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Editors office address:

Hryhorii Skovoroda University in Pereiaslav
08401, 30 Sukhomlynskyi Str., Pereiaslav, Ukraine
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Editorial standards in European publishing houses using the example of Great Britain

Alina Bondarenko*

PhD in Law, Researcher at Risk
University of Bristol Law School
BS8 1RJ, 5 Tyndall Ave., Bristol, United Kingdom
<https://orcid.org/0009-0009-0031-4230>

Abstract. The purpose of this study was to trace the evolution of editorial standards in UK book publishing and find out their impact on the development of ethical, linguistic, and professional norms in the European publishing space. The study covered five phases, in which the historical, institutional, technological, and integration aspects of the British editorial tradition, which has evolved from craft practices to contemporary quality control systems. The results showed that the professionalisation of editing in the UK was formed as a multi-level system that combined language unification, ethical control, and technological modernisation. It was found that the standards developed within the university publishing houses became the basis for European standards of textual accuracy, and the introduction of codes of editorial ethics and review systems ensured the stability of publishing procedures. It was revealed that the mechanisms of fact-checking and reliability in British practice have a clear institutional structure, and their effectiveness is confirmed by the level of transparency, publicity of reports, and interaction of independent organisations with public broadcasters. The study also showed that the digitalisation of editorial processes in the UK has not led to the loss of the humanitarian content of the profession: automated tools were used as auxiliary tools to ensure grammatical correctness and stylistic consistency, but the final control remains with the individual. The analysis showed that the British editing model serves as a benchmark for the balance between technological efficiency and ethical principles, forming the basis for further unification of European standards. The practical significance of the study lies in the possibility of applying British editing principles to improve national publishing policies, create common quality control criteria, and develop training programmes for editors in European countries

Keywords: professional ethics; reliability control; reviewing; fact checking; proofreading; digital tools

Introduction

Editorial standards in European publishing houses were formed as a complex system of professional, ethical, and technological norms that determined the quality of the text and the level of trust in the printed word. The need to investigate the British experience arose because of its long historical continuity and influence in the European context. For several centuries, British publishing institutions have played the role of not only a unifier of language and technical standards, but also a regulator of

ethical behaviour in the editorial process. Issues of the historical evolution of British publishing practices were considered by A. Nash *et al.* (2021). The researchers reconstructed the development of the British book industry of the 20th-21st centuries, emphasising the consistency of institutional structures and the role of university presses in codifying professional standards. Their analysis showed that centralised publishers such as Oxford University Press and Cambridge University Press ensured

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*Corresponding author

the continuity of editorial culture by creating internal rules that became standards for the entire English-language publishing system. This conclusion allowed considering British book publishing not as an isolated national practice, but as a matrix for forming European standards of publication ethics and stylistic accuracy.

The issue of publishing strategy in the context of the post-war transformations of the English-speaking world was raised by S. Elliott (2023), who traced how the growth of the mass market in the second half of the 20th century changed the approach to editing and producing books. The researcher concluded that the transition from academic to commercial formats was accompanied by a search for a balance between market feasibility and qualitative criteria that have traditionally been determined by British publishers. Thus, editing began to serve as an intermediary between economic and cultural tasks, and the profession of editor itself underwent an expansion of competencies. The concept of developing professional editorial ethics was considered in detail by S. Norton (2024), who investigated the phenomenon of developmental editing as a form of intellectual collaboration between an author and an editor. Her findings confirmed that British and American editors adhered to similar structural principles, but in Britain, standardisation of language and typographic norms remained a priority. The researcher noted that the ethical principles of the profession were embodied in the activities of such institutions as the Society of Freelance Editors and Proofreaders (now the Chartered Institute of Editing and Proofreading), where codes of conduct determined responsibilities to the author and reader. These results outlined the fundamental role of professional organisation in consolidating editorial norms as a social responsibility, which was later adopted by European publishing associations.

The sociolinguistic dimension of editing was considered by M.A. Law Favo (2024), who focusing on how editors' personal language profiles affect the choice of norms in the English text editing process. The researcher found that British English, despite the multilingualism of the English-speaking space, remained the main source of regulatory guidelines in international publishing circulation. Her research has proven that it is British style manuals and language standards that ensure stability in global editorial practice. Such conclusions are important for understanding linguistic unification within the European publishing sector, where British standards function as reference standards, even despite the variety of local English-language options. In the field of data verification, P. Ferracioli *et al.* (2022) conducted observations and described the activities of fact-checkers in various media systems as a supervisory mechanism for public discourse. The researchers proved that the degree of effectiveness of fact-checking depends on the level of institutional independence and trust in the media. They found that in the UK, fact-checking is clearly institutional in nature, associated with state broadcasters and

independent analytical organisations, which guarantees a high level of objectivity.

Aspects of digital transformation of publishing processes were highlighted by T. McIlroy (2025), who examined the impact of artificial intelligence on editor functions. The researcher concluded that automated tools did not replace human expertise, but changed its course when the editor became the coordinator between technological systems and the author, responsible for aligning algorithmic solutions with ethical and stylistic requirements. In the context of academic publishing, an important addition was made by L. Fiorillo & V. Meh-ta (2024), who outlined the possibilities of using artificial intelligence to speed up the editorial review cycle. Their results showed that technological solutions can optimise the process of evaluating manuscripts, but do not replace the need for human judgement. The cultural and philosophical aspect of the editorial work was revealed by M. Griffiths (2022), who defined editing not only as a technical process, but also as a form of critical interaction with text. His findings showed that the editor is a co-creator of intellectual content, and the standards of the profession are at the same time a tool for regulation and creative freedom.

Despite the wide representation of research, some aspects of British editorial standards remained insufficiently systematised. The question of the relationship between historical heredity, codes of ethics, and technological innovations in British publishing practice needed to be clarified. It was also not fully disclosed how British institutional norms influence the development of European publishing policies, especially in the context of digitalisation and standardisation of the language. Thus, the purpose of this study was to trace the evolution of editorial standards in British publishing, determining their impact on the European system of norms and professional ethics in editing. To achieve this goal, the following tasks were formulated: to trace the historical stages of the development of British editorial standards and identify the factors of their professionalisation; to analyse the evolution of the principles of editing, reviewing, and fact-checking as components of reliability control; to investigate the impact of digitalisation on the transformation of editorial procedures and editor functions.

Materials and Methods

The study of editorial standards in European publishing houses on the example of Great Britain was based on a combination of historical and analytical, comparative, and structural and discursive approaches, which allowed tracing the evolution of publishing practices from the early modern era to the era of digitalisation. The choice of the British publishing tradition as a central object was conditioned by its normative nature for the European context, because it was the British editing system, formed around university press and professional associations, that developed generally accepted ethical and

stylistic standards, which were later adapted in continental Europe. The United Kingdom was considered not as a separate regional example, but as a reference model that significantly influenced the professional culture of European countries through the activities of international organisations (Federation of European Publishers (n.d.), International Publishers Association (n.d.)).

The initial stage of the study was to reconstruct the historical foundations of British book publishing. For this purpose, archival and secondary materials were processed – in particular, documents from Oxford University Press (n.d.) and Cambridge University Press (n.d.), which reflect the process of development of editorial practices in the 19th–20th centuries. The source for the analysis was also published samples of editorial instructions and reference books, including Rules for Compositors and Readers at the University Press, Oxford (Hart, 1912) and later editions