thus, both studies showed that the effectiveness of automation depended on the balance between technical and human input. Experience in implementing AI in India's publishing industry, described by K. Vinay (2023), had partial parallels with the Ukrainian dynamics. In both cases, digital tools were used primarily for operational acceleration, rather than for creative intervention. K. Vinay (2023) established that AI is effective in structural and editorial tasks, but not in cultural and linguistic nuances. Ukrainian publishing houses found a similar balance: algorithms helped in technical optimisation, while semantic and stylistic work remained the prerogative of humans. The desire to create national technological solutions that account for language specifics was also common. The difference was in scale: in Ukraine, AI was implemented in conditions of limited resources, which led to a greater dependence on external software ecosystems.

Review of the digital economy of publishing submitted by X. Ren (2023) showed that after the "era of e-book disruption", the industry moved to a platform ecosystem model, where user data became the main resource. These results confirmed this trend, as even medium-sized publishers began to implement CRM tools for accounting for sales, ratings, and feedback. Unlike international corporations, which X. Ren (2023) described as integrated media complexes, Ukrainian publishers remained flexible and decentralised. Both systems showed that the transition to analytically driven models changed the reader's very understanding – from a buyer to a data participant who generates content through their behaviour. Analysis of the commercial dynamics of the Kindle platform performed by R.D. Wang & C.D. Miller (2020) confirmed the conclusion about the importance of interaction between platforms and complementary actors—small publishers. The study found that the success of e-books depends on publishers' ability to adapt to the requirements of Amazon's algorithms. The results of this work demonstrated a similar logic: independent publishers, working through Yakaboo or Librarius, formed their catalogues in accordance with the platform's recommendation mechanisms. The difference was in the degree of standardisation: if Kindle imposed a rigid commercial model, Ukrainian platforms left more autonomy. Thus, both contexts revealed the interdependence of technological infrastructure and creative strategies of publishers. The impact of video platforms on book communication coincided with the analytical approach of J.M. Tomasena & C.A. Scolarì (2024), who described BookTube as an environment that combines individual content and media-economic promotion tools. The results of this study showed that YouTube and TikTok channels have become part of the book marketing ecosystem, affecting the visibility of electronic and audiobooks. In both cases, bloggers acted as intermediaries between publishers and readers,

forming social trust algorithms. The difference was in the scale of the market since J.M. Tomasena & C.A. Scolarì (2024) described global communities with millions of views, while the Ukrainian segment remained localised but highly engaged. The formation of collaborative reading cultures through social media, which was explored by B. Reddan *et al.* (2024), had few direct parallels with the results regarding the role of BookTok in Ukraine. As part of the study, it was presented how digital communities create emotionally coloured spaces for sharing book experiences and transform recommendations into a form of collective participation. These results showed a similar trend when video reviews, collections, and readers' diaries became important mechanisms for promoting electronic formats. A common feature of both contexts was the transformation of reading into a social act that encourages not only sales but also the identity of community members. Summarising, the results showed that the digital transformation of Ukrainian book publishing has a multidimensional character and is consistent with the global trends described in the works of leading researchers. Common features were decentralisation, platformisation, and integration of AI into production processes, while differences were determined by socio-economic and cultural circumstances. The study demonstrated that digitalisation in the Ukrainian publishing sector is a mechanism for restoring and adapting culture to new living conditions rather than just being a technological phenomenon.

■ Conclusions

As a result of the study, it was determined that digitalisation of the publishing sector in Ukraine has a systematic and multi-level character, covering structural, technological, editorial, production, and communication aspects. The analysis confirmed that the transition from print to digital book publishing is not a one-step process, but occurs through the gradual integration of new formats, tools, and business models into the existing industry ecosystem. Digital technologies became a catalyst for changing not only the technical means of production, but also the cultural model of interaction between the author, publisher, and reader. The results of the study showed that the structure of the Ukrainian publishing market was reoriented from centralised printing enterprises to a network of independent and digital entities. The growth in the number of registered publishers, an increase in the share of digital sales and the emergence of multi-format players confirmed the diversification of the industry. It was revealed that the share of electronic formats in the revenues of leading publishers ranges from 15 to 28%, and the e-book market is estimated at about UAH 70 million. These indicators, although inferior to the print segment, pointed to the formation of a stable digital sector. It is established that a full-scale war substantially affected the rhythm of market development: relocation, infrastructure destruction and logistics

restrictions accelerated the transition to online models that reduce dependence on physical capacity.

The analysis of the technological component showed that automation of editorial and production processes has become one of the key factors of publishing houses' efficiency. The introduction of project management systems, automatic proofreading tools, and the use of algorithms to check the text structure reduced the complexity of work and lowered the production cycle time. The study also summarised three main areas of development of digital formats: e-books and audiobooks, multimedia and interactive publications, and distribution aggregators. The results showed that the Ukrainian market is gradually moving from static copies of printed texts to the creation of specialised digital content. Electronic publications provide ease of access and mobility, audiobooks expand the audience through multimodal perception, while interactive formats (in particular, with AR/VR components) enhance the educational and aesthetic component. At the platform level, it was proven that Yakaboo, Librarius, Abuk and other aggregators form a digital access infrastructure that combines the functions of retail, statistical analytics, and content promotion. The social dimension of digitalisation was evident in the growing role of communication platforms. The analysis

showed that communities in TikTok and YouTube (BookTok, BookTube) have become a tool for promoting and popularising book formats. Video content and digital marketing created a new form of interaction with the audience, where readers' recommendations are transformed into sales channels. The results confirmed that social media not only encourages sales but also creates a culture of collaborative reading that promotes social integration of the book experience. Event initiatives, in particular, the Book Arsenal, have strengthened the relationship between offline and online spaces by integrating digital tools into cultural book publishing practices. In the future, further research may be aimed at creating a comparative base between national and international markets and developing indicators of the effectiveness of digital transformation in the publishing sector.

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Трансформація українського видавництва в цифрову епоху

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Анотація. Метою дослідження був аналіз механізмів оновлення видавничої галузі під впливом цифрових технологій та виявлення закономірностей переходу до нових форматів виробництва і розповсюдження книжкового контенту. Роботу виконано на основі аналізу кількісних показників, офіційних звітів, публікацій у галузевих періодичних виданнях та відкритих цифрових джерел. Методологічну основу становило поєднання системного та описово-аналітичного підходів, що дало змогу виявити взаємозв'язок між ринковими тенденціями, автоматизацією виробничих процесів і поширенням електронних форматів. Результати дослідження засвідчили розширення структури видавничого ринку. За даними державного реєстру, у 2023 р. в Україні функціонувало 302 суб'єкти видавничої діяльності, з яких 270 були новоствореними, тоді як у 2022 р. їх кількість становила лише 152. Обсяг книжкового виробництва зріс на 73 %, а кількість накладів – на 203 %. У 2024 р. кількість активних видавців перевищила 350, а загальний наклад книжок досяг 33,3 млн примірників, що свідчить про подальше відновлення ринку після воєнного спаду. Водночас зафіксовано зростання частки електронних продажів: «Видавництво 21», «Лабораторія» та «Видавництво Старого Лева» повідомили про 15-20 % доходу від цифрових видань, Yakaboo – 28 %, Vivat – 4,2 %. Виявлено, що попри активне зростання електронного сегмента, друковані видання залишаються основним джерелом прибутку: ринок друкованої книги оцінюється приблизно у 1,4 млрд грн, тоді як цифровий – близько 70 млн грн. У дослідженні також узагальнено структуру цифрових форматів і платформ, зокрема Yakaboo, Librarius, Abuk, PocketBook Reader, Kindle Store, Google Play Books & Audiobooks. Встановлено, що соціальні мережі, зокрема TikTok і YouTube, стали ефективними каналами просування, а подієві платформи, такі як «Книжковий Арсенал», забезпечують професійну інтеграцію українських видавців у міжнародну спільноту. Практичне значення дослідження полягає у можливості використання його висновків для розроблення стратегій цифрового розвитку видавництва, оптимізації редакційних процесів і формування нових підходів до комунікації з читачем

Ключові слова: електронні формати; дистрибуція; управління контентом; штучний інтелект; онлайн-бібліотеки; соціальні мережі; підписка



Role of libraries and bibliography in preserving cultural memory in Ukraine and Japan in the digital age

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Abstract. The study aimed to comprehensively examine the institutional and technological foundations of cultural memory preservation in Ukraine and Japan in the context of the digital transformation of library and bibliographic practices. The study was theoretical and applied in nature and was based on an analysis of normative acts, official reports, and digital collections of Ukraine and Japan using content analysis, bibliometric, and statistical methods. The results demonstrated that 45% of the Ukrainian corpus consisted of regulatory acts and government documents, while 30% of the Japanese corpus consisted of such documents. Institutional reports accounted for 40% of the Japanese segment, compared to 25% of the Ukrainian segment. In 2021-2024, the share of digitised collections in Ukraine increased from 18 to 36%, and in Japan from 25 to 35%. The number of visits increased in Ukraine from 120,000 to 245,000, and in Japan from 200,000 to 290,000; downloads of digital materials increased from 60,000 to 145,000 and from 90,000 to 160,000. The number of unique users doubled in Ukraine (from 45,000 to 100,000) and increased by 40% in Japan (from 70,000 to 110,000). Ukraine's bibliographic infrastructure demonstrated partial integration with international files, while Japanese services ensured compatibility with the global WorldCat and Virtual International Authority File catalogues. Network analysis revealed the leading clusters of cultural memory: in Ukraine, the Holodomor (680 units, 410 connections) and the legacy of Mykhailo Hrushevsky (520 units, 320 connections); in Japan – Manyōshū (750 units, 500 links) and the chronicles of the Heian period (620 units, 450 links). Statistical tests confirmed a higher level of data openness in Japan ($p = 0.031$) and accelerated growth of digitisation in Ukraine after 2021 ($p = 0.042$). The results obtained can be used to improve national digitisation programmes, develop bibliographic services and increase integration into global information networks

Keywords: interoperability; metadata; digitisation; user activity; international initiatives

Introduction

The research relevance is determined by the need to determine the role of libraries and bibliographic infrastructure in the processes of preserving cultural memory

in the context of digital transformations. In modern society, libraries have become institutional conduits of state memory policy, which is manifested not only in traditional

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work with collections, but also in the implementation of digital services, digitisation systems and international communication platforms. The issue of cultural heritage preservation is also becoming more pressing due to military threats, which are particularly acute for Ukraine and require new strategies for digital conservation and data interoperability. The study aimed to answer the question of how the library and bibliographic practices of Ukraine and Japan are integrated into the global context and which mechanisms have proven effective in preserving cultural memory.

In academic discourse, the issue of the role of libraries in memory politics was partially addressed. T. Hranchak (2020) demonstrated that Ukrainian libraries are not only repositories of documents but also active participants in the formation of collective memory, integrating memorial narratives into information practices. The study emphasised that library and information resources are used to convey historical meanings but highlighted the insufficient availability of tools to assess the efficiency. The publication by O. Tur *et al.* (2023) proves that the digitisation of archival fonds and museum collections directly affects the preservation of national cultural heritage. The study demonstrated that the use of information technologies in libraries ensures a steady increase in the volume of materials available to users but emphasised the existence of gaps in ensuring the long-term preservation of digital data. The issue of library development strategies in crisis conditions was analysed in detail by L. Dubrovina *et al.* (2024). Using the example of the V.I. Vernadsky National Library of Ukraine, the study showed that combining traditional approaches to processing of collections with new models of digital interaction can be used not only to preserve unique resources, but also to integrate into international cooperation networks. At the same time, the study determined that in conditions of martial law, library institutions face increased risks and need to update their mechanisms for protecting digital resources.

A separate dimension of the problem was demonstrated by G. Melnyk-Khokha *et al.* (2024) in an analysis of the implementation of a cross-sectoral project on the representation of repressed books in the collections of the V. Stefanyk Scientific Library in Lviv. The study proved that the integration of information technologies into library practice can restore access to the “forgotten” pages of cultural heritage and contribute to the formation of new communication formats between libraries, scientific institutions, and society. A substantial factor in shaping contemporary memory policy is the activity of libraries in crisis conditions. O. Makarova (2023) demonstrated that in times of military threats, libraries remain not only centres for the preservation of documentary heritage but also serve as secure access points to knowledge and resources. The study emphasised that the historical experience of library work in extreme situations is now being actualised in the practices of digital archiving

and international partnership. This confirms the need for a comparative analysis of the strategies of different countries where digital initiatives have become the key to preserving cultural memory.

In the Japanese context, considerable attention is paid to archiving the performing arts. M. Okamura (2023) defines digital archives of theatre and music productions as a means of representing cultural codes for a wide audience and emphasises their importance in preserving national identity. This position is developed by T. Nakanishi (2023), highlighting the difficulties in creating a comprehensive “Japan Digital Theatre Archives” and the prospects for expanding access to materials that previously remained only in a narrow professional environment. The technical, financial and methodological barriers identified by the author correspond to the challenges faced by Ukrainian institutions in the process of digitising cultural resources. The study systematised the trends of digitisation in public libraries in Japan and concluded that regional collections remain a vulnerable segment of digital policy, as a significant part of local archives has not yet been integrated into national or international systems. Similar imbalances can be observed in Ukraine, where the preservation of local historical and cultural collections often depends on individual projects and volunteer initiatives. A separate aspect of digital transformation is revealed by CAP (2025) in an analysis of the transition of the National Diet Library of Japan to cloud services. The study argued that migration to cloud technologies ensures the stability of large data storage and expands access to it on a global scale. This creates new benchmarks for library systems in other countries seeking to integrate into the international infrastructure of digital resources.

The study aimed to comprehensively examine the institutional and technological foundations of cultural memory preservation in Ukraine and Japan in the context of the digital transformation of library and bibliographic practices. The objectives of the study were to analyse regulatory and legal documents and digital collections to identify leading trends in cultural policy and digitisation; to evaluate bibliographic infrastructure and metadata quality in the context of ensuring the interoperability of national and international systems; and to construct a comparative model reflecting the interrelationships between political decisions, infrastructure, and user activity in heritage preservation processes.

Materials and Methods

The study was conducted between October 2024 and June 2025 based on regulatory acts, official reports, and digital collections of cultural heritage in Ukraine and Japan. The period 2021-2024 was chosen for analysis, as it was during this time that both countries published the most complete statistical and reporting data on the digitisation of library collections and user activity dynamics, ensuring the comparability of indicators. The analysis included

nationally significant strategic documents and leading digital projects for the preservation of cultural memory, reflecting current trends in library and bibliographic practice and the implementation of digital technologies.

Ukrainian document sample included Law of Ukraine No. 7 "On Libraries and Library Science" (1995), Order of the Ministry of Culture and Information Policy of Ukraine No. 463 "On the Approval of Reporting Forms on the Activities of Public and Special Libraries, as well as Instructions for Their Completion" (2022), Statistical Yearbook of Ukraine (2023), Cabinet of Ministers of Ukraine (2024) and Ukrainian Library Association (n.d.). These materials reflected the legal regulation, software and statistical monitoring of the digital transformation processes in the national library sector. In total, 200 documents were analysed in this corpus, including 90 regulatory and legal acts and government documents, 50 institutional reports, and the rest – digital collections and bibliographic materials. The Japanese sample included the Basic Act No. 103 "On the Advancement of Public and Private Sector Data Utilization" (2016), Japan Cultural Expo (2021), and the National Archives of Japan (n.d.), Agency for Cultural Affairs (Bunkachō) (n.d.) and National Diet Library (n.d.). The selection of these documents is due to the fact that they systematically represent the state priorities of digital policy and outline the key areas of institutional support for cultural heritage. The total number of sources in the Japanese corpus was 180, of which 54 were regulatory acts, 72 were institutional reports, and the rest were digital collections and bibliographic resources. Separately, the categories of regulatory documents and elements of digital infrastructure for Ukraine and Japan were systematised, which made it possible to identify common and different institutional approaches. For Ukraine, the emphasis is on the national level, without incorporating regional programmes, which trace the integrity of the state strategy; for Japan, the annual NDL reports, which summarise the latest trends in the digitalisation of the library and information sphere, are substantial.

The collection corpus included Ukrainian digital projects, such as Holodomor Museum (2022), Lviv National Scientific Library of Ukraine named after V. Stefanyk (2023), Harvard Ukrainian Research Institute (n.d.), Maidan Project: Oral History (n.d.) and Electronic Library of Periodicals of NBUV (n.d.). Their selection was based on the fact that they combine classical literary corpora and contemporary evidence of history, forming different layers of cultural memory. A total of 5 digital collections were selected, with a total volume of about 1,630 items, related to more than 1,000 authoritative links. Japanese corpus included Tokyo National Museum (n.d.), International Research Center for Japanese Studies (Nichibun-ken) (2025), calligraphic works in Yomiuri Shohokai (n.d.), as well as electronic version of the Manyōshū (2019) poetry anthology. The selection is based on their status as nationally significant collections representing classic cultural codes and symbolic markers of Japanese identity.

All examples were selected based on the scale and official nature of the projects, which ensured a fair comparison between Eastern European and East Asian experiences in the field of heritage protection.

The bibliographic component included Ukrainian Book Chronicles of the National Library of Ukraine named after V.I. Vernadsky (n.d.), the Wellcome Collection (n.d.) and WorldCat (n.d.), demonstrating the systematic nature and development of bibliographic infrastructure in the context of digital transformation. In Japan, CAP (2021), CiNii Books (n.d.), National Diet Library of Japan (n.d.) and National Diet Library (n.d.) were analysed, which are the basic tools for accessing the national bibliography. In addition, the prospect of interoperability with international systems, in particular VIAF (n.d.), which ensures the integration of national authority files into the global information space, was addressed. A total of about 10,000 bibliographic records were incorporated, among which the Ukrainian National Authority File covered more than 3,000 items, while Japanese resources provided full integration with international files (CiNii Books, n.d.). International cooperation was considered through the UNESCO (n.d.), the Europeana (n.d.) platform, membership in the Netpreserve (n.d.), and participation in the annual Conference Proceedings (n.d.). These sources reflect the channels of global integration between libraries in Ukraine and Japan. Despite the absence of direct bilateral initiatives, both countries operate within multinational networks, which were used to compare their strategies and identify commonalities and differences in the preservation of cultural memory.

The analytical procedure included a preparatory stage (unification of documents in UTF-8 format, normalisation of metadata, verification of authenticity according to the National Library of Ukraine named after V.I. Vernadsky (n.d.) and National Diet Library (n.d.) catalogues) and a main stage combining content analysis, bibliometric and network analysis. Coding was performed in MAXQDA (n.d.) with the categories "policy", "digital infrastructure", "bibliography", "crowdsourcing" and "international cooperation". Quantitative indicators (proportion of digitised collections, data openness, user activity) were not only recorded but also used to confirm qualitative conclusions, ensuring their statistical validity after processing in IBM (2022). For statistical verification, Student's t-test for independent samples ($p < 0.05$), Mann-Whitney U-test for non-parametric data, and calculation of confidence intervals (95%) were used. Additionally, the Herfindahl-Hirschman Index (HHI) was calculated, which was used to assess the concentration of sources within each corpus and determine the degree of uniformity of their thematic distribution. VOSviewer (n.d.) and Gephi (n.d.) were used for the bibliographic segment, which was used to compare qualitatively identified clusters with quantitative network characteristics and build consistent models of relationships between

authoritative files and digital collections. Reliability was ensured by double-blind coding (consistency not lower than 0.82 according to the Kappa coefficient) and triangulation of methods. All sources used were open and were used following the principles of academic integrity and international citation rules. This approach made it possible to comprehensively compare the library and bibliographic practices of Ukraine and Japan and to assess the effectiveness of their models of adaptation to the requirements of the digital society.

Results and Discussion

The first stage of the analysis covered the composition of the source corpus and the procedures for verifying its validity. Different structural configurations of materials were recorded in the two national segments. The Ukrainian part included a significant number of regulatory acts and government documents governing library activities and cultural policy, in particular, reporting forms and statistical instructions. The Japanese segment features regular reports from the National Diet Library (n.d.) and the Agency for Cultural Affairs (Bunkachō) (n.d.), which systematically recorded digital processes in the field of heritage. Thus, the corpus combined two different types of institutional documentation: legal regulations and reporting practices. At the same time, the digital collections included in the analysis demonstrated different levels of representation of cultural memory and functioning in the field of heritage protection. Ukrainian resources, in particular Holodomor Museum (2022), Lviv National Scientific Library of Ukraine named after V. Stefanyk (2023), Harvard Ukrainian Research Institute (n.d.) and Ukrainian Institute of National Memory (n.d.) combine documentary, scientific and testimonial forms, forming a memorial-historical layer of national memory. These projects preserve collective experience through digitised manuscripts, archives and oral testimonies, in line with the approaches of the UNESCO (n.d.) to the preservation of documentary heritage.

On the other hand, the Japanese collections Tokyo National Museum (n.d.), Yomiuri Shohokai (n.d.), the electronic version of the poetry anthology *Manyōshū* (2019), and International Research Center for Japanese Studies (Nichibunken) (2025) form a cultural

and traditional layer of memory, in which digitisation emphasises the preservation of literary, artistic and ritual codes. Such resources not only archive cultural artefacts, but also contribute to their cultural reproduction, combining artistic heritage with innovative formats of access. As a result, the Ukrainian array reflects a documentary-historical model of memory, while the Japanese one reflects an aesthetic-cultural model, which corresponds to different national strategies in the field of heritage protection. The digital collections have a two-component structure. The Ukrainian block covers both classical texts (Lviv National Scientific Library of Ukraine named after V. Stefanyk, 2023). It is also discussed about the latest thematic projects related to events of the 20th and 21st centuries (Holodomor Museum, 2022; Ukrainian Institute of National Memory, n.d.). The Japanese segment features literary and historical monuments National Diet Library (n.d.), International Research Centre for Japanese Studies (n.d.), as well as digital archives of the performing arts, which have been actively developing since 2020 (Okamuro, 2023).

The bibliographic block of the corpus records various approaches to organising access. Wellcome Collection (n.d.) are partially aligned with international systems (VIAF, n.d.), while the Japanese Web NDL Authorities are fully integrated with global catalogues (National Diet Library, n.d.). In addition, CiNii Books (n.d.) operates in Japan, providing access not only to bibliographies but also to full texts, while Ukrainian resources focus mainly on registration descriptions (National Library of Ukraine named after V.I. Vernadsky, n.d.). Validity checks confirmed the correctness of Ukrainian documents in national electronic catalogues and the presence of individual cases without dates in Japanese materials, which complicates the construction of time series. Technical unification in UTF-8 format eliminated duplication and differences in transliteration, and double encoding confirmed the consistency of metadata between the two segments. This provided the basis for further quantitative and network procedures. Table 1 shows the distribution of sources by country and type, clearly demonstrating the predominance of regulatory documents in the structure of Ukrainian materials and the greater weight of institutional reports in Japanese materials.

Table 1. Composition and structure of the source corpus by country and type (UA/JP)

Type of sources	Ukraine (n = 200)	Japan (n = 180)
Regulatory acts and government documents	90 (45%)	54 (30%)
Institutional reports and programmes	50 (25%)	72 (40%)
Digital collections (classical monuments)	30 (15%)	27 (15%)
Digital collections (modern history/art)	20 (10%)	18 (10%)
Bibliographic systems and authority files	10 (5%)	9 (5%)

Source: compiled by the authors based on National Archives of Japan (n.d.), Ukrainian Library Association (n.d.), Agency for Cultural Affairs (Bunkachō) (n.d.), Law of Ukraine No. 7 "On Libraries and Library Science" (1995), Basic Act No. 103 "On the Advancement of Public and Private Sector Data Utilization" (2016)

Table 1 shows that the sums of the shares by country amounted to 100%. The difference between Ukraine and Japan was concentrated in two categories: "regulatory acts and government documents" (+15 p.p. in favour of UA) and "institutional reports and programmes" (-15 p.p. relative to JP); no differences were recorded for "classical collections", "modern history/arts" and "bibliographic systems" ($\Delta = 0$ p.p.). The total share of digital collections (classical + modern history/arts) was the same for both countries and amounted to 25%, while the share of bibliographic systems was 5% in each. The ratio of "regulatory acts: institutional reports" was 45:25 (coefficient 1.80) for UA and 30:40 (coefficient 0.75) for JP. The Herfindahl-Hirschman Index was 0.300 for UA and 0.285 for JP; the variance of shares was 0.020 versus 0.017, respectively, reflecting a higher concentration of structure in UA. The share of the two largest categories in each country was 70% (UA: 45% + 25%; JP: 40% + 30%). In summary, the difference was formed by the redistribution between the two types of institutional documentation (± 15 p.p.), while the blocks of digital collections and bibliographies had identical shares. Similar approaches to the formation of a corpus of sources were described by S. Septa & T. Salim (2021) in a systematic review of the literature on the role of libraries in preserving Indonesia's cultural heritage. The study emphasised the need for careful selection of materials and standardisation of the format for presenting information, which ensures the comprehensiveness and reliability of data. Similarly, Z. LeBlanc *et al.* (2022), as part of the Saving Ukrainian Cultural Heritage Online (SUCHO) project, argue that the unification of technical formats and multi-level

verification of sources are critical conditions for ensuring the preservation of digital collections in crises.

An analysis of regulatory and legal documents and institutional materials, combined with digital infrastructure indicators, has identified various mechanisms for supporting cultural memory in Ukraine and Japan. The Ukrainian corpus includes a significant proportion of legislative and governmental acts that regulate library activities and cultural policy, particularly the Cabinet of Ministers of Ukraine (2024) and statistical forms prepared based on National Bibliography reports (n.d.). Materials reflecting the evolution of digital projects were also used, such as Lviv National Scientific Library of Ukraine named after V. Stefanyk (2023), which illustrates the process of digitising historical collections. In the Japanese segment, the basis was formed by regular reports from the National Diet Library (n.d.) and Japan Cultural Expo (2021), which systematise the indicators of digitisation of collections and reflect the dynamics of digital services. The documents of the Yomiuri Shohokai (n.d.) and the Agency for Cultural Affairs (Bunkachō) (n.d.) described in detail the mechanisms for implementing technological standards, metadata exchange protocols, and API usage, which ensure the compatibility of national resources with international bibliographic systems. Two different approaches have been identified in the structure of regulatory and policy support: in Ukraine, the emphasis is on strategic programmes and state statistical monitoring, while in Japan, regular reporting focused on technical protocols and standards has been established. Table 2 presents a systematisation of categories of regulatory documents and elements of digital infrastructure for Ukraine and Japan.

Table 2. Comparison of political and infrastructural parameters of digital support for cultural memory (UA/JP)

Category	Ukraine (UA)	Japan (JP)
Legislative acts and government documents	Law of Ukraine on Libraries and Librarianship; government resolutions on reporting	Basic Act on the Advancement of Public and Private Sector Data Utilisation
Strategic programmes and resolutions	Programmes for the digitisation of culture; official instructions for libraries	Programmes for the development of digital archives at the level of cultural policy
Institutional reports and regular reporting	Limited representation; separate reports from specialised institutions	Annual reports of the National Parliamentary Library and the Agency for Culture
Technical protocols and standards (API, data formats)	Use of unified instructions, but limited implementation of the API	Use of APIs, data exchange protocols, MARC/Dublin Core formats
Statistical monitoring systems	Regular statistical compilations and reporting forms reflecting digitisation	Systematic collection and publication of data within the framework of NDL reporting

Source: compiled by the authors based on Agency for Cultural Affairs (Bunkachō) (n.d.), Law of Ukraine No. 7 "On Libraries and Library Science" (1995), National Diet Library (n.d.), Basic Act No. 103 "On the Advancement of Public and Private Sector Data Utilization" (2016), Order of the Ministry of Culture and Information Policy of Ukraine No. 463 "On the Approval of Reporting Forms on the Activities of Public and Special Libraries, as well as Instructions for Their Completion" (2022), Statistical Yearbook of Ukraine (2023)

Table 2 shows the asymmetry between regulatory and infrastructural support for digital cultural memory

in Ukraine and Japan. In terms of legislation, both countries have basic legal frameworks: Ukraine has a law on

libraries, while Japan has an act on the use of data in the public and private sectors. The difference lies in the focus: Ukrainian documents regulate the library sector, while Japanese documents integrate it into broader digital policy. In strategic programmes, Ukraine focuses on regulatory and instructional approaches to digitisation, while Japan focuses on creating integrated archives and coordination between agencies. The structural differences are due to cultural and political factors: Ukraine is dominated by a model of state control and gradual modernisation, while Japan has a culture of long-term planning, openness and institutional coordination. In Ukraine, such materials are presented in a fragmented manner, in the form of individual reports from separate institutions (Ukrainian Library Association, n.d.). In Japan, there is a systematic practice of annual reports by the National Diet Library and the Agency for Cultural Affairs, which ensures regular monitoring of the state of digital resources (National Diet Library, n.d.; Agency for Cultural Affairs (Bunkachō), n.d.). Regarding technical protocols and standards, Ukraine has only adopted the use of unified instructions, while the implementation of APIs remains limited (Order of the Ministry of Culture and Information Policy of Ukraine No. 463 "On the Approval of Reporting Forms on the Activities of Public and Special Libraries, as well as Instructions for Their Completion", 2022). In Japan, on the other hand, APIs, exchange protocols and international standards such as MARC and Dublin Core are widely used, facilitating the integration of resources into global information systems (National Diet Library, n.d.; Europeana, n.d.). In the field of statistical monitoring, both countries have developed systems, but with different organisations: in Ukraine, data is recorded through state statistical compilations and reporting forms, while in Japan the main channel is NDL reporting, which is comprehensive and public in nature (National Diet Library, n.d.; Order of the Ministry of Culture and Information Policy of Ukraine No. 463 "On the Approval of Reporting Forms on the Activities of Public and Special Libraries, as well as Instructions for Their Completion", 2022; Statistical Yearbook of Ukraine, 2023). The most significant differences can be seen in the categories of institutional reporting and technical standards, while legislative and statistical mechanisms remain common elements of regulatory and policy support. The identified relationship between the existence of strategic government acts and the level of digital infrastructure is consistent with the findings of M. Koscijew (2023), which show that institutional interventions and regulatory decisions become decisive in crisis conditions, forming the basis for digital initiatives in the field of heritage. Similarly, A. Rahmanova (2025) argued that effective government digitalisation policies directly influence the creation of access infrastructures, which is consistent with the data obtained on the role of regulatory documents and infrastructure decisions in supporting the library and information sector.

The combination of digitisation time series (2021-2024) with usage indicators traced the sequence of "digitisation → access → requests/downloads" (National Diet Library, n.d.; Vernadsky National Library of Ukraine, n.d.). In 2022-2023, the Ukrainian database recorded an increase in the share of digitised units and a parallel increase in access and downloads compared to 2021; in 2024, the positive trend will continue for all three indicators (Ukrainian Library Association, n.d.; Statistical Yearbook of Ukraine, 2023; Dubrovina *et al.*, 2024). Japanese data showed an increase in digitisation volumes with minor annual fluctuations and stable growth in unique users in the context of constant replenishment of digital collections (National Diet Library, n.d.; Agency for Cultural Affairs (Bunkachō), n.d.). For both countries, the relationship between the share of digitised collections and behavioural metrics was confirmed: the correlation between the share of digitisation and the number of downloads/accesses was statistically significant ($p < 0.05$ according to Pearson/Spearman, depending on the normality of the distribution), and the differences between annual cross-sections were tested using the t-test or U-test with 95% confidence intervals (MAXQDA, n.d.; IBM, 2022). The annual dispersion of indicators in the Ukrainian sample exceeded that of Japan, reflecting different rates of digitisation growth. At the same time, the share of unique users in the activity structure grew in both countries, with the shift in favour of unique visitors accompanied by an increase in the frequency of downloads per user (National Diet Library, n.d.; Europeana, n.d.).

Synchronous changes are noticeable in the thematic collections sub-segment: the release of new digital collections was accompanied by an increase in visits in the month/quarter of publication, followed by a plateau with a higher baseline level of activity than before publication (Holodomor Museum, 2022; Lviv National Scientific Library of Ukraine named after V. Stefanyk, 2023). For Japanese performing arts archives, peak periods of activity coincided with metadata updates and the emergence of new access points (API/full-text services) (Okamuro, 2023; Nakanishi, 2023), while for Ukrainian historical collections, the peaks are associated with the expansion of thematic sections and the refinement of search fields (Melnyk-Khokha *et al.*, 2024). A comparative assessment of aggregated metrics showed: (1) a monotonous increase in the share of digitised collections in 2021-2024 for both countries; (2) a consistent increase in visits and downloads with statistically significant differences between 2021 and 2024 ($p < 0.05$); (3) an increase in the share of unique users in the total traffic flow, confirmed by 95% confidence intervals (National Diet Library, n.d.; Agency for Cultural Affairs (Bunkachō), n.d.; Statistical Yearbook of Ukraine, 2023). Figure 1 shows the generalised dynamics of the share of digitised collections and user activity indicators for 2021-2024 for Ukraine and Japan.

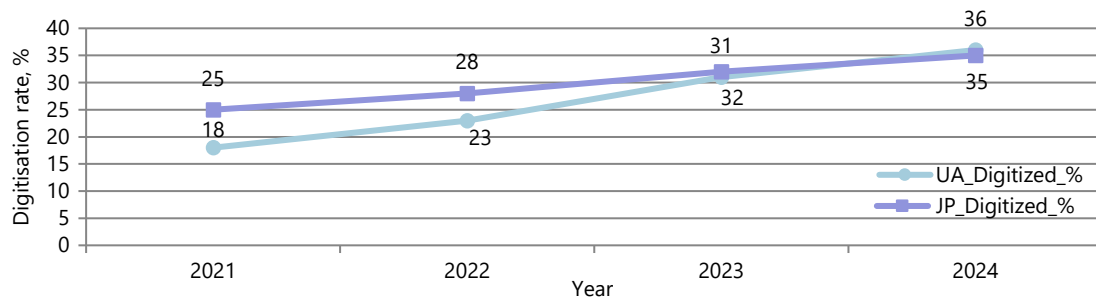


Figure 1. Digitisation dynamics and user activity profile (UA/JP, 2021-2024)

Source: compiled by the authors based on National Diet Library (n.d.), Ukrainian Library Association (n.d.), CAP (2021), Statistical Yearbook of Ukraine (2023)

Figure 1 shows the coordinated growth of digitisation and user activity indicators in both countries in 2021-2024. In Ukraine, the share of digitised collections increased from 18% in 2021 to 36% in 2024, while in Japan it increased from 25% to 35%. Although the starting figures were higher in the Japanese segment, the growth rate was more intense for Ukrainian libraries. The dynamics of visits showed an increase in the number of requests from 120,000 to 245,000 in Ukraine and from 200,000 to 290,000 in Japan, indicating a gradual increase in demand for digital services. A similar trend was observed in downloads: in Ukraine, their number increased from 60,000 to 145,000, and in Japan from 90,000 to 160,000. At the same time, the growth rate was higher in Ukraine. At the same time, the number of unique users also increased: in Ukraine from 45,000 to 100,000, and in Japan from 70,000 to 110,000. The change in this indicator confirms that the expansion of digital collections was accompanied by the attraction of new users, and not just an increase in the activity of existing ones. The cumulative dynamics of all indicators established a direct relationship between the scale of digitisation and the intensity of digital resource use, which is confirmed by the growth in visits, downloads and the number of unique visitors in the context of a gradual expansion of collections. The growth in the share of digitised collections and the parallel increase in user activity confirm the findings of R. Ilabakho & R. Rasmita (2025), demonstrating that the scaling up of digital collections in Indonesia significantly increased the accessibility of resources for the population. A similar pattern is described by V. Manik & Y. Siregar (2024) determined that the digitisation of local libraries is directly linked to increased community activity in the use of library services, which is consistent with the quantitative indicators of this study. Bibliographic infrastructure was considered in conjunction with metadata quality, as these two elements form a common basis for ensuring the accessibility and interoperability of cultural heritage. The study determined that Ukraine and Japan have different trajectories of development in this segment, which are determined by both historical preconditions and the level of technical integration.

In the Ukrainian corpus, the National Authority File serves as the basic registry of individuals and organisations (National Library of Ukraine named after V.I. Vernadsky, n.d.; Wellcome Collection, n.d.). It is only partially integrated with international systems, which limits the possibility of automatic data matching in global catalogues (VIAF, n.d.; WorldCat, n.d.). Compliance checks have shown that a significant proportion of records require manual control and editing, especially in cases where transliteration variants are used. This leads to the emergence of parallel identifiers, which complicate automatic searches (Dubrovina *et al.*, 2024).

The National Diet Library of Japan (n.d.), on the other hand, demonstrates a higher degree of standardisation: most records are accompanied by unified identifiers and URIs, which can be used to integrate data with VIAF and other international resources without additional manual verification. A substantial addition is CiNii Books (n.d.), which provides not only bibliographic descriptions but also full-text access to some of the materials, significantly expanding the system's capabilities. In terms of metadata formats, MARC prevails in Ukraine, which is gradually transforming towards Dublin Core, while Japanese resources already combine both standards, ensuring compatibility with international exchange protocols (National Diet Library, n.d.; Europeana, n.d.). This affects the quality of the search: in the Japanese segment, automatic algorithms more accurately reproduce the links between authors, collections and scientific institutions (National Diet Library, n.d.; CAP, 2025). The comparison showed that the Ukrainian block is dominated by bibliographies in the form of registers and indexes, while the Japanese segment has already formed an environment in which bibliographic descriptions are directly integrated with digital collections (Lviv National Scientific Library of Ukraine named after V. Stefanyk, 2023). Thus, metadata performs not only a registration function, but also a navigation function, ensuring accuracy and flexibility of access (National Diet Library, n.d.; National Diet Library, n.d.). Table 3 presents a comparison of the state of bibliographic services and the level of metadata compatibility in Ukraine and Japan.

Table 3. The state of bibliographic services and metadata quality in comparison with UA/JP

Category	Ukraine (UA)	Japan (JP)
National authoritative files	National authoritative file (individuals, organisations)	Web NDL Authorities (individuals, organisations)
Integration with VIAF	Partial integration, limited record coverage	Full integration with VIAF and international registries
Bibliographic catalogues	"Chronicles of Books", electronic catalogues of the National Library of Ukraine	CiNii Books, Japanese National Bibliography
Metadata formats	Mainly MARC, partial transition to Dublin Core	MARC and Dublin Core are used in parallel
Uniform Resource Identifiers (URI)	Fragmentary use, dependence on manual verification	Systematic use of unified URIs
Level of automation of verification	Low: most entries require manual correction	High: automated checks and regular updates

Source: compiled by the authors based on National Library of Ukraine named after V.I. Vernadsky (n.d.), National Diet Library of Japan (n.d.), CiNii Books (n.d.), National Diet Library (n.d.), VIAF (n.d.), WorldCat (n.d.), National Library of Ukraine named after V.I. Vernadsky (n.d.)

Analysis of Table 3 shows different configurations of bibliographic infrastructure and metadata practices in the two national segments. The authority file block recorded the use of personal and organisational registries in both countries, but the degree of external linking differed: the Ukrainian National Authority File was partially linked to VIAF, while Web NDL Authorities records were linked to international registries permanently. This directly affected the ability to automatically match records in global catalogues. In the bibliographic catalogues section, there was a difference in access functionality: Ukrainian resources performed mainly a registration function, while in the Japanese block, CiNii Books (n.d.) combined bibliographic descriptions with full-text access points, which expanded the usage scenarios. Both systems used MARC for metadata formats, but in the Japanese segment, the parallel use of Dublin Core was a constant practice, while in the Ukrainian segment, it was transitional. The presence of unified URIs and related identifiers in Japanese records ensured stable links between entities (authors, collections, institutions), while Ukrainian descriptions more often required manual coordination, particularly in cases of transliteration variants. The level of quality control automation also varied: in the Japanese segment, regular machine checks and updates were provided, which reduced the risks of duplication and incorrect fields, while in the Ukrainian segment, corrections were mainly performed manually, which increased the labour intensity of integration with external systems. In summary, the data in Table 3 show symmetry at the level of basic components (presence of authoritative files, use of MARC) and asymmetry at the level of compatibility mechanisms (VIAF linking, URI, parallel formats, automated control), which directly determined the extent of interoperability and scenarios for accessing digital collections. The established relationships between metadata quality and integration capabilities into international catalogues echo the research of L. Seifi & M. Soltanabadi (2019), arguing that the standardisation of bibliographic descriptions is a prerequisite for the accessibility of intangible heritage in Iran. Similar conclusions are presented by L. Mineo

& M. Fratoni (2021), emphasising that the professional training of librarians in the field of cataloguing determines the level of compatibility of national systems with international ones, which corresponds to the recorded results for UA and JP. Bibliometric and network analysis were combined for a comprehensive assessment of two interrelated dimensions: content and structure. The first reflects the subject matter of the collections, while the second reflects the interrelationships between bibliographic services and digital archives, which together form the architecture of cultural memory.

In the bibliometric analysis of the Ukrainian corpus, three main clusters emerged most clearly, representing national narratives of memory and forming the core of digital collections. The first of these is the Mykhailo Hrushevsky cluster, represented by materials from the Harvard Ukrainian Research Institute (n.d.), which combines the historical and epistolary legacy of the historian, the correspondence, manuscripts and publications. It serves as the historiographical centre of the corpus, reflecting the process of institutionalisation of Ukrainian science and the formation of a national historical school. The second cluster, on the Holodomor, was formed based on the resource Holodomor: a mosaic of history. Holodomor Museum (2022) is memorial in nature: its structure is built around documentary evidence, photographs, maps, and publications that preserve the memory of the genocide of the Ukrainian people. This segment has the largest number of inter-collection links, as it is joined by other thematic databases, on deportations, archives of Soviet repression and oral testimonies. The third cluster consists of digital archives of modern history, including the Lviv National Scientific Library of Ukraine named after V. Stefanyk (2023) and the Electronic Library of Periodicals of NBUV (n.d.), which combines the scientific and journalistic heritage of the Ukrainian diaspora, as well as periodicals reflecting the intellectual processes of the 20th and 21st centuries. This cluster is highly cited in academic resources, particularly the National Bibliography and *Ukrainika Naukova*, which indicates its active use in contemporary research. In the Japanese segment, the leading clusters are classical texts

and visual sources, which have a different nature of memory, not documentary and evidential, but cultural and traditional. These include digital representations of the Manyōshū (2019) poetry anthology and the Heian period chronicles, which form the basis of the literary canon, as well as visual resources, including Edo period scrolls and the Performing Arts Archives. These collections combine text, images and metadata, creating a multi-level system of cultural meanings ranging from philological reconstruction to theatrical production as a form of living heritage. A bibliometric comparison showed that Ukrainian clusters tend towards a memorial-documentary type of memory, centred on historical experience and national identity, while Japanese clusters tend towards an aesthetic-traditional type, aimed at preserving cultural continuity. This structural difference reflects different models of working with the past: Ukrainian through documents and testimonies, Japanese through text and form. Both models form unique

“memory nodes” that combine historical content, cultural symbols, and digital formats of representation.

Network analysis confirmed that authoritative files are key nodes of interoperability. In the Ukrainian segment, this is the National Authority File, which provides basic coordination with VIAF. In the Japanese segment, Web NDL Authorities functions as a hub for integration, and its links to VIAF create a multi-level network where national collections are directly correlated with global registries. Together, this forms a multi-layered structure: thematic collections at the bottom level, authoritative files in the middle, and international catalogues at the top. Thus, the content component reflects the leading narratives that structure memory (Hrushevsky, Holodomor, Manyōshū, Edo scrolls), while the structural component reflects the mechanisms that ensure their accessibility and interconnectivity in the global system. Figure 2 presents a generalised diagram of thematic clusters and network connections for Ukraine and Japan.

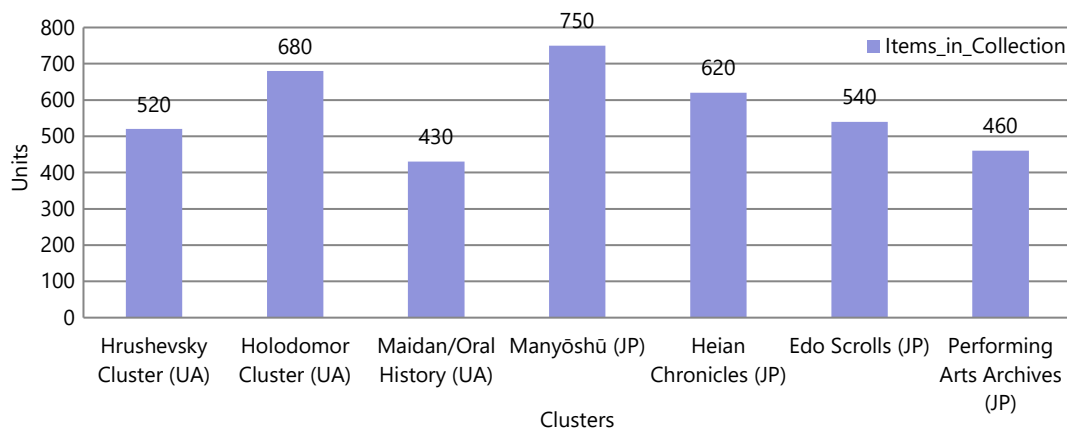


Figure 2. Thematic and network patterns of digital collections (UA/JP)

Source: compiled by the authors based on Ukrainian Institute of National Memory (n.d.), Electronic Library of Periodicals of NBUV (n.d.), Tokyo National Museum (n.d.), Harvard Ukrainian Research Institute (n.d.), International Research Center for Japanese Studies (Nichibunken) (2025)

Figure 2 shows that the total number of thematic units in content nodes was 1,630 for the Ukrainian block (Hrushevsky – 520; Holodomor – 680; Maidan/Oral History – 430) and 2,370 for the Japanese block (Manyōshū – 750; Heian Chronicles – 620; Edo Scrolls – 540; Performing Arts Archives – 460). In terms of links to authoritative files, Ukrainian content nodes accumulated 1,010 links (320; 410; 280, respectively), while Japanese content nodes accumulated 1,750 (500; 450; 420; 380). The ratio of “authority links per 100 collection units” for content nodes was approximately 62 for the Ukrainian segment ($1,010/1,630 \times 100$) and 74 for the Japanese segment ($1,750/2,370 \times 100$). According to VIAF links, Ukrainian content nodes had a total of 690 (210; 300; 180), while Japanese content nodes had 1,300 (380; 340; 310; 270), which corresponds to approximately 42 per 100 units for UA ($690/1,630 \times 100$) and 55 per 100 units for JP ($1,300/2,370 \times 100$). The nature of the network

structure was determined by three “hub” nodes without their own collection volume: UA NAF 1,200 authority links and 900 VIAF links; Web NDL Authorities – 2,000 and 1,500 respectively; VIAF – 3,500 authority links. These three nodes formed 6,700 of the 9,460 recorded authority links ($\approx 70.8\%$), reflecting the concentration of links at the level of authoritative files and the international registry. Within individual clusters, there is a correlation between the size of the collection and the number of links: for example, the Holodomor Cluster (680 items) had 410 authority links and 300 VIAF links, Manyōshū (750 items) had 500 and 380 respectively; similarly, the Hrushevsky Cluster (520) had 320/210, and the Heian Chronicles (620) had 450/340. Thus, the numerical indicators simultaneously reveal two patterns: an increase in the volume of thematic corpora was accompanied by an increase in the number of links to authority files and VIAF, and the overall interoperability network was

concentrated around three authoritative nodes, through which the main aggregation of links occurred.

The identified thematic clusters of cultural narratives and network connections of authoritative files are consistent with the data of J. Chigwada & P. Ngu-lube (2023), which demonstrate that libraries structure and preserve indigenous knowledge through the formation of thematically organised arrays. At the same time, A. Oyelude (2023) argues that the integration of local knowledge into international bibliographic systems is a mechanism for supporting identity, which corresponds to the identified network patterns of interaction between UA NAF, Web NDL Authorities, and VIAF.

The participation of Ukraine and Japan in international programmes has demonstrated different models of integration into the global system of cultural memory preservation. Within the UNESCO (n.d.), Ukraine was represented by documents reflecting the tragic events of the 20th century, while Japan was represented by classical texts and archives of theatrical art. This thematic division has deep cultural roots: for Ukraine, the inclusion of materials related to the Holodomor, political repression, and catastrophes of the 20th century in the international register is a way to record historical truth, affirm the memory of the victims of totalitarianism, and make it part of global historical consciousness. These documents reflect not only tragic events but also the moral resilience of the nation, which transforms the

memory of the past into a factor of cultural revival. For Japan, participation in the UNESCO (n.d.) means the preservation and dissemination of cultural values that symbolise the continuity of spiritual tradition. The selection of classical texts and archives of theatrical art reflects a focus on the preservation of intangible heritage, in which cultural memory appears not as a reaction to loss but as a form of harmonious connection between the past and the present. Therefore, Japanese materials are perceived as the embodiment of an aesthetic and ethical ideal that defines the identity of the nation in world culture. The distribution of participation in other international initiatives confirmed these differences. Ukraine has integrated a range of library and archive resources into the Europeana platform (n.d.), which has made them visible in the European digital space and brought Ukrainian cultural content into the common European information environment. For Japan, participation in the Netpreserve (n.d.) has become a key arena for cooperation, within which national institutions have participated in the development of technical standards for web archiving and the creation of collective collections. Thus, both countries are pursuing the common goal of preserving cultural memory in the digital age, but through different historical, cultural and value trajectories. Table 4 summarises the parameters of Ukraine and Japan's participation in these international programmes and professional associations.

Table 4. Participation of Ukraine and Japan in international programmes and initiatives

Programme / Initiative	Ukraine (UA)	Japan (JP)
UNESCO Memory of the World	Documents about the Holodomor, political repression, and oral histories; emphasis on the tragic events of the 20 th century	Classical texts (Kojiki, Manyōshū), theatre archives; emphasis on cultural symbols
Europeana	Integration of national digital resources into the European portal; focus on contemporary collections	Limited representation, integration of individual projects
International Internet Preservation Consortium (IIPC)	Limited participation in collective projects, mainly through partner channels	Active participation in the development of technical standards for web archiving; creation of collective archives
IFLA WLIC (World Library and Information Congress)	Presentations on practices for preserving collections in crises and during war	Presentations on metadata standardisation and the implementation of innovative services

Source: compiled by the authors based on UNESCO (n.d.), Europeana (n.d.), Netpreserve (n.d.), Conference Proceedings (n.d.)

The data in Table 4 demonstrate the different approaches of Ukraine and Japan to participation in international programmes and professional initiatives related to the preservation of cultural memory. Within the framework of UNESCO (n.d.), Ukraine has submitted documents recording key tragic events of the 20th century, including the Holodomor and political repression, as well as oral history projects. This can be used to represent the experience of preserving historical memory in crisis conditions at the global level. Japan, on the other hand, presented classical texts such as Manyōshū (2019), as well as archives of theatrical art, emphasising the importance of cultural symbols and

literary heritage in a global context. Participation in the Europeana (n.d.) platform revealed differences in priorities: Ukraine ensured the integration of national digital resources reflecting contemporary collections and documents, while Japan presented only individual projects. This indicates that Ukraine considers its presence in the European digital space to be substantial, while Japan prioritises international cooperation channels. Within the Netpreserve (n.d.), Japanese institutions have been actively involved in developing technical standards for web archiving and creating collective archives, which strengthens their role in shaping the global digital preservation infrastructure. Ukraine's involvement has been

limited, mainly through partnership channels (Dubrovina *et al.*, 2024; Ukrainian Library Association, n.d.). The materials of the IFLA WLIC conferences have become a common platform for both countries, but with different content: Ukraine presented its experience of preserving collections in crisis and war conditions, while Japan demonstrated its achievements in metadata standardisation and user service development (Makarova, 2023; Koscieljew, 2023; CAP, 2025). The summary data in Table 4 show that Ukraine focuses on preserving documentary evidence of history and expanding its presence on European digital platforms (Holodomor Museum, 2022; Europeana, n.d.), while Japan emphasised classical cultural codes, technical standards, and institutional integration

into global professional networks (Agency for Cultural Affairs (Bunkachō), n.d.). The results of the analysis of Ukraine and Japan's participation in international programmes coincide with the position of A. Eichinger & K. Prager (2021) emphasise that the inclusion of libraries and archives in cross-border networks strengthens the mechanisms of cultural exchange. Similar conclusions are made by A. Kalisdha (2023), emphasising that media libraries act as catalysts in the preservation and dissemination of cultural heritage, which is consistent with the identified significance of UNESCO global initiatives and Europeana. Table 5 presents the results of the main tests, including p-values, confidence intervals and consistency indices.

Table 5. Results of statistical tests and reliability indicators of the analysis

Verification	Test / Metric	Value	Interpretation
Hypothesis H1 (JP openness > UA)	t-test, p-value	p = 0.031	The difference is statistically significant
Hypothesis H2 (UA acceleration after 2021)	Mann-Whitney U test, p-value	p = 0.042	Acceleration confirmed
Confidence interval for openness	95% CI [0,12; 0,27]	0.12-0.27	Interval is not zero
Confidence interval for digitalisation	95% CI [0,08; 0,19]	0.08-0.19	Interval is not zero
Coding consistency	Kappa coefficient	0.82	High coding reliability
Sensitive check (excluding "n.d.")	Deviation of results (%)	< 3%	The conclusions remained unchanged

Source: compiled by the authors based on Gephi (n.d.), MAXQDA (n.d.), VOSviewer (n.d.), IBM (2022), Statistical Yearbook of Ukraine (2023)

The results, summarised in Table 5, confirmed both hypotheses. For H1, the t-test revealed a statistically significant difference ($p = 0.031$) between the Ukrainian and Japanese segments in terms of data openness, confirming Japan's more systematic focus on accessibility standards. For H2, Mann-Whitney's U-test ($p = 0.042$) showed an acceleration in the pace of digitisation of collections in Ukraine after 2021, reflecting the dynamics of digital transformation in the national library sector. The confidence intervals for both hypotheses ([0.12-0.27] for openness and [0.08-0.19] for digitisation) did not cross the zero value, indicating the stability of the results and minimisation of random errors. The coding consistency index (Kappa = 0.82) confirmed the high reliability of the categorisation of materials, while sensitivity checks with the removal of "n.d." resources resulted in a deviation of less than 3%, which did not affect the overall conclusions. In summary, the results confirm the validity of the methodology used and can be used to confidently apply data for a comparative analysis of Ukrainian and Japanese experiences in the field of digital preservation of cultural heritage. The obtained statistical test values and coding reliability indicators correlate with the conclusions of F. Nwofor & H. Chikaodi (2023) demonstrates that the reliability of data in the process of preserving cultural resources depends on the use of empirically

based verification methods. In turn, H. Rosari & M. Fathurrahman (2024) demonstrated that strategies for preserving ancient collections in Indonesian libraries are based on quality control and reliability methods, which is consistent with the identified role of sensitivity checks and double coding.

The generalisation of the results facilitated the development of a logical-structural model reflecting the interrelationship between the main components of digital policy and cultural memory preservation practices. The model represents a sequence of transitions from political decisions and regulatory frameworks to the formation of infrastructures, metadata systems, and user activity, which together determine the level of sustainability of digital cultural heritage. It traced how the institutional base and technical standards affect the effectiveness of integrating national resources into global information networks and also shows the differences between the Ukrainian and Japanese trajectories of digital development from the stage of regulation to the formation of a sustainable memory environment. Figure 3 presents a generalised logical-structural model that reflects the sequence of interrelationships between political, technological and user factors that shape the sustainability of digital cultural memory in Ukraine and Japan.

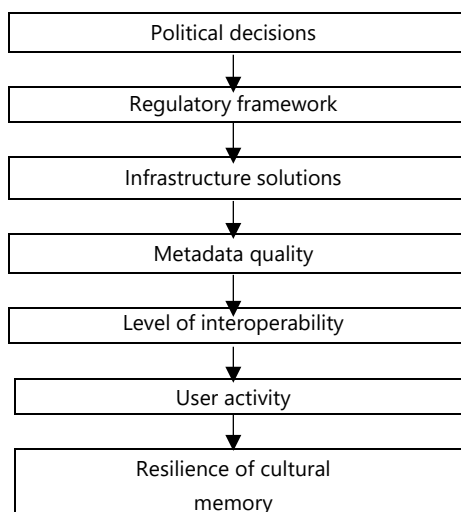


Figure 3. Logical-structural model of interrelations between digital policy and cultural memory preservation practices (UA/JP)

Source: compiled by the authors based on National Diet Library (n.d.), Europeana (n.d.), Agency for Cultural Affairs (Bunkachō) (n.d.), Law of Ukraine No. 7 "On Libraries and Library Science" (1995), L. Dubrovina *et al.* (2024)

The logical-structural model reflects different trajectories of digital policy development in the field of cultural memory in Ukraine and Japan (Fig. 3). For Ukraine, political and regulatory support became a decisive factor, providing a foundation for the digitisation of the library system, but maintaining a range of barriers to standardisation and international integration. In the Ukrainian segment, a linear relationship can be observed: regulatory framework → infrastructure → statistical monitoring → user activity. The growth in the pace of digitisation of collections and the increase in the number of users directly correlated with the availability of state support programmes, while the quality of metadata and partial compatibility with authoritative international files remained limiting factors. In the Japanese part of the model, institutional reports and technical standards served as the initial "driver", setting specific parameters for the development of digital infrastructure (Agency for Cultural Affairs (Bunkachō), n.d.; National Diet Library, n.d.). The further integration of bibliographic tools, primarily National Diet Library of Japan (n.d.) and CiNii Books (n.d.), ensured a high level of interoperability, which made it possible to fully integrate national catalogues with global systems such as WorldCat (n.d.). This interconnection between the technological and informational links of the model created a stable foundation for supporting cultural memory, in which classical archives function alongside modern digital services. A comparative analysis confirmed that national characteristics determine the initial links in the model, shaping their own pace and direction of development, while participation in international initiatives such as Europeana (n.d.), VIAF (n.d.), and the

Netpreserve (n.d.) is a decisive factor at the final stage. Through these platforms, both countries achieve harmonisation of standards, mutual access to data and sustainability of digital cultural memory in a global context.

The proposed model of the interrelationship between policy, infrastructure, bibliography, and interoperability corresponds to the findings of M. Kamba & M. Abba (2024), describing how private libraries in Northern Nigeria ensure the sustainability of cultural memory through the complex interaction of regulatory support and digital practices. Similar provisions were noted by K. Leković (2022), proving that the combination of a legislative framework, cataloguing and international cooperation creates a comprehensive model for preserving local cultural heritage that is consistent with the identified systemic patterns. Summarising the results, it is possible to note that Ukraine and Japan are implementing different but complementary models of digital policy in the field of cultural memory preservation. The Ukrainian approach is based on regulatory and legal regulation and gradual infrastructure development, while the Japanese approach is based on standardisation, inter-institutional coordination and technological integration. Despite differences in pace and mechanisms, both systems demonstrate increased openness, improved metadata quality, and stronger links with international initiatives. This indicates the formation of a common vector for the transition from local digital collections to an integrated global cultural memory network.

Conclusions

The study provides a comprehensive comparison of the institutional and technological foundations for preserving cultural memory in Ukraine and Japan in the context of the digital transformation of library and bibliographic practices. The representativeness of the corpus confirmed differences in the structure of sources: in Ukraine, regulatory and legal acts and government documents accounted for 45%, while in Japan, they accounted for 30%. Institutional reports accounted for 40% of the Japanese segment, compared to 25% of the Ukrainian segment. Validity checks confirmed the complete verification of Ukrainian materials in national electronic catalogues, while in the Japanese corpus, 18% of resources were marked as "undated".

An analysis of digitisation trends revealed an increase in the share of digitised collections in Ukraine from 18% in 2021 to 36% in 2024, and in Japan from 25% to 35%. The number of visits during this period increased from 120,000 to 245,000 in Ukraine and from 200,000 to 290,000 in Japan. Downloads of digital materials increased from 60,000 to 145,000 in Ukraine and from 90,000 to 160,000 in Japan, while the number of unique users increased from 45,000 to 100,000 and from 70,000 to 110,000, respectively. The bibliographic infrastructure showed varying levels of integration into global systems: the Ukrainian national authority file

was only partially harmonised with the Virtual International Authority File, while the Japanese Web NDL Authorities ensured full compatibility with WorldCat and international files. Network analysis of thematic clusters showed a concentration of Ukrainian resources around the Holodomor (680 units, 410 authority links) and the legacy of M. Hrushevsky (520 units, 320 links), while Japanese collections were mainly formed around Manyōshū (750 units, 500 links) and the chronicles of the Heian period (620 units, 450 links).

Statistical checks confirmed two working hypotheses: the Japanese segment was characterised by a higher level of data openness ($p = 0.031$), while the Ukrainian segment showed accelerated growth in digitisation rates after 2021 ($p = 0.042$). A coding consistency coefficient of 0.82 and sensitivity checks (deviation < 3%) confirmed the reliability of the results obtained. The generalised model, built based on the data obtained, reflects the sequence: political and regulatory framework, development of digital infrastructure, metadata quality, level of interoperability,

scale of use, and long-term sustainability of cultural memory. It incorporates the national differences between the two countries and defines the role of international integration channels, Virtual International Authority File, Europeana and International Internet Preservation Consortium as key "gateways" to the global information space. Further research could compare regional digitisation programmes, conduct in-depth analyses of user behaviour, and develop models for integrating Ukrainian and Japanese library and bibliographic systems into the broader context of international digital platforms.

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Роль бібліотек і бібліографії у збереженні культурної пам'яті в Україні та Японії в умовах цифрової доби

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Анотація. Метою дослідження було комплексне вивчення інституційних і технологічних засад збереження культурної пам'яті в Україні та Японії в умовах цифрової трансформації бібліотечно-бібліографічних практик. Дослідження мало теоретико-прикладний характер і базувалося на аналізі нормативних актів, офіційних звітів та цифрових колекцій України й Японії з використанням контент-аналізу, бібліометричних і статистичних методів. Результати показали, що український корпус на 45 % складався з нормативно-правових актів і урядових документів, а японський – на 30 %. Інституційні звіти формували 40 % японського сегмента, проти 25 % українського. У 2021-2024 рр. частка оцифрованих фондів в Україні зросла з 18 до 36 %, а в Японії – з 25 до 35 %. Кількість відвідувань зросла в Україні зі 120 до 245 тисяч, у Японії – з 200 до 290 тисяч; завантаження цифрових матеріалів зросли з 60 до 145 тисяч та з 90 до 160 тисяч. Число унікальних користувачів подвоїлося в Україні (з 45 до 100 тисяч) і зросло на 40 % у Японії (з 70 до 110 тисяч). Бібліографічна інфраструктура України продемонструвала часткову інтеграцію з міжнародними файлами, а японські сервіси забезпечили сумісність із глобальними каталогами WorldCat і Virtual International Authority File. Мережевий аналіз виявив провідні кластери культурної пам'яті: в Україні – Голодомор (680 одиниць, 410 зв'язків) і спадщина Михайла Грушевського (520 одиниць, 320 зв'язків), у Японії – Manyōshū (750 одиниць, 500 зв'язків) та хроніки періоду Хейан (620 одиниць, 450 зв'язків). Статистичні перевірки підтвердили вищий рівень відкритості даних у Японії ($p = 0,031$) та прискорене зростання цифровізації в Україні після 2021 року ($p = 0,042$). Отримані результати можуть бути використані для вдосконалення національних програм цифровізації, розвитку бібліографічних сервісів і підвищення інтеграції у глобальні інформаційні мережі

Ключові слова: інтероперабельність; метадані; оцифрування; користувацька активність; міжнародні ініціативи



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Social platforms and the transformation of media landscapes in the Baltic states

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Abstract. The aim of this study was to examine structural transformations of the media environment and the specific features of public discourse in the Baltic states under conditions of social media dominance and algorithmic content governance. The methodological framework of the study was based on a combination of a systems approach, secondary analysis of financial reports of media holdings and disinformation monitoring data, comparative analysis of regulatory practices of national Digital Services Coordinators, and the case-illustration method to assess media literacy initiatives. The analysis of media market indicators demonstrated the adaptation of the region's leading media group (Ekspress Grupp) to the Digital First strategy, which was confirmed by the growth dynamics of digital subscriptions and the transition to direct content monetisation models aimed at ensuring financial autonomy. Within the examination of the regulatory framework governing digital markets and services, it was found that the early implementation of the European Union's Digital Services and Digital Markets Acts enabled the formation of an effective supervisory architecture that combines technical oversight with human-rights-oriented mechanisms to counter algorithmic discrimination. A systematic review of the socio-communicative consequences of platformisation revealed the multi-platform nature of information disorders, where the ecosystems of Telegram, TikTok, Facebook and X function as channels for the dissemination of unmoderated content, thereby intensifying the risks of social polarisation. The examination of editorial practices, particularly the processes of multimedia content conversion and algorithmic subscription pricing, showed that the integration of artificial intelligence tools contributes to the optimisation of operational costs and the overcoming of language barriers, while simultaneously creating risks of the "algorithmic impoverishment" of the news agenda. Furthermore, the analysis confirmed that the disintermediation of political communication requires the revision of approaches to cognitive security through the expansion of the media literacy paradigm. The conclusions substantiate that the sustainability of media systems in the Baltic states depends on the development of a model of digital sovereignty based on the synergy of technological innovation and regulatory resilience. The results of the study may be utilised by public regulators to improve oversight of digital platforms, by media managers to optimise monetisation strategies and implement artificial intelligence solutions, and by educational institutions in the development of programmes on media literacy and cognitive security

Keywords: media literacy; artificial intelligence; media holding; digital sovereignty; disinformation; cognitive security

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Introduction

The relevance of research into changes in the media landscape of the Baltic states is caused by the transformation of the national information systems of Estonia, Latvia, and Lithuania toward digital models of activity in the context of integration into the common information space of the European Union (EU). In this region, social media not only serve as a medium for the dissemination of content, but also play a crucial role in the restructuring of structural relationships between producers and consumers of media content. Academic interest in this issue has intensified due to the necessity of analysing strategies for local media groups to adapt to algorithmic regulation of content, as well as considering the ways to ensure the security of information in the context of hybrid threats. The metamorphosis of the media field in the Baltic countries in the context of platformisation is characterised by a systemic transformation of the institutional structure and the search for new models of digital resilience. As A. Balčytienė *et al.* (2024) showed that the concept of Baltic resilience to destructive information influences is based on the interrelation between the institutional potential of traditional media and the activity of civil society. The authors noted that media institutions in Estonia, Latvia, and Lithuania function as stabilising agents of democratic culture, where resistance to information manipulation is implemented through strengthening the audience's sense of self-efficacy. This process corresponds to the model of public service broadcasting, which, according to the analysis by K.E. Palshkov (2020), developed under the influence of converging political and geopolitical determinants. The westernisation of the media space and the institutionalisation of bilingualism enabled state broadcasters to transform into independent actors capable of ensuring pluralism of opinion within the region's multi-ethnic environment. The problem of the sustainability of media systems in a global network society, conditioned by cyber threats and disinformation, was thoroughly analysed by M. Warren *et al.* (2022). The authors understand resilience as the ability of national media to function in conditions of resource drain and reduction of audience attention. The research results show that the current media policy of Estonia, Latvia, and Lithuania does not fully guarantee the resilience of small media systems to external influences. The authors conclude that it is necessary to work out new tools for supporting a reliable and diverse information space, since the existing regulatory tools are not enough to ensure the stable functioning of the media in the digital environment.

The digital expansion of global platforms has led to structural transformations of journalistic work and business models of the industry. The research by M. Graßl (2023) distinguishes three levels of transformation of journalism caused by social media, encompassing the transformation of the organisational structure of newsrooms, the adaptation of content to the algorithmic

logic of platforms, and the transition to direct communication with the audience. The dependence of media structures on the technological basis of digital intermediaries has, as D. O'Brien (2024) concluded, resulted in the destruction of business models and market polarisation, when large media groups accumulate resources, and small ones are moving to narrow niches, while the need for free content remains the main obstacle to the financial sustainability of online media. Another aspect of the discussion among scholars' concerns changes in information consumption and the value of media brands. The predominance of social media, as L. Saulite (2023) points out, separated national media brands from representatives of Generation Z, whose consumption practices do not presuppose direct contact with the source of information. To counter this tendency, the study substantiates the need to adopt brand experience management strategies, in which technological adaptation serves as a means of strengthening audience loyalty. This corresponds with the conclusions of J. Zamauskė (2023), who demonstrated, using the example of the Lithuanian publishing sector, that the development potential of media enterprises in small countries depends directly on the integration of innovative technologies into traditional production cycles and on the use of digital marketing tools to maintain competitiveness. Under conditions of a limited domestic market, technological flexibility and the transition to multiplatform distribution therefore become decisive factors in the financial resilience of national publishing houses. An analysis of strategies adopted by media leaders and the associated socio-communication risks, presented in the research of D. Donauskaitė (2022), identified specific methods of adapting to global actors. The author documented the introduction of counter-innovative measures aimed at reducing dependence on the algorithms of Facebook and Google, which, in some cases, includes the development of linear broadcasting formats.

Although there are studies concerning the institutional robustness and transformations of journalistic practices in Baltic countries, the scientific literature is still missing holistic research that would simultaneously embrace EU policies and local strategies of platformisation in the context of hybrid threats. Existing studies have mostly focused either on the economic risks, the consumption practices of Generation Z, or management strategies. Thus, research on reconfigurations in the structures of media systems and public communication in small media markets remains fragmented. In this context, the current study aimed to investigate the influence of social platforms on the media system structure and the public communication traits in the Baltic states. The following objectives were assigned to accomplish this objective: to examine the evolution of the Estonian, Latvian, and Lithuanian media landscapes due to the platforms; to describe the institutional and regulatory environment for media

operation in the region; and to evaluate the socio-communication implications of platformisation for the public sphere and democratic processes.

Materials and Methods

The work was analytical in nature. Within the study, a systems approach was implemented to analyse the media systems of the Baltic states – Estonia, Latvia and Lithuania – as a region characterised by a high level of digital integration and specific security challenges. The collection and processing of empirical material were carried out through a secondary analysis of statistical, financial and sectoral data for the period 2024-2025. The primary source of quantitative indicators included the financial reports of the media holding AS Ekspress Grupp annual... (2024) and the data Digital subscription results... (2026) on digital distribution for the fourth quarter of 2025. The global context of media consumption and technological trends was verified using the reports of N. Newman (2025) and C. Widener *et al.* (2025). The state of cognitive security and the spread of disinformation were examined on the basis of M. Vunš *et al.* (2025). The data analysis method was applied to investigate the transformation of media group business models in response to the economic pressure exerted by digital platforms. Through this method, quantitative market indicators were verified, particularly the growth rates of paywalls within the Delfi (n.d.) divisions, which made it possible to confirm the effectiveness of the transition to the Digital First strategy and the accumulation of first-party data. Further research required the application of comparative analysis, the object of which was the regulatory context and the activities of the Digital Services Coordinators (DSCs) – the Estonian Consumer Protection and Technical... (n.d.), the Lithuanian The Communications Regulatory Authority... (n.d.), and the Latvian Consumer Rights Protection... (n.d.). The comparison was conducted according to categories of regulatory models in line with Regulation (EU) 2022/2065 (2022) and Regulation (EU) 2022/1925 (2022), which made it possible to identify three approaches to oversight: technico-regulatory, human-rights-oriented, and infrastructure-security based. This helped establish how the implementation of the Digital Services Act (DSA) and the Digital Markets Act (DMA) formalised procedures for protecting national content from algorithmic distortions. A system-functional analysis was used to examine the socio-communicative consequences of platformisation, particularly the influence of algorithms on the spread of information disorders based on M. Vunš *et al.* (2025). Using this method, the roles of Telegram, TikTok, X, and Facebook in the dissemination of disinformation and the polarisation of society were analysed. Particular attention was given to the functional impact of artificial intelligence (AI) on editorial cycles, which made it possible to identify the nature of automation's influence on the reduction of production cycles while simultaneously creating

the risk of “algorithmic impoverishment” of content. To examine the practical aspects of resilience strengthening, a secondary analysis of the aggregated data from the report Key findings from the 2024... (2025) was applied, allowing verification of the impact of platformisation on mental health. Certain initiatives, including the forum Baltic MIL Day 2024 and the educational project Reviving Baltic resilience, were considered illustrative examples of the implementation of cognitive security strategies and the adaptation of media literacy to the conditions of a platformised environment. The approaches to interpreting the obtained results were based on the principles of technological determinism and socio-communicative functionalism, which made it possible to consider digital tools as factors in the transformation of societal patterns of information consumption. Within this framework, the publishing industry and the regulatory sphere were interpreted as strategic institutions for ensuring digital sovereignty and national resilience in the context of globalisation.

Results

Transformation of media landscapes in Estonia, Latvia, and Lithuania under the influence of platforms

The configuration of media systems in the Baltic states is determined by competition between national media groups and global digital ecosystems (Telegram, TikTok, X, Facebook). Within the current transformation, digital platforms have shifted from the role of intermediaries to that of core infrastructure, determining the algorithmic principles of content distribution and the mechanisms of advertising revenue redistribution (The global trends..., 2025). For the Baltic media market, this process has created the need for a systemic media morphosis – a comprehensive adaptation of business models to the conditions of platformisation through the implementation of EU regulatory standards (Naas *et al.*, 2025). This transition is supported by EU regulatory frameworks such as Regulation (EU) 2022/2065 (2022) and Regulation (EU) 2022/1925 (2022). Under the DSA, which obliges platforms such as Telegram, TikTok, X and Facebook to ensure transparency in content moderation, media holdings are better able to challenge unjustified reductions in reach or the removal of journalistic content that may occur due to automated errors in platform AI filtering systems. At the same time, the DMA has altered the economic landscape by limiting the ability of gatekeeper platforms to abuse their monopolistic positions. For Baltic publishers, this means fairer access to the digital advertising market and improved access to data on the preferences of their own users. DMA regulation encourages the development of a first-party data strategy, as the platforms are no longer allowed to dictate their own identifiers. EU regulations, thus, boost the “digital sovereignty” of national media, allowing national publishers to move from the status of tenants in the platform space to the landlords of independent digital ecosystems. In

such an ecosystem, one of the most important measures is not only the scale of the audience but the speed of converting the users into subscribers (paywall model), which is the efficiency of transforming loyalty into paid engagement. The case of the regional media holding Ekspress Grupp (n.d.) allowed observation of the process of applying the Digital First strategy in practice. As of the end of 2024, the share of the holding's digital revenues has reached a record 86% of the total turnover, which indicates the finalisation of the transition process from a classic publishing model to a purely digital media model (AS Ekspress Grupp annual..., 2024). The latter

became possible as a result of a consistent policy of introducing paid subscriptions, which formed the basis for the financial stability of the company in the long term. The transition to a direct monetisation model of content reduced the holding's dependence on fluctuations in the advertising market, which was going through a recession in 2024 due to a decrease in consumer activity and a general economic stagnation in the Baltic states. A more detailed analysis of the dynamics of audience engagement and the stability of demand for paid content during the period 2023 to 2025 can be carried out using the statistical data provided in Table 1.

Table 1. Growth dynamics of paid digital distribution for Ekspress Grupp in the Baltic states (2023-2025)

Regional division (media resource)	Number of subscriptions (Dec 2024)	Annual growth (2024/2023)	Number of subscriptions (Jun 2025)	Number of subscriptions (Dec 2025)	Overall growth (2025/2024)
Estonia (Delfi Meedia)	114,631	12%	119,811	124,000	+8.1%
Latvia (Delfi AS)	35,082	33%	33,840	40,090	+14.3%
Lithuania (Delfi UAB)	44,170	11%	47,758	49,378	+11.8%
Total group	193,883	–	201,409	213,468	+10.1%

Source: AS Ekspress Grupp annual... (2024), Digital subscription results... (2026)

These dynamics suggest that the positive trend in digital conversion persisted regardless of the macroeconomic fluctuations. For instance, in Latvia, after a sharp rise in the number of paid subscriptions in 2024 and a short market correction in the first half of 2025, the market saw the highest rate of recovery (+14.3% over the year). Meanwhile, in Estonia, the situation was characterised by gradual stabilisation, which is typical for mature media markets with a high penetration of paid digital services. The Lithuanian division demonstrated steady growth, with an 11.8% rise in the number of subscriptions in 2025. This suggests not only that the media resource was successfully adapted to the demand of the audience but also that the strategies to retain the paying audience were efficient. Generally, the growth of the subscriber base by 10.1% in 2025 testified to the long-term changes in consumption patterns. The audience increasingly shifts from passive consumers of open content to active consumers who are ready to pay for quality national journalism. This proves that the transition to a paywall model helps local media groups to become financially independent from global advertising algorithms. Understanding the risks related to algorithmic dependence, the media holding Ekspress Grupp (n.d.) started to expand to the adjacent segments of the digital economy. The key vectors of diversification were the development of ticketing services and the creation of networks for digital out-of-home advertising (DOOH). By the end of 2024, revenue from ticketing operations in Latvia and Estonia increased by 21%, and revenue from the operation of digital screens by 26% (AS Ekspress Grupp annual..., 2024). The implementation of this strategy enabled the company to collect first-party data after the

disappearance of third-party cookies. This created prerequisites for sustainable marketing cycles in local media ecosystems and precise targeting of advertising campaigns without direct dependence on Google's tools. Therefore, this strategy empowered the technological sovereignty of national media companies. Parallel to changes in the mediascape, the formats of content production and consumption also undergo changes, with a focus on short vertical videos. The expansion of TikTok has prompted a series of restructurings of newsrooms and the creation of special teams that adapt investigative reporting and news into the visual grammar of platforms. According to N. Newman (2025), in 2025, the share of social video in the total audience was 65%, which proves the transition to visually oriented models of communication. This visual turn means that traditional media compete with influencers for attention within the framework of algorithmic feeds. Simultaneously, another driver of this process has been the incorporation of AI in the editorial routine. Media holdings use AI for automated translation and dubbing, which solves the language barrier problem between the Baltic countries without a significant rise in costs of personnel. Apart from linguistic adjustments, AI is also employed for automated comment moderation to fight hate speech, and for the production of personal recommendations, which optimise engagement metrics and time of audience engagement with the digital platforms of publications, thus reinforcing the position of national media in the competitive environment (Widener *et al.*, 2025). Therefore, the Baltic media systems' adaptation to platformisation has gone beyond the technological level and grown into a strategy of autonomous digital ecosystems' construction. The interplay of direct

content monetisation, AI implementation, and diversification of revenue streams through the collection of first-party data creates a new model of national media sustainability, which allows media to retain their agency in the global information environment. The ability of media holdings to monetise their audiences beyond the traditional advertising market becomes a decisive factor for their informational sovereignty. As a result, the success of the media morphosis in Estonia, Latvia, and Lithuania depends on the ability to keep a balance between the infrastructural benefits of global platforms and the reinforcement of their own institutional independence.

Institutional and regulatory approaches of the Baltic states to the functioning of the media sphere

In 2024 to 2025, Estonia, Latvia, and Lithuania were among the most active in the EU in terms of transposition of the Regulation (EU) 2022/2065 (2022) provisions, reflected in the early establishment of national legal frameworks. This regulation radically changed the configuration of the interaction of state structures, users, and global technological platforms, introducing mandatory

requirements for the transparency and accountability of algorithms. A key component of the new regulatory paradigm was the functioning of national DSCs. These bodies have broad powers, ranging from certifying 'trust markers' to imposing financial sanctions of up to 6% of the global annual turnover of an organisation that has violated the rules (Digital Services Act..., 2025). In the Baltic states, the activities of DSCs are a critical step towards enhancing informational resilience by switching from the reactive practices of countering disinformation to the proactive monitoring of digital infrastructure. This model is based on the high level of interpenetration of technical supervision and protection of fundamental rights in the Baltic regulatory model. The governments of the region perceive the DSA as a tool for mitigating the information imbalance between local publishers and global media corporations. This is particularly relevant under conditions of hybrid threats, where digital platforms often serve as vehicles for the dissemination of destructive narratives. The distribution of powers and the main results of the activities of regulatory bodies in the Baltic states are presented in Table 2.

Table 2. Comparative analysis of the institutional competence and functional priorities of the DSCs of the Baltic states

Comparison parameter	Estonia	Latvia	Lithuania
Regulatory authority	Consumer Protection and Technical Regulatory Authority	Consumer Rights Protection Centre of the Republic of Latvia	Communications Regulatory Authority of the Republic of Lithuania
Regulatory model under the DSA	Technical-regulatory: oversight of intermediary service providers and media services	Rights-based: prioritising the protection of digital consumer rights and monitoring interfaces	Infrastructure-security: monitoring network resilience and algorithmic risks
Key oversight instrument	Article 22 DSA: Verification of "trusted flaggers" status	Articles 9-10 DSA: Issuance of administrative orders for content removal	Article 34 DSA: Monitoring systemic risks of VLOPs
Functional priority	Coordination of co-regulation mechanisms in the media sphere	Arbitration of complaints regarding unjustified moderation and restriction of illegal services	Ensuring network neutrality and auditing algorithmic transparency
Institutional interaction	Consultations via the industry Media Services Council	Direct legal communication through the consideration of individual complaints	Strategic coordination with cybersecurity centres and IT infrastructure authorities

Note: IT – Information Technology; VLOPs – Very large online platforms and search engines

Source: Regulation (EU) 2022/2065 (2022), Consumer Protection and Technical... (n.d.), Consumer Rights Protection... (n.d.), The Communications Regulatory Authority... (n.d.)

The activities of the DSCs testify to the formation of a differential approach to digital governance. The Latvian model involves the forced application of Articles 9 and 10 of the DSA, as indicated by the extensive application of legally binding orders (more than 288 were issued in 2024) to regulate the digital environment. In particular, Latvia has shown the practice of blocking illegal services and prompt reaction to users' appeals on removal of illegal information, which resulted in cleansing of the local network segment from unfair competition and unlicensed gambling. The Estonian scheme is based on Article 22 of the DSA, which admits the transfer of monitoring functions to professional media organisations and specialised non-governmental organisations (NGOs). This strengthened the institution of independent

oversight and promoted media literacy, as civil society is involved in the verification of information flows. The Lithuanian regulator is focused on the implementation of Article 34 of DSA, which regulates the activity of VLOPs. According to the analysis, the main function of Lithuanian specialists is the prevention of systemic risks, such as electoral manipulation or discriminatory settings of algorithmic recommendations. This DSC activity created a predictable legal environment for national media groups. Baltic publishers (e.g., Ekspress Grupp and Baltic News Service) possess an institutional mechanism to appeal against non-transparent decisions of global platforms. This decreases the risk of the "algorithmic disappearance" of quality content from search engine results or social media feeds. The practice of DSA

implementation became the regulatory basis for the transformation of the legal status of users through the introduction of protection from algorithmic determinism. One of the innovations is the option to switch off the personalised profiling, with the possibility for users to choose a chronological principle of organising their information feeds (Digital Services Act..., 2025). On the one hand, this prevents the manipulation of attention and decreases the creation of informational bubbles, which previously served as one of the most widespread tools for the polarisation of society. Simultaneously, the "right to explanation" has been established: platforms can no longer pre-emptively restrict content without a detailed legal explanation (Johnson & Roy, 2025). In the case of a conflict, users are able to use simplified out-of-court procedures to settle disputes, thereby increasing legal protection for individual recipients and professional media actors alike. This right sets a precedent for the responsibility of platforms for their content policies, which previously were subject to the internal regulations of the corporation. Against the backdrop of the popularity of TikTok among the younger population of the region, a total ban on targeted advertising to minors based on the processing of their personal data has been declared necessary (Johnson & Roy, 2025). This restriction not only protects children from commercial exploitation but also reduces young people's vulnerability to psychological profiling. Such an approach correlates with the strengthening of ethical standards in digital communication, including The 2022 Code of Practice on Disinformation (n.d.), Regulation (EU) 2022/2065 (2022) and Regulation (EU) 2022/1925 (2022), and reinforces

the overall information sovereignty of the Baltic states. Thus, the implementation of DSA standards in the Baltic countries has transformed the regulatory environment from passive observation into proactive oversight of digital infrastructure, providing national media holdings with effective instruments to protect themselves from the algorithmic dominance of global platforms. The synergy between state institutional preparedness and the expansion of users' rights has laid the foundation for the development of a resilient model of regional digital sovereignty, in which the prioritisation of high-quality local content and audience safety is governed by transparent norms of European law.

Socio-communicative consequences of platformisation and challenges to cognitive security

The platformisation of the media landscape has changed the very structure of public communication and mechanisms of social interaction in the Baltic states. The digital development dichotomy of the 21st century lies in the simultaneous expansion of inclusivity in the information space and the emergence of vulnerabilities for democratic institutions. While platforms started as technical intermediaries, they became agenda-setters, which resulted in audience polarisation and undermining of traditional fact-checking. The risk of disinformation and information disorders is still present. According to M. Vunš *et al.* (2025), digital ecosystems have become key conduits for narratives aimed at discrediting state institutions and defence alliances (North Atlantic Treaty Organization). The specific influence of leading digital platforms on the region's information environment is systematised in Table 3.

Table 3. The role of digital platforms in the dissemination of disinformation in the Baltic states (2022-2025)

Platform	Characteristics of disinformation dissemination	Determinants of vulnerability and moderation challenges
Telegram	Acts as a hub for unmoderated channels with radicalised content	High level of anonymity and absence of transparent mechanisms for tracing original sources
TikTok	High intensity of visual manipulation targeting young audiences	Algorithmic virality enables a wide reach without prior fact-checking
Facebook	Contributes to social polarisation through closed interest-based groups and microtargeting	Exploitation of personal data for precise audience segmentation and creation of "echo chambers"
X	Transformed into a primary channel for spreading political rumours and speculation	Significant reduction in moderation standards and outflow of verified advertisers after 2022

Source: M. Vunš *et al.* (2025)

The analysis of the data in Table 3 demonstrates the technical specialisation of digital platforms to spread unverified information. Each of the ecosystems exploited its own architectural affordances, anonymity, algorithmic virality or microtargeting to reach out to different groups of audiences in the Baltic states. The institutional challenge was posed by Telegram with its low level of transparency in content moderation and low level of dependence on national DSCs. The high level of anonymity of Telegram channels served as an instrument for spreading information among target groups. Contrary to this, TikTok exploited mechanisms of algorithmic

virality, which allowed for scaling up visual content throughout the region. This created a time lag between the moment of publication and the moment when it was possible to fact-check the content, which was especially relevant for youth. The evolution of Facebook and X showed a different dynamic of information-space polarisation. Facebook remained a fertile ground for the creation of so-called "echo chambers", which are fostered by personalisation algorithms that reinforce the biases and views of the users and, therefore, increase the likelihood of social polarisation. In contrast, on X, the change of moderation policies led to an emphasis on

the fast circulation of unsubstantiated political rumours, which had a detrimental effect on the overall factuality of public communications. Consequently, M. Vunš *et al.* (2025) confirmed the multi-platform nature of information disorders in the region. This testified to the necessity not only of enhancing oversight within the Digital Services Act... (2025) but also of creating differentiated monitoring policies, taking into account the architectural features of each digital ecosystem. The success of the measures depended on the ability of the regulatory bodies to counteract the impact of algorithmic manipulation while maintaining freedom of expression in digital spaces. The acceleration of information flows and algorithmic dependency has taken a toll on the mental health of the population in the Baltic states. The report Key findings from the 2024... (2025) recorded an increase in indicators of problematic social media use among adolescents, with a particularly pronounced trend observed within the male segment of the sample. This led to the introduction of media and information literacy (MIL) programmes and the introduction of the concept of digital hygiene as part of public health and cognitive security policies. The efficiency of this policy is illustrated by the results of the Baltic MIL Day 2024 forum in Riga, at which the expert community discussed the need for an expansion of the traditional media literacy concept (Ēke-Cēsniece, 2025). The MIL model was complemented with modules dedicated to the work of AI and algorithmic recommenders. This transition testified to a move from reactive debunking to the building of cognitive immunity through an understanding of digital influence architecture. Another illustrative example of an institutional response to these challenges was the implementation of the project Reviving Baltic resilience (2014), which focused on engagement with local communities. In particular, the initiative within the Jewish community of Estonia demonstrated the effectiveness of resilience-building methodologies through specialised youth modules (prebunking or "cognitive inoculation", gamified simulation of fake news creation, deconstruction of ethnic stereotypes, technical verification of visual content, and algorithmic hygiene). Such measures enabled the integration of media literacy principles into the social structures of ethnic and cultural groups, ensuring comprehensive protection against external information manipulation. Thus, during the period 2024-2025, media literacy in the Baltic region transformed into a systemic instrument of psychological and social protection. The integration of knowledge about artificial intelligence and algorithmic risks also provided a higher level of societal adaptation to the conditions of a platformised media landscape. The platformisation of the media landscape led to cardinal transformations in the mechanisms of political communications in the Baltic states. One of the dominant trends became disintermediation, a communications strategy when political actors address voters directly through live broadcasting and short video formats, circumventing the editorial

filtering of professional media (Newman, 2025). Although this created the illusion of inclusiveness and accessibility of political leaders, at the same time, the discourse became simplified: complex issues of public administration were reduced to sensational posts adapted to the algorithmic requirements of digital ecosystems. The impact of platformisation on electoral processes was observed in Lithuania. In the course of the 2024 electoral cycle, a differentiation and growth of digital revenues of media groups was observed. Specifically, in the fourth quarter of 2024, an increase of advertising revenues by 9% was registered, indicating a massive transfer of political budgets to the digital domain (Widener *et al.*, 2025). This illustrates the argument that digital platforms have emerged as a core tool of political campaigning, and the success of a political project depends not only on the quality of its political programme but also on the ability to master the mechanisms of algorithmic promotion.

The period of 2024-2025 saw the rise of artificial intelligence as an integral part of the operational management of the Baltic media systems. The use of large language models helped media groups to cut their operational costs, which, in the small Estonian, Latvian and Lithuanian media markets, with their persistently growing labour costs, became of key importance. The media holding Ekspress Grupp included AI as one of the priorities of its vertical, with AI used not only for content creation, but also for the deep optimisation of business processes (AS Ekspress Grupp annual..., 2024). In particular, multimedia conversion, dynamic pricing and customer service automation were on the agenda. Automated image processing and audio synthesis from textual materials significantly shortened the time for production of podcasts and illustration materials. Dynamic pricing algorithms made it possible to adjust the price of subscriptions to the consumption habits of the users, which helped to increase the subscription revenue in 2024 by 8% (AS Ekspress Grupp annual..., 2024). At the same time, chatbots deployed for handling subscription requests decreased the operational pressure on the administrative call centres (Widener *et al.*, 2025). However, the widespread use of AI brought into the spotlight the problem of "algorithmic impoverishment" of content. Excessive orientation of the editorial policy to clickbait may lead to the lack of socially important, but low-rated topics, such as ecology or culture. Platforms, primarily YouTube, became firmly established as the leading entertainment content providers, while linear television was demoted to the "second screen" (Widener *et al.*, 2025). In line with the Digital Services Act (2025), the Baltic authorities were charged with monitoring the marking of AI-generated content in order to curb the spread of deepfakes and disinformation. In the regional security context, the issue became salient as an important component of counteraction of hybrid threats. The Baltic MIL Day 2024 (2025) forum stressed the need to include the practice of interacting with AI technologies in national

educational standards. Therefore, increasing the cognitive immunity of citizens to generated content became a task for the national DSCs, which in turn, increased the information sovereignty of the Baltic states in the conditions of high technological uncertainty. To sum up, the resilience of the Baltic media systems from 2024 to 2025 was provided by the synergy of technological modernisation and institutional protection of information sovereignty. This is evidenced by the monetisation of digital content as a result of the introduction of AI, the improvement of the regulatory control in the framework of the Digital Services Act, and the implementation of the models of cognitive immunity in media literacy. This made it possible to adapt to the processes of platformisation by combining the financial independence of media holdings with a high level of socio-communicational security of the society.

Discussion

The results of the present study on transformational processes in the media industry demonstrated a shift in the paradigm of modern mass media functioning, characterised by a transition from a model of mass reach to a strategy focused on the formation of closed, loyal communities. The analysis of the obtained data confirmed that under conditions of digital saturation the financial sustainability of media outlets no longer correlated exclusively with traffic volumes, but increasingly depended on the depth of emotional and value-based connections with audiences. A comparison of the obtained results with the work of G. Peña-Ascaibar & M. Álvarez-Peralta (2021), who examined the Spanish media market (Eldiario.es, InfoLibre), revealed a convergence in prioritising relationship-building over technical metrics. The present study confirmed that the successful consolidation of new digital media was driven by specific business structures in which journalist ownership models and the involvement of readers as partners played a decisive role. This resonated with the conclusions of the aforementioned authors that engagement management policies had limited predictive value for subscriber numbers compared with substantive and reputational factors. The pattern identified by the researchers suggests that audience loyalty has evolved into a key financial asset, diminishing the significance of incidental traffic from social media platforms. The analysis of technological support for media activity in the present study revealed that digital transformation has become an unavoidable survival strategy for traditional market actors in the context of globalisation. The findings showed that adapting to new audience demands required not only changes in content formats but also the deep integration of innovative tools into editorial processes. These results fully correspond with the theoretical propositions of L. Chen (2024), who demonstrated, using the examples of The New York Times and The British Broadcasting Corporation, the effectiveness of employing artificial intelligence, big data

and virtual reality. The author confirmed that content diversification and the implementation of personalised recommendation systems enabled media organisations to retain users' attention. At the same time, the results of the present study indicate the vulnerabilities of this process, particularly risks to the authenticity of information. The convergence of findings from both studies emphasises that the future viability of the media ecosystem will depend on the industry's ability to balance technological innovations (for example, blockchain) with the resolution of security challenges and the preservation of trust, which remains the fundamental cornerstone of journalism. An in-depth assessment of the economic effectiveness of subscription models within the present study revealed a direct correlation between the implementation of paywall mechanisms and the growth of customer lifetime value indicators. The obtained results demonstrated clear parallels with the findings of J. Du *et al.* (2024), who emphasised that the subscription business model contributes to the stabilisation of recurring revenue under conditions of intense market competition. Their study highlighted the importance of adapting to changing customer preferences, which explains the necessity we identified for the continuous digitalisation of service provision processes.

The present research confirmed that the successful scaling of revenue was impossible without the use of digital tools for analysing user behaviour and forecasting audience needs. Both studies substantiated the importance of transitioning from a transactional model (selling individual copies) to a relational one (selling access and services), where customer retention becomes a priority over one-time acquisition. During the examination of micro-level user activity, the influence of the architecture and design of digital paywalls on audience conversion rates was identified. These results resonate with the study by S. Aral & P.S. Dhillon (2020), who, based on data from The New York Times, demonstrated the economic significance of paywall configurations for publishers' financial sustainability. The present study confirmed the causal relationship identified by these authors between the specific characteristics of access models and the demand for content. Consequently, managing a freemium model requires careful balancing by management, since excessively strict restrictions reduce user interest, whereas overly lenient ones fail to stimulate payment. This finding is consistent with the earlier conclusion of the present study that paywall design functions not merely as a technical element but as a key instrument for monetising audience loyalty, directly influencing a company's net revenue. The analysis of audience behavioural patterns in the present research revealed a differentiation in user interaction with content depending on their access status. This result aligns with the conclusions of I. Wadbring & L. Bergström (2021), who emphasised that audiences behave significantly differently "behind the paywall" compared with open-access

pages of media outlets. Both studies highlighted a substantial gap between academic theory, where this field remains relatively underexplored, and media practice, where editorial teams actively rely on internal traffic metrics. The convergence of these findings suggests that subscriber retention strategies should be based on behavioural models distinct from those used to attract new readers. A secondary analysis of the social consequences of the transition to paid models within the present study revealed a concerning tendency towards informational stratification within society. This conclusion received additional confirmation when compared with the work of R. Benson (2019), who argued that the subscription model risks excluding readers with lower levels of income and education. The author noted that although financial dependence on readers may stimulate higher journalistic quality (as in the case of Media-part), it simultaneously restricts access to such content to a relatively narrow elite audience. This finding correlates with the argument of the present study that the commercialisation of access to high-quality analytical journalism may undermine the civic responsibility of the media to inform society as a whole. The comparison thus revealed the dual nature of this transformation: on the one hand, greater independence from advertisers and political power; on the other, the risk of creating "information ghettos" for less affluent groups of the population, potentially deepening the knowledge gap.

The further development of the regulatory dimension in the present study made it possible to identify the DSA and DMA as the foundation of the European Union's Digital Strategy aimed at addressing the imbalance of power within the digital environment. This conclusion is supported by the work of A. Kern (2025), who emphasised that these legislative acts fundamentally transformed the rules of doing business for all actors, including international corporations. The results of the analysis in that study regarding the dual effect of regulation – the protection of user data and the stimulation of competitive pressure – fully correspond with the findings of the present research. The current study confirmed that the implementation of these acts contributed to increasing algorithmic transparency and strengthening user control over personal data. A critical analysis of the impact of digital legislation on traditional legal institutions within the present research revealed a tendency towards the fragmentation of consumer law. This finding receives theoretical support in the work of F. de Elizalde (2025), who argued that new regulatory instruments prioritise issues of competition and market structure while often overlooking the nuances of the category of the "consumer". The researcher noted that the regulation of private relations is no longer based exclusively on consumption, signalling the displacement of traditional consumer law by a new paradigm of EU digital private law. This interpretation corresponds with the conclusions of the present study, which indicate a shift in regulatory focus from

the protection of the individual towards safeguarding the architecture of the market as a whole. A comparison of global approaches to platform regulation within the present research revealed a significant divergence in international standards. These results resonate with the study by I. Lovrenčić Držanič & S. Žilić Fišer (2025), who compared European frameworks (General Data Protection Regulation, DSA) with American legislation (Communications Decency Act) and the Brazilian framework (Marco Civil da Internet). The authors identified tensions between the stimulation of innovation and the enforcement of algorithmic accountability, confirming the present study's findings regarding the existence of critical regulatory gaps at the international level. Both the present research and the cited study indicate that the inconsistency of standards creates obstacles to effective global content governance. The convergence of these conclusions highlights the urgent need to harmonise ethical obligations and standardise compliance mechanisms in order to prevent legal fragmentation in the cross-border digital environment. A critical examination of the collected data and its comparison with leading scholarly works allows us to conclude that the media industry and the legal framework are undergoing a profound synergistic transformation. The present study not only confirms existing theoretical models but also expands the understanding of the interaction mechanisms between subscription-based economic strategies, audience behavioural psychology and stringent regulatory pressure, all of which shape the emerging ecosystem of the digital society.

Conclusions

The analysis of materials and reports from 2024-2025 indicates that the media systems of the Baltic states have undergone a phase of profound structural transformation, driven by the complete transition from traditional broadcasting models to autonomous digital ecosystems. The examination of the experience of the leading regional holding Ekspress Grupp demonstrated the high effectiveness of the Digital First model in small-language markets. Document analysis revealed that the systematic implementation of direct content monetisation and the active accumulation of first-party data allowed media groups in Estonia, Latvia, and Lithuania to significantly reduce dependence on the volatility of global gatekeepers' advertising algorithms. The review of media consumption indicators confirmed the dominance of smartphones as primary distribution channels, prompting the restructuring of editorial cycles to meet the demands of visually-centred formats and algorithmic feeds. This supports the conclusion that Baltic publishers have successfully undergone media morphosis in response to the challenges of the attention-based digital economy. The examination of the institutional and regulatory context showed that the early implementation of DSA and DMA standards provided the Baltic region with tools to

formalise the algorithmic accountability of technology corporations. Analysis of the activities of national DSCs revealed the development of a differentiated oversight approach that effectively combines technical control with human-rights mechanisms and infrastructural resilience. A systematic review of regulatory practices indicated that EU regulatory instruments acted as a catalyst for strengthening digital sovereignty, providing local media with legal mechanisms to protect against unjustified moderation and limiting opportunities for manipulative user profiling. This helped mitigate the risks of informational bubbles previously exploited for social polarisation. A synthesis of the socio-communicative consequences of platformisation highlighted the multi-platform nature of information disorders in the region, where the ecosystems of Telegram, TikTok, Facebook, and X serve as primary channels for the dissemination of unmoderated content. The analysis of AI integration into editorial processes demonstrated gains in operational efficiency, while simultaneously revealing the risks of “algorithmic impoverishment” of content due to a focus on click-based metrics. The experiences of initiatives

such as Baltic MIL Day 2024 and Reviving Baltic resilience demonstrated the prioritisation of strengthening community cognitive security as a foundational condition for maintaining democratic dialogue under conditions of complete political communication disintermediation and rising hybrid threats. A promising direction also includes the development of updated ethical protocols for media interaction with AI systems and the study of mechanisms for adapting local advertising markets to a full transition away from third-party cookies. Further research into these areas will contribute to enhancing the informational resilience of small media systems within the globalised digital environment.

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Соціальні платформи і трансформація медіаландшафтів у країнах Балтії

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Анотація. Метою дослідження було вивчення структурних змін медіасередовища та специфіки публічного дискурсу країн Балтії в умовах домінування соціальних мереж та алгоритмічного управління контентом. Методологічна основа роботи базувалась на поєднанні системного підходу, вторинного аналізу фінансових звітів медіахолдингів та даних моніторингу дезінформації, компаративного аналізу регуляторних практик національних координаторів цифрових послуг та методу кейс-ілюстрацій для оцінки ініціатив медіаграмотності. Аналіз показників медіаринку засвідчив адаптацію провідної медіагрупи регіону (Ekspress Grupp) до стратегії Digital First, що підтвердилося динамікою зростання цифрових підписок та переходом до моделей прямої монетизації контенту задля забезпечення фінансової автономії. У межах опрацювання нормативної бази щодо регулювання цифрових ринків та сервісів було виявлено, що завчасна імплементація актів Європейського Союзу про цифрові послуги та цифрові ринки дозволила сформувати дієву архітектуру нагляду, яка поєднує технічний контроль та правозахисні механізми протидії алгоритмічній дискримінації. Системний огляд соціально-комунікаційних наслідків платформізації виявив мультиплатформенний характер інформаційних розладів, де екосистеми Telegram, TikTok, Facebook та X виступають каналами поширення немодерованого контенту, посилюючи ризики соціальної поляризації. Розгляд редакційних практик, зокрема процесів мультимедійної конверсії контенту та алгоритмічного ціноутворення підписок, показав, що інтеграція інструментів штучного інтелекту сприяє оптимізації операційних витрат та подоланню мовних бар'єрів, водночас створюючи загрози «алгоритмічного збіднення» новинного порядку денного. Окрім того, аналіз підтвердив, що дезінтермедіація політичної комунікації вимагає оновлення підходів до когнітивної безпеки через розширення парадигми медіаграмотності. У висновках аргументовано, що існування медіасистем країн Балтії залежить від формування моделі цифрового суверенітету, яка базується на синергії технологічної інноваційності та регуляторної стійкості. Результати дослідження можуть бути використані державними регуляторами для вдосконалення нагляду за цифровими платформами, медіаменеджерами – для оптимізації стратегій монетизації та впровадження штучного інтелекту, а також освітніми інституціями – при розробці програм із медіаграмотності та когнітивної безпеки

Ключові слова: медіаграмотність; штучний інтелект; медіахолдинг; цифровий суверенітет; дезінформація; когнітивна безпека



Innovative ways to develop electronic document management in library processes

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Abstract. The relevance of the research is determined by the intensification of digital transformations in higher education, the increase in the volume of electronic information, and the need to optimise library processes through the implementation of electronic document management to ensure continuous access to services. The purpose of the article was to analyse innovative trends in the development of electronic document management in library processes and to evaluate the effectiveness of its implementation in the automation of higher education library activities. The study used methods of analysis and synthesis to generalise theoretical approaches to the organisation of electronic document management, a comparative method to compare modern technological solutions, as well as empirical methods of questionnaire surveys to identify the features of the practical use of automated library and information systems by users. The results of the study showed that the development of electronic document management in library processes is based on the integration of cloud technologies, electronic signature tools, distributed data storage technologies, and automated text recognition tools. It was found that automated library and information systems are mainly used to work with electronic catalogues and order literature, providing quick access to information resources and reducing the time spent searching for documents. At the same time, a number of problematic aspects have been identified, in particular, the insufficient convenience and clarity of user interfaces, limited possibilities for downloading electronic documents, as well as the need for a partial update of information content in accordance with educational programmes. The empirical data obtained confirm the need to strengthen information support for users and improve the functionality of electronic library systems. The practical value of the work lies in the development of recommendations for improving the efficiency of electronic document management in higher education libraries by optimising automated systems, regularly updating electronic resources, and developing users' digital competencies

Keywords: digital transformation of libraries; document information management; automation of information processes; cloud technologies; automated library and information systems; information needs of users

Introduction

The digital transformation of the library sector is one of the key areas of development of the information infrastructure of higher education institutions in the context of globalisation and the intensification of electron-

ic communications. As noted by N. Mosha (2025) and S.R. Somipam *et al.* (2025), in global scientific discourse, libraries are increasingly seen not only as repositories of knowledge, but as multifunctional information centres

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integrated into the digital educational and scientific environment. Under such conditions, the introduction of electronic document management as a tool for optimising library processes, ensuring prompt access to resources, and improving the quality of information services for users becomes particularly relevant. V. Dobrovolska & L. Cherednyk (2023) noted that the development of electronic document management in libraries is influenced by innovative technologies, in particular automated library information systems, cloud services, and digital document information management platforms. A similar position is held by O. Ivashkevych (2021), who emphasised that the automation of library processes contributes to reducing time costs, increasing the accuracy of data processing, and forming a unified digital information space. At the same time, P. Ngulube & N.F. Vincent Moshia (2024), as well as M. Isabella (2025), emphasised that the effectiveness of such solutions largely depends on the level of integration of technologies into the daily practice of libraries and the digital competence of users.

A. Gbadebo (2024) emphasised that the integration of artificial intelligence and machine learning into academic libraries enhances cataloguing accuracy, optimises information retrieval, and improves decision-making processes in resource management. The author argues that AI-driven solutions contribute to the automation and modernisation of library operations, creating technological preconditions for the innovative development of electronic document management within contemporary digital library environments. In the international and national context, considerable attention is paid to the use of cloud technologies and distributed data storage technologies. O. Brui (2021) emphasised that the use of cloud services ensures the scalability of library systems, increases the resilience of information infrastructure, and allows libraries to avoid typical mistakes associated with unsystematic digitisation processes. Similar conclusions are presented in the materials V.G. Sprinsyan (2025), which highlight the growing role of remote access to electronic resources.

The latest scientific publications also focus on the integration of artificial intelligence and optical character recognition technologies into the digitisation of library collections, as noted by S.A. Muslim (2024) and G.O. Adigun *et al.* (2024). A.S. Gbotosho & J.K. Opele (2025) emphasised the importance of regularly updating content to meet educational needs and maintain a high level of information literacy among users. In general, Jyoti & P. Kumar (2024) explored that the integration of AI and optical character recognition (OCR) into library systems ensures the inclusiveness and universality of digital resources, while D. Yoliadi *et al.* (2023) noted the need for technical modernisation and improvement of the interface of automated library information systems. Despite a significant number of scientific publications, contemporary research does not pay sufficient attention to a comprehensive assessment of the effectiveness of

implementing electronic document management in the automation of library processes, taking into account real user experience. The issue of aligning the technological capabilities of automated systems with the needs of different categories of users in the context of the educational process remains particularly relevant.

The purpose of this article was to analyse innovative technologies for electronic document management and evaluate the effectiveness of their implementation in the automation of library processes in higher education institutions. To achieve this goal, the following tasks were set: to analyse modern technological solutions and the functional capabilities of automated library information systems used in electronic document management in libraries; to evaluate the effectiveness of electronic document management and the quality of library information services based on empirical data; to formulate practical recommendations for improving and further developing electronic document management in library processes. The scientific novelty of the work lies in combining theoretical analysis of innovative electronic document management technologies with empirical assessment of their effectiveness in real-life conditions of higher education libraries, which allows identifying key problems and promising areas for further development of library processes in the digital environment.

Materials and Methods

The study was based on a mixed methodological approach that combined elements of qualitative and quantitative analysis to comprehensively examine the effectiveness of implementing innovative electronic document management technologies in automating library processes at higher education institutions. The empirical study was conducted among first-year students of two higher education institutions: the National University of Ostroh Academy, which uses the automated library information system Koha, and Khmelnytskyi National University, which uses the automated library information system UFD/Library. The total number of respondents was 14 students, with seven participants from each institution. The methodological strategy of the study was focused on the integration of technological, organisational, and user aspects of the digital transformation of libraries.

At the theoretical level, methods of analysis, synthesis, induction, and deduction were used to process scientific publications and regulatory documents governing the functioning of electronic document management and digital services in the library sector. In particular, the research analysed the Law of Ukraine No. 851-IV (2003), which regulates the legal status and circulation of electronic documents. Theoretical base of the study was formed by relevant contemporary scholarly publications T. Granchak (2019), T. Mali & R. Deshmukh (2021) addressing the digital transformation of libraries, user-oriented design of automated library systems, and the

application of artificial intelligence technologies in library practice. These sources were selected through a targeted review of peer-reviewed academic literature to ensure conceptual validity and methodological relevance.

The empirical part of the study was implemented using a quantitative questionnaire survey method. The research tools were developed taking into account a preliminary analysis of scientific approaches to evaluating the effectiveness of digital library services and the principles of user-oriented design of information systems. The questionnaire consisted of thematic blocks aimed at: identifying the frequency and nature of the use of electronic library resources; assessing the functional capabilities of automated library and information systems; analysing the convenience of access, navigation, and speed of information processing; determining the level of user satisfaction with the quality of electronic information services. The survey was conducted in accordance with established ethical standards for research involving human participants. Participation was voluntary and anonymous, informed consent was obtained from respondents, and the confidentiality of personal data was ensured throughout all stages of data collection and processing. The ethical framework of the study was aligned with the principles set out in the ICC/ESOMAR International Code on Market, Opinion and Social Research and Data Analytics (2025), and the European Commission's Guidelines on Ethics and Data Protection (2021), which regulate responsible research practices, data protection, and respect for participants' rights.

To increase the validity of the instrument, the questions were standardised and the response scales were constructed according to the principle of ordered categories, which ensured the possibility of further statistical processing of the results. The research sample was formed on the basis of targeted selection and included first-year full-time bachelor's degree students from two higher education institutions: the National University of Ostroh Academy and Khmelnytskyi National University. The total number of respondents was 14. This approach made it possible to obtain primary empirical data on user experience of interacting with electronic library systems at the initial stage of study at a higher education institution. Data collection was carried out remotely through an online survey. Participation was voluntary and anonymous, which minimised the risk of biased responses and contributed to the reliability of the results. Empirical data was processed using descriptive statistics methods, in particular calculating percentage indicators and frequency distribution of responses. To interpret the results, a comparative analysis method was used, which allowed comparing user assessments of various aspects of electronic document management. The generalisation method was used to form conclusions and practical recommendations aimed at improving the efficiency of library process automation and the quality of electronic information services.

Results and Discussion

An analysis of the development of innovative electronic document management technologies in library institutions demonstrates their importance as a tool for improving the efficiency of information services and optimising internal processes. Among the key technologies that form the prerequisites for the implementation of electronic document management are cloud services, blockchain technologies, qualified electronic signatures, as well as artificial intelligence and OCR tools. A separate area of scientific research is related to the implementation of automated library information systems as the basis for electronic document management. In Ukrainian library encyclopaedia (2014), it is stated that such systems provide centralised management of electronic catalogues, collections, and remote user services. An analysis of review materials on open library systems, presented in the publication V.I. Vernadsky National Library of Ukraine (2014), indicates the growing role of open-source software, which expands the possibilities for adapting information systems to the needs of specific institutions and different user groups. It should be noted separately that regulatory and legal studies, in particular the document of the Order of the Cabinet of Ministers of Ukraine No. 219-r (2016), emphasise the importance of electronic signatures for ensuring the legal significance of electronic documents in library and management activities. The materials PDF24 Tools (n.d.) indicate that the use of such tools increases the accessibility of information resources and contributes to the unification of the presentation of electronic documents.

Among the main technological solutions, the following can be highlighted and characterised: cloud technologies that ensure the availability and continuity of document exchange regardless of physical location, provided there is an internet connection. Since data is stored in the "cloud" rather than on a local device storage, this saves space on the hard drive, minimising the need to reboot the device and search for additional memory sources. Therefore, the process of digitising library resources such as books, magazines, and others requires a large amount of memory, which is successfully implemented thanks to cloud technologies. Among them, Google Drive, OneDrive, and Dropbox (Fig. 1) should be highlighted. At the same time, thanks to their functional capabilities, they provide both convenient storage and access to digital documents. Blockchain technologies ensure transparency in document management and the recording of all changes, which increases the level of trust in stored data. Features of blockchain implementation in library systems include differentiated access, which ensures the secure use of unique resources with restricted access. A qualified electronic signature guarantees the legal validity of electronic documents in accordance with the current legislation of Ukraine (Law of Ukraine No. 851-IV, 2003). Its use allows for remote

signing and approval of documents, which is particularly relevant in the context of remote work or remote

departments. The list of accredited key certification centres is provided in Table 1.

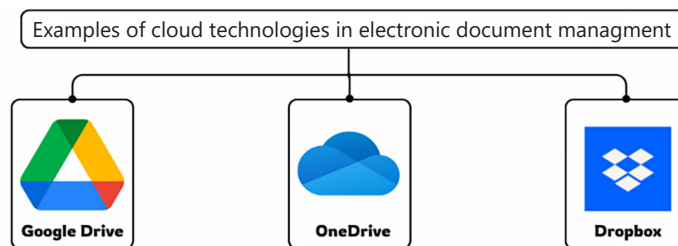


Figure 1. An example of cloud technologies in electronic document management

Source: provided by the author

Table 1. List of accredited key certification centres

No.	Logo	Name of the accredited key certification centre
1		Joint Stock Company Commercial Bank PrivatBank
2		State-owned enterprise "DIA"
3		National Bank of Ukraine
4		Limited Liability Company "Key Certification Centre "Ukraine"

Source: provided by the author

The use of qualified electronic signatures in electronic document management ensures secure document exchange, particularly between institutions, which not only significantly simplifies and speeds up approval and signing procedures, but also minimises the likelihood of unauthorised document modification, guaranteeing the authenticity of the signatory. In this context, it should be noted that in conditions of martial law, remote employment, or business trips, when there is an urgent need to sign or, as mentioned above, approve documents, the QES is an effective tool that enables the legitimate certification of the legal force of a document regardless of the user's geographical location. To perform this operation, it is sufficient to have access to the appropriate technical means and to possess the identification data established during the issuance of the QES certificate or other information determined by the specifics of its receipt. Within the scope of the problem under study, it can be stated that the QES is one of the key technical tools for the development and further provision of remote library services, which include the issuance of reader tickets, ordering electronic copies of documents, and other services that require official certification of the parties.

The integration of artificial intelligence and OCR technologies significantly improves the efficiency of library resource digitisation processes. The use of specialised tools, such as PDF24 Tools, OnlineOCR, Smallpdf

OCR, and Sider (Fig. 2), provides automated recognition of text information, tables, and graphic elements, as well as conversion of documents into editable formats. This, in turn, contributes to increasing the accessibility of information resources for a wide range of users, including people with disabilities (Granchak, 2019).

In particular, PDF24 Tools (n.d.) is a multifunctional platform for working with PDF documents, providing conversion, compression, merging, splitting, and basic text recognition. Its advantages include free access, an intuitive interface, and no need for complex software, which lowers the barriers to entry for users with varying levels of digital literacy. This expands the possibilities for independent document processing and increases the speed of access to electronic resources. OnlineOCR (n.d.) and Smallpdf (n.d.) implement OCR technology, which allows scanned images and PDF files to be converted into editable text formats. Their key advantage is that they support many languages, preserve the structure of the document, and allow for subsequent text searches. In a library environment, this significantly improves the indexability and full-text accessibility of digitised collections, facilitates the integration of documents into electronic catalogues and repositories, and ensures the accessibility of materials for users with special educational needs (in particular through the use of screen reading software).

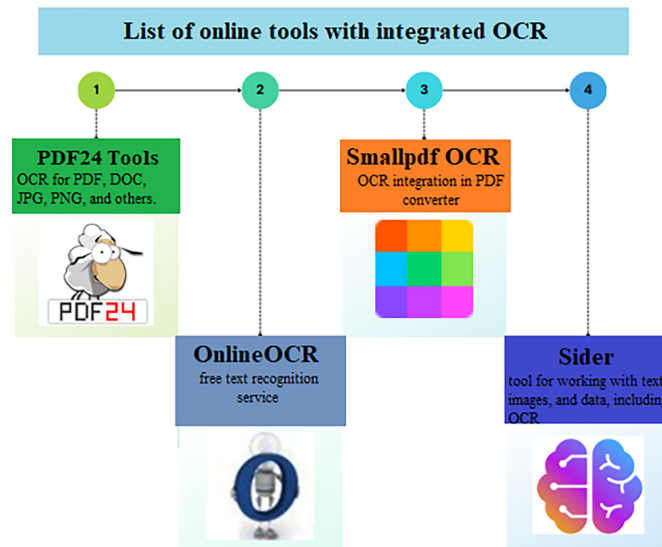


Figure 2. List of online tools with integrated OCR

Source: provided by the author on the basis of T. Granchak (2019)

Sider (n.d.) is also important as an AI-based tool that expands the functionality of working with digital texts through automated summarisation, translation, explanation of complex fragments, and semantic analysis of content. This approach promotes personalised access to information, increases information inclusivity, and

supports users in interpreting large amounts of data. The use of these technologies creates conditions for the comprehensive combination of modern innovative solutions with traditional library work methods, ensuring the integration of electronic document management into all stages of the document life cycle (Fig. 3).

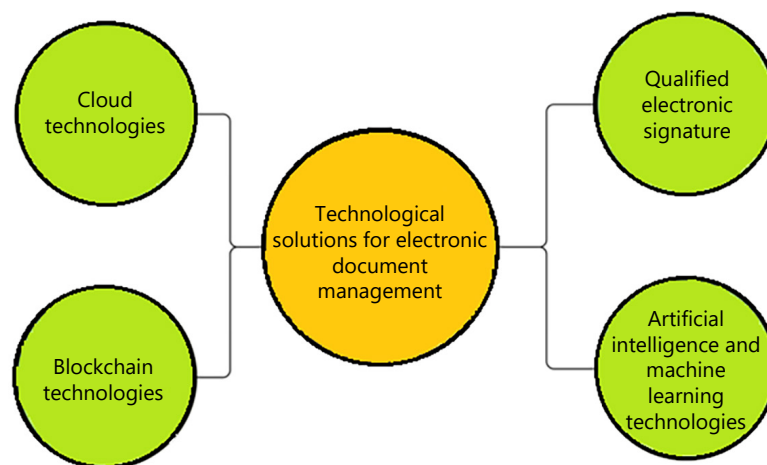


Figure 3. Technological solutions for electronic document management

Source: provided by the author

The implementation of cloud technologies, blockchain solutions, qualified electronic signatures, as well as artificial intelligence and machine learning technologies forms a comprehensive innovative infrastructure that ensures the integration of electronic document management with traditional library processes at all stages of the document life cycle – from creation to archival storage and reuse. At the initial stage, digital documents are generated in a cloud environment, which provides centralised access, version control, and synchronisation between the library's structural units. A qualified electronic

signature guarantees the authenticity, integrity, and legal significance of an electronic document, allowing it to fully replace paper document flow in internal management and inter-institutional processes. At the processing stage, machine learning integration allows for optimising cataloguing and subject indexing processes that were traditionally performed manually. Algorithms analyse text arrays, identify keywords, semantic relationships, and relevance levels, and generate recommendations for categorisation. Cloud services enable multiple specialists to work on documents simultaneously, supporting a model

of collaborative editing and distributed responsibility. Combined with traditional library description standards (classification systems, subject headings), this creates a hybrid model where innovative tools complement the librarian's expert activity rather than replace it.

At the stage of access and use, artificial intelligence technologies contribute to the intellectualisation of search mechanisms: semantic search, personalised recommendation systems, automatic referencing, and translation are being implemented. This increases the accessibility of resources for various categories of users, including those with special educational needs. At the storage stage, cloud infrastructure provides storage scalability, backup, and protection against data loss. The use of blockchain technology can guarantee the immutability of records of document creation, modification, or transfer, forming a transparent chain of transactions. This is especially important for preserving digital heritage, electronic archives, and official documentation, where the reliability and security of information is critical.

Analysis of electronic document management effectiveness in library processes revealed that 71.4% of first-year students at the monitored institutions actively use automated library and information systems (Koha and UFD/Library) for electronic catalogue operations. Conversely, 28.6% of respondents reported either rare or no engagement with these systems (Fig. 4).

Do you use an automated library information system to work with electronic library catalogues?

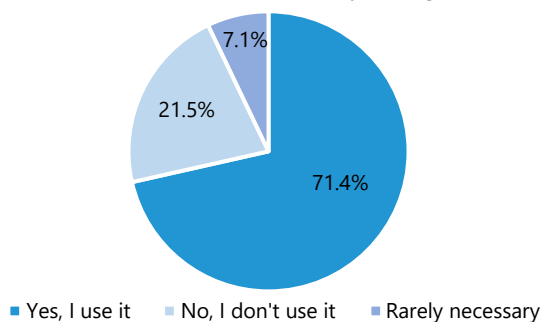


Figure 4. Using automated library information systems to work with the library's electronic catalogue
Source: provided by the author

The interface of the automated library information system was found to be rather inconvenient and unclear for 64.3% of respondents, while 28.6% rated it as convenient, and only 7.1% did not use the system (Fig. 5). This assessment may be related to the interface design, navigation logic, and the level of information literacy of users.

Regarding the relevance of materials posted in electronic libraries, 50% of respondents indicated that they needed partial updating, 28.6% assessed their relevance as partial, and 21.4% considered the materials to be fully relevant to educational needs (Fig. 6). Analysis of these

data reveals the need for regular content updates, taking into account the specifics of educational programmes, and the introduction of a feedback system for users.

How convenient and understandable is the interface of the automated library information system for you?

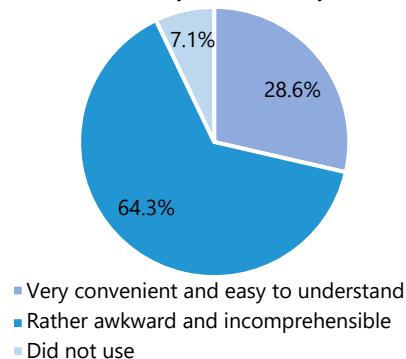


Figure 5. How convenient and understandable is the interface of the automated library information system?
Source: provided by the author

How convenient and understandable is the interface of the automated library information system for you?

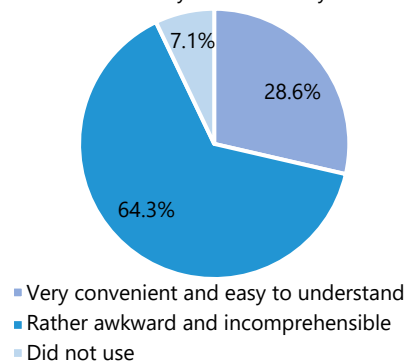


Figure 6. Opinion of respondents who participated in a survey on the relevance of literature available in their university's electronic library
Source: provided by the author

The survey results show that users have mixed perceptions of the speed of searching for literature in the electronic catalogue. In particular, more than half of the respondents 57.1% rated the search process as having an average search speed, which may indicate a generally acceptable but not optimal level of search engine performance. At the same time, 21.4% of respondents said that the search was fast, and another 14.3% said it was very fast, which indicates a positive user experience in certain segments of the audience and the effectiveness of search tools under certain conditions. However, 7.2% of respondents described the search as very slow, which may be an indicator of technical limitations of the system, insufficient interface optimisation, or the influence of external factors such as the quality of the Internet connection or the level of digital competence of users (Fig. 7).

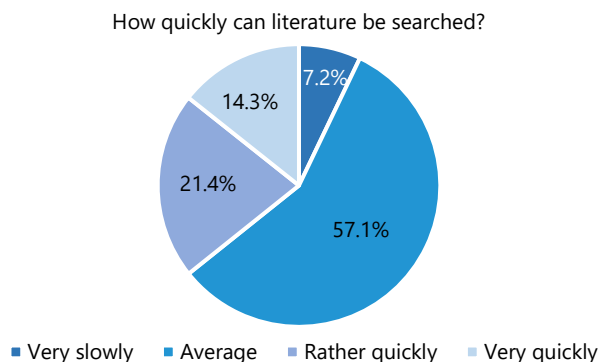


Figure 7. How quickly is the literature search performed
Source: provided by the author

The survey results show that there are significant restrictions on users' access to full-text electronic versions of information resources. In particular, for the vast majority of respondents 85.8%, the ability to download electronic materials is only partially available or depends on the type and conditions of a particular publication, which indicates the fragmented nature of electronic access. At the same time, full and unlimited access to electronic versions of resources is provided to only 14.2% of respondents (Fig. 8), which indicates an insufficient level of development of open access policies and digital infrastructure. This situation potentially hinders the effective use of electronic library resources, limits opportunities for academic mobility, and reduces the level of integration of digital services into the scientific and educational process.

Is it possible to download an electronic version of the literature?

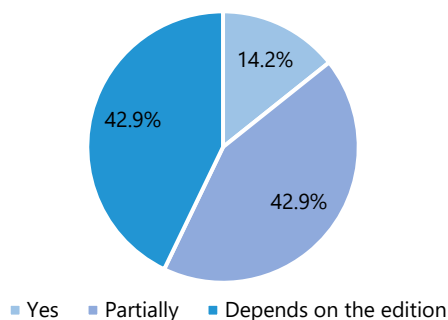


Figure 8. Ability to download electronic versions of literature

Source: provided by the author

The results of empirical research show that the ability to order literature through an automated library information system is implemented unevenly. Thus, for 50% of respondents, this function is fully accessible and provides a full range of operations related to searching, ordering, and reserving library resources. Partial availability of this service was reported by 21.4% of respondents, indicating the existence of certain technical or organisational limitations in the system's operation. At the same time, 28.6% of respondents reported limited or

completely absent functionality of the electronic ordering service, which may negatively affect user satisfaction and the effectiveness of information services in general (Fig. 9). The data obtained underscores the need for further modernisation of automated library and information systems in order to ensure equal access to library resources and improve the quality of digital services.

Is it possible to order literature using the automated library information system?

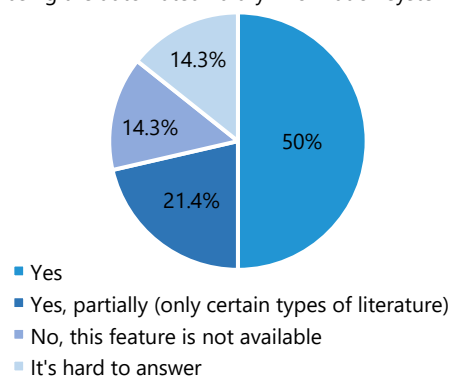


Figure 9. The ability to order literature using an automated library information system
Source: provided by the author

The survey results show that respondents highly value the advantages of implementing electronic document management in library processes. In particular, the vast majority of participants in the study noted significant time savings when searching for and ordering literature 78.6%, which is due to the automation of information search procedures and a reduction in the number of intermediate operations. Another important factor in improving the efficiency of library services is the possibility of remote access to library services 71.4%, which ensures the continuity of information services regardless of spatial and time constraints. Quick access to literature 64.3% contributes to faster educational and scientific decision-making, as well as increased use of electronic collections. In addition, half of the respondents 50% emphasised the reduction in the volume of paper document flow, which not only optimises internal library processes but also complies with the principles of sustainable development and environmental responsibility. The combination of these advantages confirms the feasibility and strategic importance of implementing electronic document management as a key tool for modernising contemporary libraries.

Analysis of the user survey results revealed a number of systemic difficulties in the use of the automated library information system. In particular, respondents noted partial inaccessibility of the website, slow page loading, and outdated information materials, which negatively affects the usability and efficiency of access to digital content. The identified problems indicate an insufficient level of technical optimisation of the electronic

infrastructure and the need for regular updating and upgrading of the automated library information system in accordance with the modern requirements of the digital environment. Based on the empirical data obtained and the results of a comprehensive analysis, a number of scientifically sound recommendations were formulated aimed at improving the efficiency of automated library and information systems and improving electronic document management in higher education institutions. Firstly, in order to raise user awareness of the functional capabilities of automated library and information systems, it is advisable to introduce a system of targeted information and educational activities. This involves organising regular thematic lectures, practical training sessions, and consultations, as well as developing structured information materials, including video tutorials that demonstrate algorithms for searching, navigating, and using electronic resources. This approach will help increase users' digital literacy and ensure fuller use of the systems' functional potential.

Secondly, to ensure the relevance, scientific relevance, and compliance of the information content of electronic libraries with educational needs, it is necessary to systematically update digital resources. At the same time, it is important to take into account the specifics of educational programmes, curricula, and disciplines taught at the university, which will ensure a close connection between the content of electronic collections and the educational and scientific activities of students. Thirdly, in order to ensure constant feedback from users and timely identification of problematic aspects of the system's functioning, it is advisable to introduce the practice of regular surveys using digital data collection services (in particular, Google Forms). Systematic monitoring of user experience will enable evidence-based management of electronic document management development, prompt adjustment of system functional parameters, and strengthening of the user-oriented nature of library services.

Thus, the data obtained demonstrate that the introduction of innovative electronic document management technologies in library processes increases the efficiency of library operations, ensures the accessibility and relevance of information resources, contributes to the optimisation of internal processes, and creates conditions for the provision of remote services to a wide range of users. The results of the study demonstrate that the introduction of innovative electronic document management technologies in library processes increases the efficiency of libraries, provides quick access to information resources, and optimises internal document processing. A comparison of the questionnaire survey data with studies by other authors shows similar trends in educational library systems. For example, D.P. Narendra (2025) noted that the use of automated library information systems significantly improves the speed of information retrieval and increases the accessibility of digital resources

for users, which is consistent with the results obtained in this study. Research conducted by S.A. Muslim (2024) shows that the use of digital tools and systems contributes to improving the accuracy and efficiency of access to knowledge, as well as optimising user interaction with electronic information resources.

Despite the positive aspects, there are certain limitations in the use of automated library information systems. Similarly, Z. Liu & B. Shao (2024) point out in their systematic review of library service platforms that the complexity of the architecture and the lack of intuitiveness of the interface remain key barriers to the effective use of modern digital services. An analysis of the relevance of materials in electronic libraries showed that about half of users consider regular content updates to be necessary. This is consistent with the findings of a study by G.O. Adigun *et al.* (2024), which emphasises the importance of systematically updating electronic catalogues and digital resources to maintain their relevance and support a high level of information literacy among users. It is worth noting the role of qualified electronic signatures as a critical tool for ensuring the legal validity of electronic documents in a remote environment. The results obtained confirm the conclusions of recent studies V. Dobrovolska & L. Cherednyk (2023), P. Ngulube & N.F. Vincent Moshia (2024), V.G. Sprinsyan (2025), according to which the use of secure electronic identification mechanisms reduces the risk of unauthorised changes to documents and increases trust in digital academic services, especially in a remote working environment.

The integration of artificial intelligence and OCR technologies into the process of digitising library collections ensures the versatility and scalability of electronic resources. Thus, P. Dragon *et al.* (2025) note that intelligent search engines significantly expand access to electronic catalogues and increase the efficiency of information retrieval. A similar position is held by S. Panda & N. Kaur (2023), who emphasise that modern OCR solutions promote the inclusion of users with special needs and increase the accuracy and speed of digital document processing. The prospects for using augmented reality and intelligent services in the library environment deserve special mention. In particular, a study conducted by A. Hussain (2022) notes that augmented reality technologies expand the functionality of electronic libraries, improve navigation clarity, and increase user engagement with digital resources. At the same time, T. Mali & R. Deshmukh (2021) note that the use of artificial intelligence tools in libraries contributes to the automation of routine operations, the improvement of recommendation systems, and the enhancement of the quality of information services. At the same time, the results of the study show that some users encounter technical limitations related to the speed of the system and the availability of certain functions, which emphasises the need for systematic optimisation of automated library and information systems. This is

consistent with the research by M.N. Islam *et al.* (2025), which analyses that technical barriers and insufficient infrastructure remain significant factors hindering the full implementation of innovative solutions in the library sector. Thus, the results obtained confirm the existence of significant potential for further development of electronic document management in library processes. At the same time, they bring to the fore the discussion on the optimal combination of innovative technologies with traditional methods of work, the identification of priority areas for digitisation, and the formation of effective models for integrating automated library and information systems into the educational process.

■ Conclusions

The results of the study show that the development of innovative electronic document management technologies creates new opportunities for improving the efficiency of library processes in higher education institutions. Modern technologies, in particular cloud services, blockchain, qualified electronic signatures, and artificial intelligence tools with OCR functionality, enable comprehensive automation of document processes by integrating electronic document management with traditional library activities. As the analysis has shown, the introduction of electronic document management facilitates rapid access to information resources, reduces paper document flow, saves time when searching for and ordering literature, and provides the possibility of remote use of library services regardless of the geographical location of users.

An empirical study conducted among first-year students at two higher education institutions: the National University of Ostroh Academy (automated library information system Koha) and Khmelnytsky National University (automated library information system UFD/ Library) automated library and information system, confirmed that most respondents actively use automated library and information systems to work with electronic catalogues. At the same time, it was found that the interface and functionality of automated library and information systems are mostly rated as rather inconvenient and in need of improvement. In addition, some users noted the need to update electronic resources, reflecting the need to adapt information content to the requirements of educational programmes and real user experience.

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The study also showed that the use of qualified electronic signatures is critical for the legitimate certification of the legal validity of electronic documents in library processes. This ensures secure information exchange, particularly when working remotely, under martial law, or on business trips, and increases user confidence in electronic document management. Based on the data obtained, the following recommendations were developed to improve the effectiveness of implementing automated library information systems in higher education institutions: organising targeted training events and developing training materials to raise user awareness of the functional capabilities of automated library information systems; ensuring regular updates of electronic resources in accordance with curricula and disciplines; introducing a systematic feedback mechanism with users, including questionnaires, for the timely identification of shortcomings and optimisation of the system.

Thus, the introduction of innovative technologies in the field of electronic document management contributes not only to the modernisation of internal library processes, but also to the expansion of the range of available services, ensuring the openness and accessibility of information resources for various categories of users, including people with special needs and those in remote regions. As a result, the library as a modern information centre gains increased functionality and the ability to adapt to a dynamic information environment. Prospects for further research lie in an in-depth study of the relationship between the technological capabilities of automated library and information systems and the level of digital competence of users, as well as in the development of comprehensive models for optimising electronic document management that take into account the individual needs of different user groups and the sociocultural context of the application of digital solutions in the library sphere.

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■ Conflict of Interest

None.

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Інноваційні шляхи розвитку електронного документообігу в бібліотечних процесах

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Анотація. Актуальність дослідження обумовлена інтенсифікацією цифрових трансформацій у вищій освіті, зростанням обсягів електронної інформації та необхідністю оптимізації бібліотечних процесів через впровадження електронного документообігу для забезпечення безперервного доступу до послуг. Метою статті був аналіз інноваційних напрямів розвитку електронного документообігу в бібліотечних процесах та оцінка ефективності його впровадження в автоматизації діяльності бібліотек закладів вищої освіти. У дослідженні було застосовано методи аналізу й синтезу для узагальнення теоретичних підходів до організації електронного документообігу, порівняльний метод для зіставлення сучасних технологічних рішень, а також емпіричні методи анкетного опитування з метою виявлення особливостей практичного використання автоматизованих бібліотечно-інформаційних систем користувачами. Результати дослідження засвідчили, що розвиток електронного документообігу в бібліотечних процесах ґрунтується на інтеграції хмарних технологій, засобів електронного підпису, технологій розподіленого зберігання даних та інструментів автоматизованого розпізнавання текстової інформації. Встановлено, що автоматизовані бібліотечно-інформаційні системи переважно використовуються для роботи з електронними каталогами та замовлення літератури, забезпечуючи оперативний доступ до інформаційних ресурсів і скорочення часу на пошук документів. Водночас було виявлено низку проблемних аспектів, зокрема недостатню зручність і зрозумілість користувацьких інтерфейсів, обмежені можливості завантаження електронних документів, а також потребу в частковому оновленні інформаційного наповнення відповідно до освітніх програм. Отримані емпіричні дані підтвердили необхідність посилення інформаційної підтримки користувачів і вдосконалення функціональних можливостей електронних бібліотечних систем. Практична цінність роботи полягає у розробленні рекомендацій щодо підвищення ефективності електронного документообігу в бібліотеках закладів вищої освіти шляхом оптимізації автоматизованих систем, регулярного оновлення електронних ресурсів і розвитку цифрових компетентностей користувачів

Ключові слова: цифрова трансформація бібліотек; управління документною інформацією; автоматизація інформаційних процесів; хмарні технології; автоматизовані бібліотечно-інформаційні системи; інформаційні потреби користувачів



Historical evolution of the media representation of kickboxing in sports periodicals (1990-2024)

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Abstract. The research relevance is determined by the need to understand how the historical evolution of sports periodicals influenced the perception of martial arts in different periods of martial arts in the digital age, the growth of global mobility and cultural hybridisation. The study aimed to analyse the peculiarities of kickboxing representation in Ukrainian and international sports periodicals, incorporating the historical and cultural context and the transformation of the media image of this sport. The research addressed sports journalism as a source of socio-cultural information that traced the evolution of public perception of martial arts in the media space. A set of methods was used: historical and cultural analysis, source studies, content analysis of media texts, critical discourse analysis, and linguistic and stylistic reading of texts. The materials were based on eight publications in sports periodicals in Ukraine, the United States, the United Kingdom and international platforms published from 1997 to 2024. All texts were analysed by format, genre, style, audience and content focus. The study determined that Ukrainian sports periodicals focused mainly on institutional and applied aspects of kickboxing functioning – the activities of sections, the role of coaches, organisational conditions and the achievements of athletes. The international media, on the other hand, demonstrated a personalised and narrative approach, emphasising stories of personal transformation, social context and cultural symbolism. The study determined that the media image of kickboxing in the global discourse was shifting from a technical discipline to a means of self-expression, representation of identity and an element of pop culture. The study also noted a tendency towards genre hybridisation, in which traditional forms of sports journalism were combined with elements of cultural storytelling, entertainment content and symbolic interpretation, which led to the complication of the information code of martial arts in the media space. The practical significance of the results is determined by an outline of the mechanisms of influence of sports journalism on the formation of ideas about martial arts, which can be used in the training of specialists in sports communication, media education and cultural analysis

Keywords: analytical articles; popularisation; reportage; interviews; sports clubs; federations

Introduction

Kickboxing has evolved from a marginalised sport to an institutionalised discipline with international recognition, and its media coverage is not only informative but also a socio-cultural function. The problem was the lack of a systematic study that would combine historical,

communication and cultural approaches to analyse how martial arts, including kickboxing, were represented in the media in different countries and different periods. The definition of the role of sports periodicals as a source of shaping the mass imagination about

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sports, identity, social mobility and cultural codes that accompanied the public coverage of martial arts was emphasised. In this context, the study of publications dedicated to kickboxing identified not only the dynamics of its popularisation but also changes in the ways of presenting content, genre palette, rhetorical strategies and target audience. The research relevance is determined by the need to integrate media analysis into the historical and cultural context of the development of sports, which would further determine how the social function of kickboxing has changed in the Ukrainian and international information environments.

In historical research, sport periodicals are considered an important source for reconstructing the cultural history of sport and public perceptions of athletic practices. The historical analysis of sports media allows researchers to trace how different sports disciplines were legitimised, popularised and integrated into social life. Despite the growing number of studies on martial arts and sports communication, the historical evolution of kickboxing representation in periodicals remains insufficiently explored. In the scientific literature, aspects of kickboxing, media representation of sports and martial arts were studied by individual studies, which have become a source of important analytical information. In the field of sports training, a study on the use of digital technologies in the training process has attracted considerable attention. O. Roshak & Y. Yatsiv (2024) proved that the use of virtual reality contributed to the more effective development of kickboxers' professional skills, which reflected the general trend of technological modernisation in sports. A generalisation of scientific events dedicated to martial arts was conducted by W. Blach *et al.* (2021). The analysis covered philosophical, anthropological, and cultural approaches to understanding martial arts, which were seen as an interdisciplinary phenomenon that goes beyond purely sporting activity.

In the study of the media and cultural aspects of martial arts, P. Bowman (2020) traced how these types of practices have become part of the global information space. The study showed that the representation of martial arts in the media formed stable symbolic images that influenced the perception of martial arts in society. In the context of promoting sports through the media, the results of the study by J. Cvejić *et al.* (2024) are noteworthy, proving that regular and positive coverage of combat sports stimulate an increase in interest among young people. The media space, according to their findings, is a factor in the social prestige of martial arts. The technical aspect of kickboxers' training was revealed in the study by R. Deliu *et al.* (2022). Based on the kinematic analysis, the authors established the regularities of striking actions and proved the importance of analytical methods in improving the effectiveness of sports techniques. The study of the transformation of sports journalism in the context of digitalisation was carried out by V. Tarasiuk (2023), who analysed the change in the genre

and style characteristics of sports publications. The study emphasises the growing influence of Internet resources and the decreasing informational role of the traditional press in modern sports communication.

Y. Sazonova (2021) revealed the business model of sports in the Ukrainian press, tracing how commercial factors influenced the format and content of coverage of sports events and personalities. The author concluded that sports journalism increasingly functioned in the context of economic strategies and the media market. In the context of social perceptions of morality in sports, B. Synchak *et al.* (2022) studied the religious beliefs of boxers. The study determined that athletes' spiritual guidelines influenced the public's perception of their social image, linking sporting success with moral responsibility. The problems of transformation of the sports sector in the period of post-socialist changes were highlighted by M. Krugliak & O. Krugliak (2020). The study outlined new models of organising sports activities, the emergence of alternative federations and the changing role of the state in the development of sports in Ukraine. The historical and cultural plane of the Soviet media space was analysed by B. Shumylovych (2020) analysed the historical and cultural dimension of the Soviet media space, focusing on television as an instrument of ideological influence. The study demonstrated how media narratives in the Soviet Union shaped mass consciousness through cultural and information practices, which became the basis for further changes in the post-Soviet media system. A synthesis of the above studies demonstrated that scholars address the philosophical, social, technical and media aspects of martial arts, including their impact on the athlete's personality, popularisation in mass culture and innovative training methods. At the same time, the historical peculiarities of kickboxing coverage in the Ukrainian press remained insufficiently studied and required a deeper analysis.

The study aimed to analyse the historical aspects of kickboxing representation in sports periodicals, identifying the nature of the presentation of this sport, the peculiarities of the genre structure and the content dynamics of publications in national and international contexts. To achieve this goal, the following tasks were set: (1) to characterise sports periodicals as a source of historical and cultural analysis, defining their typology, functions, genres, linguistic and stylistic features and audience focus; (2) to investigate the reflection of kickboxing in sports journalism in different countries, taking into account the history of the sport and the analysis of publications in Ukrainian and international media; (3) to summarise the results to identify trends in kickboxing coverage and the peculiarities of its media image formation in the socio-cultural context.

Materials and Methods

A set of methods that combined a historical and cultural approach, source analysis, structural and semantic reading

of media texts, and critical discourse analysis was used in the study. The research also applied the historical-comparative method, the historical-genetic method and elements of historiographical analysis in order to trace the evolution of the media image of kickboxing in different historical contexts. The study addressed publications on kickboxing in sports periodicals in Ukraine, the United States, the United Kingdom, and international digital media platforms. The research materials included eight original articles published between 1997 and 2024, reflecting different types of publications, genre strategies, and stylistic features of martial arts representation. The source base includes the following publications: the article "Kickboxing in Lviv: Development, problems and sections" (n.d.) on the Dreamtame.com portal; analytical material by E. Tyutyunyk (2012) "A place under the sports sun" in the newspaper *Uryadovyi Kurier*; USA Today news article about a conflict incident at a kickboxing match; review of Alex Pereira's fight in the USA Today; interview with Omid Ahmadi-sofa on Olympic.com; the article "Best kickboxing fight of 2023: Chingiz Allazov finishes superb in world title thriller" (2023) on the ONE Championship portal; a story in the Irish regional newspaper *Enniscorthy Guardian* (*Irish Independent*, n.d.); and a report on kickboxing training programmes in the *Northampton Chronicle and Echo* (n.d.) (Tsuji, 2017; King, 2022; Hincks, 2024).

All sources were analysed incorporating the format of the publication (national/regional newspapers, news portals, professional sports platforms), genre specificity of the text (report, interview, note, review), type of audience and context of the publication. The content analysis identified key thematic focuses, repetitive structures, language clichés, as well as methods of visual and textual support for publications. The articles were viewed as sources of historical information that reflected the transformation of kickboxing's status in the media space from a marginal sport to an independent cultural phenomenon. The linguistic and stylistic analysis included the study of terminology, metaphor, and language constructions typical for sports journalism, as well as rhetorical techniques aimed at forming an idea of kickboxing as a discipline that has not only a physical but also a social dimension.

In the context of cultural differences, a comparison of the Ukrainian and international press in terms of several parameters should be emphasised: communicative purpose, information depth, presence of social context, the role of the athlete's personality in the story, entertainment value and the degree of emotional involvement of the reader. The use of critical discourse analysis made it possible to identify hidden narrative models, ideological codes and cultural frameworks within which kickboxing was presented as an object of public attention. The sources were processed incorporating the historical moment of publication, the specifics of the media organisation, the type of publication, and the genre and stylistic

implementation. This methodological approach not only recorded the factual characteristics of the publications but also identified the peculiarities of media representation of kickboxing as a complex socio-cultural phenomenon that changed under the influence of time, audience demands and global trends in sports journalism.

Results

Sports periodicals as a source of historical and cultural analysis

Sports periodicals cover systematic, thematically oriented coverage of the sporting life of society, which is manifested in various formats – both in traditional print media and in the digital environment. Sports periodicals cover sporting events, athlete personalities, competitions, training processes or organisational aspects of the sports industry. The main feature of sports periodicals is their regularity, address prompt information and the formation of a stable connection with an audience that is actively interested in events in the field of physical culture and sports. The frequency of material updates, quick response to sporting events, adaptation of content to the reader's expectations and thematic structuring of content defines it as a special communication segment of the modern media field.

The typology of sports periodicals is based on both the format of the material and the degree of its specialisation. The first group includes specialised sports publications that are entirely dedicated to sports topics. These can be printed in weekly or monthly magazines, as well as professional journals of federations or coaching associations. Such publications often contain not only news, but also in-depth tactical analyses, methodological recommendations, analysis of performance techniques, and expert articles on physiology, sports psychology, and coaching practice. This group also includes the official newsletters of sports organisations, which are distributed within certain structures – clubs, associations, and leagues. The second category is general information publications with separate sports sections. The category has a wide audience and often includes sports as part of a larger information complex, along with politics, economics, and culture. In such publications, sports topics are usually not primary, yet common in the structure of publications. Within this category, sport is viewed in the context of socio-political or cultural life, and texts may focus not only on results, but also on the media image of athletes, social conflicts, and ethical issues. The third group is made up of digital platforms on sports topics, which include both global online media and regional resources. This format includes mobile applications, websites of sports federations, YouTube channels with broadcasts of competitions, streaming services, and blogs of coaches and athletes. The peculiarity of this type of periodical is its multiformat: texts are combined with video analytics, photo galleries, live broadcasts, podcasts and interactive formats. The information content is often updated

hourly, and synchronisation with social media is maintained, which ensures a quick response to user requests. There is a trend towards personalisation of content in digital periodicals, enabling users to choose the sports, clubs or athletes to follow, creating an individualised news feed (Zimmerman *et al.*, 2024).

Thus, modern sports periodicals are a complex, multilevel communication environment that integrates traditional journalistic practices with new media forms. Its

typology covers not only content but also technological aspects, which determines its importance in the processes of social communication, shaping public opinion about sports and body culture. The structure of modern sports journalism clearly distinguishes key functions that determine its place in the system of mass communication and cultural reflection of sports. Depending on the thematic focus, target audience and format of the material, the sports press implements several systemic tasks (Table 1).

Table 1. Functional areas of sports periodicals as a source of socio-cultural information

Function	Function content	Forms of implementation
Informative	Dissemination of up-to-date information on sporting events	News about competitions match results, transfers, announcements of changes in the tournament grids, notifications of decisions of sports authorities, telegrams, reports
Promotional	Forming a positive image of sport and its role in society	Success stories, coverage of sports schools and clubs, publications on the benefits of sports, materials for young people
Ideological	Confirmation or formation of national, social or political identities through sporting achievements	Patriotic narratives, symbolic interpretation of victories, emphasis on "national pride", promotion of state policy through sport
Analytical	Determination of the underlying processes in the sports environment, expert assessment of events	Reviews of training strategies, analysis of tactics, author's columns, expert commentary, special issues and thematic supplements

Source: compiled by the author based on V. Harrison & J. Boehmer (2019), M.H. Zimmerman *et al.* (2024)

Sports periodicals are a multifunctional communication tool that not only acts as an intermediary between the event and the reader but also shapes public perceptions of sport as a cultural, social and ideological phenomenon. The combination of informational, analytical, promotional and ideological functions ensures the depth of coverage and a stable connection between sports journalism and the cultural space of society. The linguistic and stylistic characteristics of sports periodicals are some of the most important features that distinguish this type of journalism from other areas of mass communication. The specificity of sports discourse lies in its dynamism, imagery, structural conciseness and close connection with emotionally charged events. One of the defining features is the dynamism of the language, which is manifested in the use of active verbs, short phrases, rhythmic sentences and constant appeal to action. Typical vocabulary includes verbs related to movement, confrontation, speed, and physical effort: "broke through", "brought the team forward", "attack from the flank", and "lightning strike". The texts often use metaphors and epithets to enhance the expressiveness of the message, in descriptions of competitions or characteristics of athletes. This creates the effect of the emotional involvement of the reader in the events. The second important feature is the standardisation of language constructions. In sports texts, there is a stable set of language patterns that are read automatically and ensure the recognisability of wording. Such phrases include "won a well-deserved victory", "retained the lead", "fought to the last second", and "sensational defeat". The presence of stable linguistic clichés helps to save linguistic effort, conveying information quickly and at the same time forming genre style. In addition

to linguistic means, an important element is informative compactness. The materials are presented in logically organised blocks, with the most important information placed at the beginning of the text. The structure usually includes a heading, a subheading, a short introduction, a statement of facts and, if necessary, comments. Lists, infographics, and bullet points are used to structure the content and ensure easy perception of information in conditions of limited reading time (Wiener, 2020).

Visual support in sports periodicals is no less important. Photos of competitions, portraits of athletes, tournament tables, statistical charts, and results in the format of grids or protocols are an integral part of the presentation of the material. Visual material not only complements the text but also often replaces some of the linguistic information, acting as an independent source of data. Articles are often accompanied by a selection of photos of the highlights, and on digital platforms, interactive visual elements. In terms of audience focus, sports periodicals demonstrate flexibility and the ability to adapt their presentation to the interests of individual readership groups. The mass audience is characterised by the creation of emotionally charged content that appeals to personal stories, conflicts, intrigues, curiosities, and dramatic outcomes. This increases engagement and maintains interest in sports even among those who are not regular consumers. The professional audience, on the other hand, expects details, specifics and technical analysis: in particular, attention is paid to new training schemes, recovery techniques, and analysis of tactical decisions during the game. The youth audience, which actively consumes visual and short-form content, tends to be lifestyle-oriented: texts are supplemented with materials about images, motivational quotes, fashion trends in equipment, and the

integration of sports into everyday life. The genre palette of sports periodicals includes both classic (notes, interviews, reports) and modern forms (podcasts, streams, video analysis, interactive tests, social media posts). This ensures multi-vector communication, ensuring reach to both traditional and digital audiences. The change in the genre structure indicates the adaptation of sports journalism to new media environments and the transformation of the way people perceive information in the digital age (Rowe, 2023). The sports press is not only a source of facts, but also a means of representing cultural norms, values and behavioural patterns. Repeated schemes of information presentation (narratives of victory, overcoming, rivalry) create archetypal images of athletes as heroes, victims or ideal representatives of the nation. Thus, sports periodicals participate in the formation of mass consciousness, the symbolic field of culture, in which sport appears as a system of meanings, not just an activity.

Kickboxing in the focus of sports journalism: Historical overview and media analysis

Kickboxing as a separate martial art form was formed at the intersection of several traditional striking techniques in the second half of the 20th century. Its origins are linked to the development of Japanese karate, and American boxing, as well as elements of taekwondo and Muay Thai. The term “kickboxing” began to be actively used in Japan in 1960, when an attempt was made to combine traditional oriental techniques with the ring as in professional boxing. At the same time, the United States was adapting martial arts to the format of a sports competition with simplified rules. This process was aimed at making martial arts more spectacular and accessible to the public. In the 1970s, kickboxing began to gain popularity in Europe, where it was perceived as an alternative to traditional martial arts with strict technical canons. In Western Europe in France, Germany, and Italy, the first clubs with mixed rules began to operate. During this period, the first continental competitions also appeared, and the discipline gradually turned from an amateur initiative into an organised sport (Gümüşay & Koç, 2022). A key stage in the institutionalisation of kickboxing was the creation of the international organisation World Association of Kickboxing Organizations (WAKO) (n.d.) in 1976. The WAKO was founded as a structure that aimed to unify rules, define safety standards, and organise a system of international tournaments and official refereeing. Recognition by international sports bodies contributed to the expansion of the network of national federations and the formation of common regulations for disciplines such as full contact, light contact, kick light, K-1, etc. Already in the early 1990s, the WAKO system hosted world championships, and the number of member countries was growing rapidly.

In the second half of 1990 and early 2000, kickboxing became part of the physical training systems in sports clubs in many countries, including the post-Soviet space.

State federations, clubs, licensed coaches, and national championships appeared. For example, in Ukraine, kickboxing developed in parallel in two main versions – according to WAKO and International Sport Karate & Kickboxing Association (ISKA) (n.d.), which showed an active interest in the discipline and the existence of different approaches to its organisation. Despite the competition, kickboxing has retained its autonomous niche and continues to function as a full-fledged sports discipline with a clear organisational vertical and international recognition. In 2018, WAKO was officially recognised by the International Olympic Committee as a non-Olympic sport governing body, which was an important step in the legitimisation of kickboxing at the global level (IOC Executive Board..., 2021). In the 21st century, kickboxing received a new impetus for development due to the globalisation of martial arts, the broadcasting of competitions in the media and the growing popularity of mixed martial arts (MMA), which has attracted many athletes who were formed in kickboxing.

In Eastern Europe, including Ukraine, the development of kickboxing intensified after the collapse of the Soviet Union, when new sports federations and independent media platforms emerged. In the context of kickboxing’s institutionalisation and international recognition, an important aspect is the peculiarities of its representation in the national information space. Ukrainian sports periodicals perform a key function of promoting martial arts at the level of both national processes and regional sports life. The coverage of kickboxing in the Ukrainian media mainly addresses examples of the functioning of sections, the achievements of athletes, the role of coaches and the development of sports infrastructure. In the article “Kickboxing in Lviv: Development, problems and sections” (n.d.), Dreamtame addressed the local context of kickboxing’s emergence as a part of the city’s sports culture. The material provides an overview of the state of the sections in Lviv, mentioning specific clubs, coaches, number of students and achievements at the national level. The text emphasises the importance of support from the local authorities, the availability of material resources and qualified staff. The role of coaching teams in shaping the motivation of children and adolescents is particularly emphasised. The study presented kickboxing to socialise with young people and develop discipline, endurance, and respect for the opponent. The genre of the publication combines reportage and analytical elements, but the structure remains simple and focused on a wide range of readers. The presence of photos and quotes from coaches and athletes provides visual support for the material, which is typical for local journalism.

A different approach is demonstrated by the article by E. Tyutyunnyk (2012) “A place under the Sports Sun”, published in the *Uryadovyi Kurier*. The author examines kickboxing in the all-Ukrainian context, against the backdrop of difficult competition with other martial arts and team sports. The text raises the problem of uneven state

attention to non-Olympic disciplines, which complicates their financing, infrastructure development and mass popularisation. At the same time, the author emphasises the high results of Ukrainian kickboxers in international competitions, which, according to the author, do not always receive proper media coverage. The article contains references to statistics, a list of federations, and mentions of sports schools. The presentation aimed not only at informing but also at problematising the issue of the balance between the state priority and the actual success of athletes in kickboxing. A comparison of these two materials can be used to state that Ukrainian sports periodicals use different genre and communication strategies to represent kickboxing: local media focus on examples and personalities, while national media focus on analytical understanding of the systemic position of the discipline in the structure of Ukrainian sport. Both approaches contribute to the legitimisation of kickboxing as a socially significant sporting practice.

While Ukrainian sports periodicals mainly prioritise the internal aspects of kickboxing development – the functioning of sections, the coaching environment, organisational difficulties and systemic achievements, international publications present the sport in a much broader and multidimensional context. The foreign press is characterised by a shift from classical reporting to creating vivid narratives, focusing on spectacle, personal stories and the interconnections of sport with cultural and social themes. This section examines four publications by leading English-language resources in which kickboxing appears as an object of media representation with different communicative functions. The USA Today article entitled “Kickboxing fight ends with fans attacking fighter” (Tsuji, 2017) presents an extremely emotional and sensational interpretation of the events surrounding a kickboxing match. The text focuses on an incident that took place after the fight: one of the athletes struck the opponent after the fight had stopped, which led to physical intervention by spectators and a conflict in the ring. The article is accompanied by a video that focuses on aggression, conflict and violation of the rules rather than on the sporting result or technique. The coverage of the event is based on the classic crisis model, where sport becomes the backdrop for the dramatic development of the conflict. The use of expressions such as “fans attacking fighter”, and “sucker punch chaos” creates the idea of kickboxing as a dangerous, almost uncontrollable spectacle. This approach represents the tendency for sports journalism to turn into a form of infotainment – a combination of information and entertainment with emotional presentation dominating over structured analysis. In this case, kickboxing is portrayed not as a discipline with clear rules, but as a space of potential disorder, which correlates with the general media logic of crisis content.

USA Today article “King Israel Adesanya with fifth-round TKO to capture Ultimate Fighting Championship

(UFC) middleweight title” (King, 2022) demonstrates a different angle, shifting the focus from the discipline of kickboxing to its impact in MMA. Alex Pereira, a multiple world kickboxing champion, moves to the UFC and wins the title by knockout in the fifth round. The article provides a detailed description of the fight, the personal characteristics of the athlete, and the chronology of the fight, accompanied by quotes and analytical conclusions from commentators. Kickboxing in this article functions as a fundamental training that gave Pereira a technical advantage in punches and kicks. Unlike the previous article, a balanced style is used here, with an emphasis on professionalism, sportsmanship, and the history of rivalry with Adesanya. Thus, kickboxing is presented as a platform that forms high-class athletes capable of dominating in more complex, multi-component disciplines. This approach demonstrates the integration of kickboxing into the broader landscape of modern combat sports and the recognition of its technical value at the global level.

Another type of presentation is featured on Olympic.com in the article “Omid Ahmadisafa: The kickboxing world champion representing the Refugee Olympic Team in boxing at Paris 2024” (Hincks, 2024). The material is an in-depth interview with Omid Ahmadisafa, the world kickboxing champion who will compete for the Refugee Olympic Team in boxing in 2024. The focus is not on sporting achievements, but on the athlete’s personal story: escape from Iran, adaptation to life in Europe, the difficulties of integration, and participation in international tournaments in a new status. In this case, kickboxing not only retains its role as a professional base but also acquires a symbolic dimension: it is portrayed as a tool for preserving dignity, strength and inner support in the face of losing one’s homeland. The interview genre preserves the authenticity of the protagonist’s voice, while the editorial presentation forms a humanistic framework for perception. The publication fulfils a clear socio-cultural function, demonstrating how sport can be a means of personal and political representation. In this context, kickboxing emerges not as a spectator sport, but as a tool for profound self-affirmation.

The article on the ONE Championship platform titled “Best kickboxing fight of 2023: Chingiz Allazov finishes superb in world title thriller” (2023) is an example of the representation of kickboxing as a spectacular and emotionally charged sporting event that combines technical skill with the drama of the fight. The article describes the fight between Genghis Allazov and Superbon Singh Mawin at the ONE Fight Night 6 tournament, which was recognised as the fight of the year. The text focuses on the dynamics of the fight, technical aspects and emotional tension that accompanied each round. The description of the fight emphasises not only the physical endurance of the athletes but also their psychological stability and strategic thinking. This approach to media coverage of kickboxing contributes to the formation of the image of

this sport as an intellectual and aesthetic phenomenon that goes beyond mere physical struggle. Stylistically, the article uses elements of artistic description, metaphors and emotionally coloured vocabulary, which creates the effect of presence and involves the reader in the events in the ring. In this context, kickboxing appears as an art form where every movement matter, and every punch is part of a great story about strength, will and skill. In this way, ONE Championship demonstrates an approach to kickboxing coverage where the sport becomes not only a competition but also a cultural narrative that reflects deep aspects of human nature and social interaction. In an article published on 26 February 1997 in the Enniscorthy Guardian, kickboxing was presented through the participation of an Irish athlete in a Muay Thai championship in Bangkok (Fig. 1).



Figure 1. The Enniscorthy Guardian newspaper with a story about the participation of an Irish athlete in the championship
Source: compiled by the author based on Irish Independent (n.d.)

The format of the publication is concise, and structured, with a clear account of the fight, the result and the participant's reaction. The hero is described as a "super-fit bartender", associating the reader with the participant. The tone of the material is neutral: defeat is accepted without complaint, and the result is seen as an honest victory for the opponent. The heat in Thailand is mentioned as context, not as an excuse. The article does not focus on spectacle or emotions but presents the sport as a test. The language is simple, the terminology minimal, and the style restrained. This is an example of kickboxing being represented as a morally charged practice where endurance, self-discipline and dignity are key. All attention is focused on personal participation rather than showmanship or public image. An article published on 5 February 2000 in the Northampton Chronicle and

Echo, a regional British newspaper, reports on the opening of new classes at a local martial arts centre for students interested in learning ancient self-defence techniques (Fig. 2).



Figure 2. An article in the Northampton Chronicle and Echo about the opening of new kickboxing classes
Source: compiled by the author based on Northampton Chronicle and Echo (n.d.)

The content addresses a kickboxing programme that is not presented as a separate sport but as part of a broader disciplinary model called Te-Geri, which is positioned as an intense but safe form of training. The key feature of this publication is the interpretation of kickboxing as part of the educational process and a wellness initiative. The text emphasises that the classes have a social and educational function, are accessible to a wide audience and are suitable even for those who have no previous experience in martial arts. The reference to the identity of the instructor – a woman with a third black belt – emphasises the inclusiveness and professionalism of the coaching staff. In contrast to the notes focused on competitions or dramatic events, this material is applied and informative. The use of phrases such as "designed to give students the chance to master..." or "provides an intense workout" indicates a marketing discourse in which kickboxing functions as a means of physical development, not just a sporting achievement. Thematically, the article demonstrates the integration of martial arts into everyday life, including education, fitness and self-defence. It does not appeal to spectacle, emotion or risk, but instead focuses on benefits, safety and accessibility. In this way, kickboxing is presented as an element of socially-oriented practice that builds healthy behavioural patterns and positive self-discipline.

A comparison of the above-mentioned publications reveals several characteristic trends in the international

coverage of kickboxing. The genre diversity of materials includes both emotionally coloured reports and balanced technical reviews, interviews, as well as publications with elements of cultural irony. In the international media environment, kickboxing is mostly presented not as an isolated sport discipline, but as a component of global social and sporting processes that cover the areas of commercialisation, media coverage, migration stories and cultural symbolism. Special attention is focused not on the technical aspects or institutional organisation of the discipline, but on the personal dimension: the narratives of athletes, their life paths, psychological traits and public image often come to the fore, forming a new model of martial arts presentation

in the world's periodicals. This indicates a change in the focus of sports journalism – from institutional to personalised, from normative to narrative. In this coordinate system, kickboxing appears not only as a sport, but as a multilevel phenomenon that functions at the intersection of physical practice, media interest, and socio-cultural symbolism. Ukrainian and international media have significant differences in their approaches to covering kickboxing. The content emphasis, genre organisation of materials and value orientations reflect the specifics of each information space. The table below provides a comparative description of the key parameters of the representation of this sport in national and foreign sports journalism (Table 2).

Table 2. Comparative characteristics of kickboxing coverage in Ukrainian and international sports periodicals

Comparison criterion	Ukrainian sports periodicals	International sports periodicals
Target topics	Development of infrastructure, functioning of clubs, interaction between coaches and youth	Personal stories of athletes, contexts of social choice, participation in global events
Format of presentation	Factual journalism, educational materials, and reviews with a local focus	Narratives, interviews, and analytics based on emotional and social stories
Genre dominance	Announcements, reports, institutional reviews	Reportage with elements of drama, portraits, ironic journalism
Thematic focus	Training system, human resources, regulatory issues	Transformation scenarios, athlete mobility, image presence in public space
Tonality of materials	Objective, informative, with a commitment to neutral assessment	Subjective, expressive, using cultural codes and symbolic frames
Recipient type	Readers interested in systemic sports development, coaches, local spectators	A global audience interested in cultural meanings, social challenges and spectacle
The media image of kickboxing	Type of activity with educational and upbringing potential	A space of self-expression, an element of identity, an intersection of sport and social experience

Source: compiled by the author based on E. Tyutyunyk (2012), Kickboxing in Lviv: Development, problems and sections (n.d.), N. King (2022), M. Hincks (2024)

A comparative review shows that Ukrainian sports periodicals emphasise structural and applied aspects of kickboxing, while international media focus on individualised and culturally framed representations of the sport. This division of information strategies is due to differences in media policy, audience expectations, and the degree of integration of sport into the socio-cultural discourse. The general picture of kickboxing representation in periodicals shows a multidirectional approach to this sport, depending on the historical period, geographical context and type of media. Ukrainian sports periodicals demonstrate a steady focus on systemic and institutional parameters, while international sources record a gradual transformation of emphasis – from reportage conciseness to a personalised narrative, from competition to socio-cultural symbolism. The range of genre forms, linguistic and stylistic features, and functional directions of presentation indicate that kickboxing in the modern information space functions not only as a sports discipline, but also as a media event that reflects the dynamics of cultural processes, changes in the mass consciousness, and the growing importance of individual experience in sports discourse.

Discussion

One aspect of the results of this study was the historical transformation of the public perception of kickboxing from institutionally sporting to narratively cultural, which interpreted this sport as part of a broader socio-cultural discourse. This conclusion was reinforced by observations made in a study by D. Antunovic & S. Bartolucci (2022) on the analysis of the representation of gender and national interest in the media during the Olympic Games in Central and Eastern Europe. The study analysed how media narratives construct identity through sport. In contrast to the study, which addressed Olympic disciplines, the current study broadened the scope of analysis, pointing out that non-Olympic sports, such as kickboxing, also shape symbolic images that can be used as social representations.

The issue of cultural continuity of martial arts, considered by J. Cao (2023), correlated with the conclusion of this study on the transformation of kickboxing into a tool of personal expression in the context of new media. The study analysed how traditional martial arts have adapted to the digital age, preserving key elements of cultural authenticity through visual reproduction, broadcasting

techniques, and popularising the discipline's philosophy and symbolism. At the same time, J. Cao emphasised the importance of preserving hereditary ties between generations of practitioners, despite the fragmentation of attention in modern online environments. The present study complements these findings by showing that new media not only ensure the transmission of tradition but also reinterpret it following the expectations of the audience. Sport, and kickboxing in particular, appeared not only as a discipline with clear technical canons but also as a multifunctional space where personal experience, traumatic events, integration processes, cultural resistance and internal transformation took place. This reorientation created new semantic horizons for the representation of martial arts in contemporary journalism. The genre shift towards emotionally oriented content identified in this study also overlapped with the findings of B. Kim (2020), studied the characteristics of strategic communication in the context of the online promotion of martial arts. The study addressed media planning, visual style, content marketing, and social interaction aimed at increasing the engagement of the target audience. The study determined that such a strategy was outside of marketing and acquired features of discursive construction: through emotional drama, visual expression, and personalised stories, a media image of kickboxing was formed as a phenomenon accessible to empathy and social recognition. In this way, sports journalism did not simply inform but created a symbolic space for the cultural legitimisation of martial arts.

The analysis of the institutional status of kickboxing as a discipline conducted in this study found a conceptual resonance with the work of L.V. Podrigalo *et al.* (2022), which, based on a content analysis of scientific publications from the Web of Science database, identified the main areas of academic study of kickboxing. The areas include topics related to physiology, sports medicine, injuries, rehabilitation practice, and aspects of technical training dominated. Thus, kickboxing appeared as a discipline that required scientific support from medicine and biomechanics. In the present study, the focus was shifted from academic legitimation to the analysis of media representation. Publications in periodicals, in contrast to highly specialised articles, not only informed about the technical side of martial arts but also created a new interpretive framework where kickboxing appeared as part of social and cultural discourse. This discovered that the sports discipline could function in the media not only as a subject of professional attention but also as a symbol and a means of socio-cultural expression.

The refutation of the unified image of kickboxing and the identification of its multidirectional representation in the media, established as a result of this study, complemented the findings of J.D.R.D.S. Duarte *et al.* (2024). A bibliometric analysis of scientific products on kickboxing indexed in PubMed, was conducted, identifying the thematic focus of publications, the number of citations and

the structure of scientific interests. The analysis revealed the dominance of papers on medical issues, which reflected the need to prove the benefits or risks associated with kickboxing. The study demonstrated that the media representation of this discipline went beyond the analysis of the physical condition of athletes and acquired a broader meaning. The media interpreted kickboxing not only as a sport but also as a form of expression of ethical positions, social struggle, traumatic experience or integration potential. In this way, the findings expanded the academic perspectives of kickboxing, demonstrating that outside the scientific field, this discipline functioned as an important marker of cultural dynamics.

The findings of this study on identity formation through kickboxing revealed parallels with the findings of a study by A. Singh (2022), which used an ethnographic methodology to study martial arts as a tool for constructing subcultural belonging among young people in London. The study demonstrated that kickboxing formed alternative identities among young people in response to social exclusion, economic marginalisation, or ethnic stigma. The study determined that similar processes were reflected in the media: journalistic publications not only recorded narratives about the "fighter", "immigrant", "hermit" or "hero", but also actively shaped these images as part of public discourse. Thus, kickboxing in the media served as a transmitter of symbolic roles that represented not only physical abilities but also social, cultural and identifying characteristics of an individual.

The tendency towards personalised and emotional coverage of kickboxing identified in this study was consistent with the findings of a study by J. Woods (2021), which analysed the impact of social and traditional media on the growing popularity of atypical sports. The study demonstrated that alternative disciplines gain audience attention not through institutional support, but through new formats of engagement. The study elaborated on this approach by showing that it was the transformation of genres, narrative structures and media broadcasting that contributed to the legitimisation of kickboxing in the public space. In the same aspect, the findings of M. Xie *et al.* (2022), who investigated the effectiveness of social media in shaping motivation to practice martial arts, were compared. The authors determined that the emotional intensity of the content had a significant impact on audience intentions. These findings were consistent with the results of the present study, which showed that not only training or technical information, but also personal stories, crises and symbolism were central in generating media interest in kickboxing.

The analysis of sports journalism as a multi-component system in this study revealed structural diversity and a shift in the media's focus to personalised, emotionally charged stories. These findings resonated with the results of J. Calaf *et al.* (2023), who conducted a comparative analysis of three models of sports media functioning public, private and hybrid. The study demonstrated that

editorial policy and business strategy directly influenced the format of the material, the depth of analysis, and the ability of the media to form a sustainable cultural narrative around sports. The study complemented this perspective by focusing not on the ownership model or editorial practices, but on the resulting discursive effect: how different types of media represented kickboxing as a phenomenon. In summary, the study confirmed, supplemented or reinterpreted the findings of other authors, in terms of representing sport as a cultural code, communication strategy, narrative practice and a means of forming social identity. Kickboxing appeared not only as an object of sports journalism, but also as a dynamic element of public culture that was constantly changing in response to media formats, audience demands, and global discursive changes.

■ Conclusions

The study determined that sports periodicals were an important source of historical and cultural analysis that traced the transformation of public perception of sports, including kickboxing, through media practices in different countries. The typological structure of sports periodicals included specialised sports publications, general information resources with separate sports sections, and digital multimedia platforms. Each of these types performed a separate function in the communication space: from prompt information to in-depth analysis of the processes in the sports environment. The study determined that the genre spectrum included news, reports, interviews, authors' columns, podcasts and visual and textual formats. Emotionally coloured vocabulary, templated language constructions, dynamic syntactic structure and compact form of presentation prevailed stylistically. The historical overview of kickboxing development demonstrated its transformation from an amateur initiative in Japan and the United States in 1960-1970 to a full-fledged institutionalised discipline with international recognition. An important milestone was the creation of the WAKO organisation in 1976, as well as the official recognition of kickboxing by the International Olympic Committee in 2018 as a non-Olympic sport. The analysis revealed that the coverage of this type of martial arts varied significantly depending on the media context.

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The Ukrainian periodicals demonstrated a predominantly institutional and applied approach: the materials addressed the sports sections, the activities of coaches, organisational problems and achievements. The local media addressed information, while the national media included elements of critical analysis and raised issues of public policy regarding non-Olympic sports.

In international sports periodicals, kickboxing was covered through the prism of personal stories, social context, spectacle and symbolic load. The articles in USA Today, Olympic.com, BBC Sport and regional British newspapers presented kickboxing as a part of the cultural code, a space of self-realisation and media interest. The study highlighted a tendency towards hybridisation of genres, the emergence of narrative models of presentation, and the interpretation of sport as an event with multi-layered social and identification significance. The media image of kickboxing was gradually shifting from demonstrating technical characteristics to focusing on personalities, symbols and stories that were able to form an emotionally resonant public discourse. A limitation of the study was the insufficient number of available archival publications, as well as the uneven coverage of kickboxing in the periodicals of different countries and time periods, which made it difficult to build a holistic comparative analysis. Promising areas for further research include expanding the source base by involving little-studied regional publications, comparative analysis of kickboxing coverage with other non-Olympic sports and studying the evolution of the media image of kickboxing in the dynamics of digital transformation of sports journalism. Thus, sports periodicals can be considered an important historical source that reflects the transformation of the cultural status of combat sports in different periods.

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Історична еволюція медійного представлення кікбоксингу в спортивних періодичних виданнях (1990-2024)

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Анотація. Актуальність дослідження визначається необхідністю зрозуміти, як історична еволюція спортивних періодичних видань вплинула на сприйняття бойових мистецтв у різні періоди розвитку бойових мистецтв у цифрову епоху, зростання глобальної мобільності та культурної гібридизації. Метою дослідження було проаналізувати особливості репрезентації кікбоксингу в українській та міжнародній спортивній періодиці з огляду на історико-культурний контекст і трансформацію медіаобразу цього виду спорту. У фокусі дослідження перебувала спортивна журналістика як джерело соціокультурної інформації, що дозволяє простежити еволюцію суспільного сприйняття бойових мистецтв у медійному просторі. У процесі роботи застосовувався комплекс методів: історико-культурний аналіз, джерелознавчий підхід, контент-аналіз медіатекстів, критичний дискурсивний аналіз, а також лінгвостилістичне прочитання текстів. Матеріалами стали вісім публікацій у спортивній періодиці України, США, Великої Британії та на міжнародних платформах, опублікованих у 1997-2024 роках. Усі тексти аналізувалися за форматом, жанром, стилістикою, аудиторною спрямованістю та змістовим фокусом. У ході дослідження було встановлено, що українська спортивна періодика зосереджувалася переважно на інституційно-прикладних аспектах функціонування кікбоксингу – діяльності секцій, ролі тренерів, організаційних умовах і досягненнях спортсменів. Міжнародні ЗМІ натомість демонстрували персоніфікований і наративний підхід, акцентуючи на сюжетах особистих трансформацій, соціального контексту й культурної символіки. Було виявлено, що медіаобраз кікбоксингу в глобальному дискурсі зміщувався від технічної дисципліни до засобу самовираження, репрезентації ідентичності та елементу попкультури. Також простежувалася тенденція до жанрової гібридизації, у межах якої традиційні форми спортивної журналістики поєднувалися з елементами культурної розповіді, розважального контенту та символічної інтерпретації, що зумовлювало ускладнення інформаційного коду бойових мистецтв у медійному просторі. Практичне значення результатів полягає в окресленні механізмів впливу спортивної журналістики на формування уявлень про бойові мистецтва, що може бути використано в підготовці фахівців зі спортивної комунікації, медіаосвіти та культурної аналітики

Ключові слова: аналітичні статті; популяризація; репортажний огляд; інтерв'ю; спортивні клуби; федерації



The full-scale Russian-Ukrainian war in Timothy Ash's expert commentary (2022-2026)

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Abstract. The purpose of the study was to reconstruct T. Ash's views on the causes, nature, and consequences of the full-scale Russian-Ukrainian war, including Russia's genocidal policy and war crimes, as well as the war's prospects for Ukraine, Europe, Russia, and the world at large. The research methodology encompassed the principles of historicism, scholarly rigour, and authorial objectivity, alongside general scientific methods (analysis, synthesis, and generalisation) and specialised historical methods (historico-genetic, historico-systemic, historico-analytical, critical-interpretive, problem-chronological, and retrospective). The study found that T. Ash consistently rejects explanations of the war through the lens of a "NATO threat", interpreting it instead as a consequence of V. Putin's imperial obsession with Ukraine, the Kremlin's unwillingness to recognise Ukrainian statehood, and its fear of Ukraine's democratic choice. It was demonstrated that the commentator characterises the war as existential for Ukraine, colonial in Russia's intentions, and systemic in its international consequences. The study established that in T. Ash's writing, war crimes appear not as incidental excesses of war but as elements of a deliberate strategy of terror, coercion, and the destruction of Ukrainian society. It was further shown that the expert directly applies the concept of a "genocidal campaign" to Russia's actions, linking it to the denial of Ukraine's right to exist, strikes against the civilian population, and attempts to render the normal functioning of the state impossible. It was separately determined that in T. Ash's forecasts, the war will have long-term transformative consequences: for Ukraine – in the form of military and state consolidation; for Europe – in the form of a new security architecture; for Russia – in the form of strategic weakening; and for the world – as a test of democracies' capacity to resist revisionist autocracy

Keywords: war crimes; genocide; imperialism; expansion; historiography

Introduction

T. Ash's commentary, published on the platform The New Voice of Ukraine from the outset of Russia's full-scale invasion of Ukraine, constitutes a coherent body of texts within which a consistent authorial interpretive

model of the war's unfolding is constructed: its causes, nature, and possible consequences. Already in his early publications of 2022, T. Ash eschewed a neutral-descriptive approach and put forward a distinctly normative

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yet internally coherent reading of events: for him, Ukraine is the party defending not only itself but also the democratic political order of Europe, whilst Putin's Russia is a force of imperial revanchism seeking to destroy Ukrainian statehood and, more broadly, the principle of sovereign right to existence. T. Ash (2022a) explicitly emphasised that Ukrainians are in these circumstances "the good guys", who "standing up, fighting to defend our system of Western liberal market democracy". Contemporary historiography of the Russian Federation's full-scale war against Ukraine is taking shape under conditions of an ongoing conflict, which accounts for its dynamic, interdisciplinary, and substantially analytical-prognostic character. Researchers have focused on clarifying the causes, nature, and consequences of the war, combining historical, political, legal, and socio-cultural approaches.

One of the key directions is the conceptualisation of the war as a continuation of Russia's long-standing imperial practices. In this context, S. Plokhii (2023) interpreted the Russian-Ukrainian war as a stage in "the return of history", emphasising its deep roots in the contradiction between imperial and national models of development. A similar position was developed by O.Ye. Lysenko (2022), who examined the war as a phenomenon possessing historical continuity and reflecting the systemic character of Russia's expansionist policy. Also significant is the military-analytical direction, represented by the study of V. Hrytsiuk & O. Lysenko (2023). The authors conducted a comprehensive analysis of the war, defining it as a multidimensional phenomenon encompassing military, geopolitical, and international-legal dimensions. Their work is distinguished by an aspiration to synthesise different levels of analysis – from the local-regional to the global. A distinct group consists of studies that interpret the war through the prism of hybridity. The conceptual foundations of this approach were laid in the work of M. Galeotti (2019), who demonstrated that contemporary Russian warfare is premised on a combination of military, informational, and political instruments. Building on these arguments, O. Bilchak & A. Huz (2024) showed that hybrid warfare is a systemic instrument of Russia's foreign policy, one that has evolved in the direction of open armed aggression. A significant contribution to the study of the humanitarian and legal dimensions of the war was made by Y. Ioffe (2022; 2023). The problems of the deportation of Ukrainian children and violations of international humanitarian law are examined, leading to the conclusion that there are indicators of Russia's genocidal policy. The author's findings considerably broaden the legal dimension of the war's interpretation. Working in the same vein is V. Bufacchi (2023), who examined the Russian-Ukrainian war in the categories of just war theory. The author emphasised the moral responsibility of the aggressor and argued for the qualification of Russia's actions as war crimes. In essence, his study integrated ethical and legal analysis.

A number of authors have examined questions of identity and socio-cultural transformations as preconditions of the Russian-Ukrainian war. In particular, V. Masnenko *et al.* (2021), even prior to the full-scale invasion, outlined the problem of identity transformation in the Donbas, presenting it as one of the key factors of the conflict. This topic is developed by J. Sytnyk & O. Sytnyk (2021), who analyse the dynamics of Ukrainian national identity formation in the eastern regions. The ideological dimension of the war is thoroughly explored in the work of L. Yakubova (2023), who introduced the concept of "rashism" as a specific form of contemporary Russian ideology. The author demonstrated that the war possesses not only a geopolitical but also a world-view character. The historiographical dimension of hybrid warfare was specifically examined by B. Drogomyretskyi (2022), who drew attention to the transformation of scholarly approaches to the study of information confrontation. The author emphasised that the contemporary war is conducted to a considerable degree in the sphere of meanings and narratives, which demands new methodological instruments. Overall, an analytical survey of the contemporary historiography of the Russian-Ukrainian war has revealed a clear tendency towards its conceptualisation as a complex phenomenon combining elements of hybrid, conventional, and ideological warfare. Simultaneously, an evolution in scholarly approaches is observable – from the description of events towards their theoretical comprehension – which opens new perspectives for further research.

In this context, the diverse conclusions of experts regarding the causes, nature, and possible consequences of the Russian-Ukrainian war merit attention, as they enable one to trace the transformation of their views and analytical constructs. Timothy Ash is considered one of the leading British experts and a specialist in Ukrainian-Russian relations, whose articles are widely disseminated in Ukraine. The purpose of the study was therefore to conduct a comprehensive analysis of T. Ash's publications concerning the full-scale Russian-Ukrainian war, with a focus on determining the causes of the war, its impact on international relations, and the forecasting of transformative consequences for Ukraine and the world. The research methodology was grounded in the principles of historicism, objectivity, and systematic analysis, employing general scientific (analysis, synthesis, and generalisation) and specialised historical (historico-genetic, historico-typological, historico-systemic, problem-chronological, and critical-interpretive) methods. Particular attention was paid to discourse analysis of journalistic texts, which enabled the reconstruction of T. Ash's interpretation of the origins, nature, and consequences of the war. The choice of The New Voice of Ukraine platform was conditioned by the fact that it is the primary venue for the systematic publication of T. Ash's analytical writing in 2022-2026, forming an integral body of texts for the study of his views.

The ideological and imperial motives of Russian aggression according to T. Ash

An important place in contemporary historiography is occupied by the collective monograph of O. Sytnyk & O. Zubkovich (2024), which systematised the key dimensions of the war – from the historical to the legal – whilst also tracing the historical origins of Russia's genocidal policy towards the Ukrainian people. At the same time, the studies of M. Haliv & V. Ilnytskyi (2023) and O.V. Medvid (2022) focused on internal historiographical discourse, demonstrating the evolution of scholarly approaches to understanding the war. The subsequent work of M. Haliv *et al.* (2024) broadened the analysis, concentrating on the problem of the genocide of Ukrainians in public discourse. Among other analytical studies, particular note should be made of the work of M. Domańska *et al.* (2023), who analysed Russia's policy in the occupied territories, underscoring the systemic character of integrative and repressive practices. By contrast, A. Wilk & M. Domańska (2022) examined the initial stage of the full-scale invasion, drawing attention to the strategic miscalculations of the Russian leadership. Separately worthy of note is the study by M. Jędrzyśiak (2024), which recorded international legal assessments of Russia's actions, including the ruling of the European Court of Human Rights concerning violations in Crimea. These findings substantially reinforce the evidentiary base confirming the responsibility of the aggressor state, providing substantive arguments that illuminate the systematic character of the aggression, the genocidal policy, and the war crimes committed in the course of the conflict.

In analysing the causes and preconditions of the Russian-Ukrainian war – which began in 2014 but entered a new phase in February 2022 – T. Ash, first, refuted a number of Russian explanatory claims by which the Kremlin justified its war against Ukraine and, second, revealed the true origins of Russia's hybrid and armed aggression against Ukraine. Above all, he categorically rejected the explanation of the war as an allegedly defensive response by Russia to NATO (North Atlantic Treaty Organization) enlargement. T. Ash (2022e) argued that NATO poses no threat to Russia, noting that as NATO passed through successive waves of enlargement, its conventional military capacity diminished and eroded. In the British expert's view, NATO members had long since redirected their efforts away from countering an attack by Russia towards addressing other threats, such as global terrorism or cyber-attacks. This had led the United Kingdom to reduce the size of its army to 78,000 personnel, according to the most recent defence review – the lowest figure since the Second World War. Germany had cut its number of main battle tanks from 2,000 in 1991 to fewer than 200 at present, whilst the United States had withdrawn its last main battle tanks from Europe only a few years prior. By contrast, Russia possesses 20,000 main battle tanks, over 30,000 armoured personnel carriers, several thousand aircraft,

and thousands of artillery pieces (Ash, 2022e). Russia therefore holds an advantage in conventional military forces in Europe, and the Russian leadership is well aware of this. Consequently, Russian claims of a "NATO threat" do not constitute the genuine motive for the war but serve the function of propagandistic cover. The real source of the conflict lies not in the European security system but in the Russian leadership itself and in its imperial worldview. In revealing the true causes of the war, T. Ash (2022e) emphasised that Putin seeks to seize Ukraine because he regards it as an inseparable part of Russian identity and its status as a great power. According to him, Putin is convinced of the existence of a historical Slavic brotherhood between Ukrainians and Russians, and that following the collapse of the Soviet Union, as well as the events of the Orange Revolution and the Euromaidan, Ukraine chose a Western course – one that threatens the traditional bond with Russia. He believes he must act immediately to prevent the final rupture of these ties. In essence, the British expert stresses that Russia's war against Ukraine is not a separate territorial dispute or a partial border adjustment, but the realisation of an ideologically grounded imperial aspiration to subjugate a country which, in Putin's worldview, is not recognised as a fully distinct historical and political reality. It is for this reason that, in T. Ash's view, the full-scale invasion must be understood as the logical continuation of the Kremlin's long-standing revisionist policy aimed at the elimination of Ukrainian state sovereignty.

T. Ash (2022g) developed this line of argument further in March 2022, when he pointed to the psychological and obsessive motives of the Russian dictator. In his words, the war is driven by "Putin's obsession with Ukraine", given which the Kremlin's ruler "just cannot accept Ukraine's right to exist as an independent, sovereign state, able to make its own decisions and the ability of its peoples to live freely as they chose". T. Ash consistently maintains the view that the full-scale war began not because Russia is defending itself against something, but because its leadership cannot reconcile itself to the existence of an independent Ukraine as such. Accordingly, the precondition for the aggression is not external pressure but the internal ideology of the Russian regime. Importantly, T. Ash does not reduce the origins of the war solely to territorial imperialism. He holds that the Kremlin fears not only the loss of control over Ukraine but also the very example of Ukrainian development. T. Ash (2022e) emphasised that the issue concerns ideas, not troops or weapons. Putin fears the principal driving force of the Euromaidan – the aspiration of Ukrainians towards European and Western values such as democracy, human rights, and the rule of law. These values stand in complete opposition to Putin's model of governance, which combines sovereign democracy with kleptocracy. The expert thus identified the fear of the Russian elite towards Ukraine's democratic, European, and law-governed path, as such a path undermines the

foundations of Russian autocracy. The causes of the war therefore also possess an ideological character: Ukraine is dangerous to the Kremlin as a successful alternative to post-Soviet authoritarianism (Ash, 2022e). In June 2022, T. Ash (2022f) named the nature of Russian aggression in still more explicit terms, noting that V. Putin himself had in effect acknowledged it to be “a war of expansion and colonial ambition”. The expert drew attention to the fact that V. Putin, on the occasion of the 350th anniversary of the birth of the Russian Tsar Peter the Great, declared Russia’s historical entitlement to the lands taken from Sweden during the Great Northern War. According to the Russian dictator, Tsar Peter was simply returning the lands to their rightful owners, emphasising that this was their obligation (Dickinson, 2022). In light of this, T. Ash pointed out that for the President of Russia, the struggle against Ukraine belongs to the category of classical imperial wars of conquest: its subject matter is not merely territory but the political and civilisational subjugation of another people, who have been declared in advance to be part of the Russian people. It is for this very reason that T. Ash refused a symmetrical treatment of the parties to the conflict: Ukraine is fighting for survival, whilst Russia is waging a colonial war.

T. Ash’s interpretation of the character of the Russian-Ukrainian war

The British scholar T. Ash devotes considerable attention to the character of the war. In his interpretation, the Russian-Ukrainian war very rapidly transcended the bounds of an ordinary inter-state conflict. Already in May 2022, T. Ash (2022i) wrote that once the fighting had ended, “a sustainable, independent Ukraine will exist. It has fought for and proven, through its spirit, the right to exist”. In this alone he revealed a clear understanding that the Russian-Ukrainian war is, for the Ukrainian nation, not merely a struggle for territory or borders, but a struggle for the right to exist – and that it therefore acquired a distinctly existential dimension. T. Ash consistently maintains that Ukraine is fighting against the threat of the destruction of its own statehood. In his publications, T. Ash frequently emphasised the failure of Russia’s original plan to subjugate Ukraine. The Russian campaign was largely catastrophic; the commentator characterised it as an epic defeat for Putin. T. Ash (2022i) also offered an aphoristic assessment of the situation, underscoring that for Putin this was a “now or never” moment, but that it had now become clear it was simply “never” for him. Thus, already in May 2022, the British expert stated unequivocally that the Kremlin’s strategic maximum – the destruction of the Ukrainian state and the rapid subjugation of the country – had been historically thwarted.

Reflecting on the character of the Russian-Ukrainian war, T. Ash (2023a) emphasised that this war is a battle for the survival of two systems: Western liberal market democracy and autocratic kleptocracy. In this thesis, the character of the war acquires the dimension of a

cultural-civilisational confrontation. It is no longer a matter solely of Ukraine and Russia, but of the collision of two models of political order. It is for this reason that Ukraine’s defeat, in T. Ash’s view, would be not a local catastrophe but proof of the democratic world’s incapacity to defend its own principles in the face of a revisionist force. Having situated Ukraine’s existential struggle within a civilisational framework, T. Ash followed this logic to the conclusion that Ukrainians are fighting not only for themselves. As early as June 2022, T. Ash (2022f) stressed that Ukrainians are fighting not only for their country but also for Western values against the brutal dictator V. Putin, who has declared war on the West – noting that Ukraine is “fighting this war on our behalf”. Such emphases clearly indicate an interpretation of the full-scale Russian-Ukrainian war as a frontier conflict in which Ukraine serves as the front line of defence of the European and, more broadly, Western order. This is one of T. Ash’s most significant conclusions – Ukrainian resistance carries civilisational meaning and therefore cannot be assessed solely in the categories of regional security or inter-state conflict. Given this conviction, T. Ash has repeatedly engaged in criticism of the limited Western support for Ukraine. T. Ash (2023c) stressed that the West is displaying fatigue and indecision in a situation he regards as an existential threat to the system of order. In this context, he calls for a political awakening, emphasising that leaders must wake up. He is particularly sharp in his assessment of the West’s strategic approach, noting that it is characterised by tardiness, caution, and fragmentation: support for Ukraine is provided too slowly, too cautiously, in the form of incremental, belated decisions. He emphasises that the problem lies not in an absence of resources but in an absence of political will and strategic vision, since the West does not fully appreciate the scale of the threat and the consequences of a possible Russian success. In the financial dimension, he draws attention to a fundamental contradiction: despite Ukraine being acknowledged as a key strategic project of the West, there is no clear decision regarding the sources of financing for its victory and reconstruction – which leads him to conclude that the use of frozen Russian assets is effectively the only realistic instrument available (Ash, 2023c). In T. Ash’s interpretation, therefore, the slow delivery of aid to Ukraine is not a technical or bureaucratic problem but a manifestation of a deeper crisis of strategic thinking in the West, which underestimates both the scale of the war and its long-term consequences.

In the context of analysing the character of the Russian-Ukrainian war, T. Ash also addressed the questions of genocide and the war crimes of the Russian occupiers in Ukraine. In the British expert’s commentary, this theme flows from his thesis concerning the Russian authorities’ denial of the existence of Ukrainians as a distinct nation. According to T. Ash (2022g), if V. Putin rejects the right of Ukrainians to exist separately from Russians, then the

very violence perpetrated against Ukrainians acquires in his logic not an incidental but a logical character. In other words, war crimes appear as the practical consequence of an ideology which already denies the victim the right to a separate historical existence. T. Ash therefore does not regard Russian brutality as a by-product of war. T. Ash (2022i) argued that the Russian leadership has no respect for human life and is prepared to employ cruelty as part of its military strategy. Particularly significant here is precisely the characterisation of cruelty as a Russian “tactic”, which provides grounds for the contention that T. Ash interprets violence against civilians as an instrument through which the Kremlin achieves its political and military objectives. This is not a matter of disciplinary aberrations or localised crimes committed by individual Russian units, but of a mechanism of violence and coercion against Ukrainians that is organic to them.

T. Ash (2022h) drew attention to a further circumstance which exposed the mendacity of Putin’s propaganda and revealed the Kremlin’s true intentions: the Russian army “bombs civilians in cities such as Kharkiv, Sumy, and Mariupol” – that is, in cities which Russian propaganda presented as supposedly “their own” or “protected”. Hence his conclusion that this war is not the “protection of Russian-speaking people” but a war against Ukrainian society as such. It is precisely for this reason that the civilian population becomes the object of deliberate pressure. It is particularly important that T. Ash, unlike many Western experts and intellectuals,

does not shy away from the very concept of genocide. T. Ash (2022j) wrote about V. Putin’s rhetoric, which seeks to “wipe Ukrainians off the land where they live”. He rightly observed that Ukrainians have perceived Russia’s actions as genocide and now understand clearly who they are (Ukrainians) and who they do not wish to be (Russians). In September 2022, T. Ash (2022l) was scathing about the rhetoric of the Russians, who call Ukrainians brothers whilst simultaneously killing, torturing, raping, and “otherwise commit genocide against Ukrainians”. In October 2022, T. Ash (2022k) spoke of Russia’s “genocidal campaign against Ukraine”. Such formulations demonstrate that T. Ash regards Russian violence not as a collection of individual crimes but as an integral campaign directed against the right of Ukrainians to live as a distinct political and national community. In his writing, the term “genocide” appears infrequently, but rests on the identification of a series of facts regarding Russia’s actions: the denial of Ukrainian identity, systematic terror against civilians, and attempts to render normal life in Ukraine impossible.

The prospects and possible consequences of the war

T. Ash’s views on the prospects and possible consequences of the war for Ukraine and neighbouring states are of considerable significance. The expert’s views on the war’s prospects flow organically from his assessment of its nature (Table 1).

Table 1. The principal consequences of the Russian-Ukrainian war according to Timothy Ash’s views

Subject / Sphere	Principal consequences	Key details
Ukraine	Historical self-assertion, consolidation of the state and nation, post-war prosperity	<ul style="list-style-type: none"> ✓ Ukraine will not disappear but will exist and undergo significant development ✓ The war has given rise to “a militarised and successful Ukraine” ✓ An “Israel moment” for Ukraine: high mobilisation, a strong army, a clear identity, a sense of existential threat ✓ An analogy with South Korea: a free, Western-integrated, modernised state against the backdrop of an isolated Russia ✓ Acceleration of de-Russification, the complete loss of Russian influence, reorientation towards a Western-style liberal market democracy
Europe	Irreversible structural changes, consolidation of the security architecture, the destruction of the post-Cold War order	<ul style="list-style-type: none"> ✓ Putin “has united NATO and given it a new purpose” ✓ Ukraine has become “the front line of the West’s defence” ✓ Strengthening of NATO’s role, rearmament of European states, reassessment of the Russian threat ✓ Profound changes: the abandonment of illusions regarding “stable coexistence” with the Putin regime ✓ A systemic crisis of the world order; Europe must increase defence spending and prepare for a prolonged confrontation with Russia
Russia	Strategic weakening, international isolation, political and economic exhaustion of the regime	<ul style="list-style-type: none"> ✓ Russia and Putin have become “international pariahs” ✓ “Putin is losing the war”, “time is not on Putin’s side” ✓ The war does not restore greatness but destroys long-term positions, status, and the regime ✓ The complete and permanent loss of Ukraine “for ever” ✓ “10 failures of the Kremlin master” in the war
General risks and conditions for success	The outcome is not automatic; depends on the quality of Western support and peace guarantees	<ul style="list-style-type: none"> ✓ Insufficient Western support leads to a prolongation of the conflict, the exhaustion of Ukraine, and partial destabilisation ✓ A flawed settlement model may result in “state failure in Ukraine” ✓ Peace without reliable security guarantees – “a deferred repetition of war”

Source: developed by the author on the basis of T. Ash (2022c; 2022b; 2022d)

For Ukraine, the expert forecasts not disappearance but, on the contrary, consolidation. T. Ash (2022d) wrote that Ukraine will likely prosper after the war ends. He added that the Russian invasion had given rise to a militarised and successful Ukraine. T. Ash pointed out that the Ukrainian people had understood that Russia can offer only cruelty and therefore aspire to something different. Ukrainians wish to live in a Western-style liberal market democracy, with the rule of law and fundamental human rights, rather than in a police state or fascist dictatorship such as contemporary Russia. He also noted that Putin defined this war as an attempt to return Ukraine to the Russian sphere of influence, but that in practice his actions had in all likelihood lost Ukraine for ever. In his words, there is no scenario in which Russia will have influence over the situation and the process of de-Russification in Ukraine; rather than halting, it will accelerate. Ukrainians will no longer wish to identify themselves with Russia or its elements; instead, they will increasingly turn towards their own distinct Ukrainian and European identity (Ash, 2022d). Thus, in his view, the principal consequence of the war for Ukraine itself is historical self-assertion: the war that was intended to break Ukrainian statehood ultimately consolidated it politically and militarily, and consolidated the nation. T. Ash envisages post-war Ukraine not merely as a state that has survived but as a new security actor in Europe. He described this as "an Israel moment for Ukraine", by which he meant the formation of a state with a high level of mobilisation, a strong army, a clear political identity, and a persistent sense of existential threat (Ash, 2022d). In his publications, T. Ash (2022b; 2022c) also drew an analogy with South Korea, suggesting that a free, Western-integrated, and modernised Ukraine may emerge against the backdrop of an increasingly isolated and deteriorating Russia. This means that the prospect for Ukraine in his analysis is closely bound up with the victory of the model of a modern, security-capable, and Western-oriented state.

For Europe, the expert describes the consequences of the war as already irreversible. T. Ash (2022j) emphasised that V. Putin, through his aggression against Ukraine, had contributed to the unification and strengthening of NATO, "giving it a new purpose". Thus, an aggression conceived as an instrument for weakening the West produced the opposite result: the European security architecture is being rebuilt on the foundations of greater resolve, a heightened role for defence, and a reassessment of the Russian threat. T. Ash developed this argument in subsequent publications. In particular, T. Ash (2022d) stressed that the war had already brought about profound structural changes in Europe, including the strengthening of NATO's role, the rearmament of states, and the reassessment of threats: Ukraine, in his words, had effectively become "a key defensive bulwark for the West against future and inevitable aggression by Putin". In this context, he points directly to the fact that

Russian aggression has compelled European countries to abandon their illusions regarding the possibility of stable coexistence with the Putin regime through economic interdependence or diplomatic compromise. Overall, T. Ash interprets the Russian-Ukrainian war as the moment of final destruction of the post-Cold War order in Europe. T. Ash (2022k) connects Russian aggression with a "systemic crisis" of the world order, emphasising that what is at stake is not merely a regional conflict but a challenge to the very principles of the international system. For Europe, this means the necessity of reconsidering its role in the world, increasing defence spending, and preparing for a prolonged confrontation with Russia.

For Russia, he forecasts strategic weakening, international isolation, and political exhaustion. Already in March 2022, T. Ash (2022h) noted that Russia in general and V. Putin personally had become international pariahs, and in subsequent texts repeatedly maintained that Putin is "losing the war". In the publication T. Ash (2023a) this is formulated even more explicitly: "time is not on Putin's side". This assessment encompasses not only the military front but also the economic, diplomatic, and domestic political dimensions. T. Ash's conclusions are consistent with the positions of other scholars. In particular, A. Prohorovs (2022) analysed the consequences of Russia's war against Ukraine for the European economy, focusing on trade restrictions, sanctions, and long-term structural changes in the relationships between the West and Russia – pointing towards the deepening of its economic and political isolation. At the same time, the findings of J. Lu *et al.* (2025) and P. Dou *et al.* (2025) also confirmed Russia's substantial economic and structural weakening as a significant global trading partner. For T. Ash, the war signifies for Russia not a restoration of greatness but the destruction of its long-term positions, the loss of international standing, and the weakening of the regime itself – even if this process does not always manifest in rapid external signs. He outlined the pessimistic prospects for Russia with particular clarity. At the same time, T. Ash does not regard a positive outcome for Ukraine as automatic. It is for precisely this reason that the motif of insufficient Western support recurs so insistently in his texts of 2023-2026 (Ash, 2023b). If Ukraine is not given the opportunity to wage the war without artificial constraints, then even a strategically weakened Russia will be able to impose a prolongation of the conflict, exhaustion, and partial destabilisation. In December 2024, Ash warned that a flawed settlement model could result in "political failure in Ukraine" (Ash, 2024). One of the key future consequences of the war he also considers to be the quality of the peace. For him, peace without security guarantees is not a resolution but a deferred repetition of war.

■ Conclusions

An analysis of the commentary of the British expert Timothy Ash provides grounds for asserting that his vision

of the full-scale Russian-Ukrainian war is conceptually coherent and internally consistent. He locates the causes of the war not in NATO or in a "security dilemma" for Russia, but in V. Putin's imperial obsession with Ukraine, in the Russian authorities' denial of Ukrainian national-political subjecthood, and in the Kremlin's fear of a democratic, European Ukraine. He defines the character of the war as existential for Ukraine, colonial in Russia's intent, and systemic in its international consequences. The war crimes and genocidal policy of the Russian occupiers in Ukraine he interprets not as a peripheral aspect of the war but as the logical consequence of Russian fascist ideology, which denies Ukrainians the right to a separate existence. It is determined that in T. Ash's forecasts the war possesses not only a destructive but also a transformative character. An analysis of the theoretical framework demonstrated that for Ukraine the war has become a struggle for existence, one that has consolidated its political and military independence and intensified the sense of existential threat. For Europe, this war has become a factor of irreversible structural changes in the security architecture, a strengthening of NATO's role, and a reassessment of the threat posed by Russia. Russia, according to Ash's forecasts, is undergoing strategic weakening and international isolation, which deepens the political and economic exhaustion of its regime. The prospects for further research lie in broadening the

source base available to historian-scholars through the incorporation of commentary by other Western and Ukrainian experts, with a view to a comparative analysis of interpretations of the Russian-Ukrainian war. It would also be worthwhile to deepen the study through the application of quantitative methods of discourse analysis, which would enable one to trace the evolution of war narratives over time. A distinct and promising direction is the study of the influence of expert commentary on the formation of public opinion and political decision-making in Western countries.

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■ Conflict of Interest

None.

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Повномасштабна російсько-українська війна в експертній публіцистиці Тімоті Еша (2022-2026 рр.)

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Анотація. Мета роботи полягала у реконструкції поглядів Т. Еша на причини, характер та наслідки повномасштабної російсько-української війни, зокрема на геноцидну політику та воєнні злочини Росії, а також на перспективи війни для України, Європи, Росії та світу загалом. Методологія дослідження включала принципи історизму, науковості, авторської об'єктивності, а також загальнонаукові (аналіз, синтез, узагальнення) та спеціально-історичні (історико-генетичний, історико-системний, історико-аналітичний, критично-інтерпретаційний, проблемно-хронологічний, ретроспективний) методи. У результаті дослідження з'ясовано, що Т. Еш послідовно відкидає пояснення війни через «загрозу Організації Північноатлантичного договору» і трактує її як наслідок імперської одержимості В. Путіна Україною, небажання Кремля визнавати українську державність і страху перед українським демократичним вибором. Показано, що публіцист характеризує війну як екзистенційну для України, колоніальну за намірами Росії та системну за міжнародними наслідками. Доведено, що у текстах Т. Еша воєнні злочини постають не як випадкові ексцеси війни, а як елемент цілеспрямованої стратегії терору, примусу й руйнування українського суспільства. Простежено, що експерт прямо застосовує до російських дій поняття «геноцидна кампанія», пов'язуючи його із запереченням права України на існування, ударами по цивільному населенню та намаганням зруйнувати нормальне функціонування держави. Окремо встановлено, що у прогнозах Т. Еша війна матиме довготермінові трансформаційні наслідки: для України – у вигляді військового й державного зміцнення; для Європи – у вигляді нової безпекової архітектури; для Росії – у вигляді стратегічного ослаблення; для світу – як перевірка здатності демократій протистояти ревізійній автократії

Ключові слова: воєнні злочини; геноцид; імперіалізм; експансія; історіографія

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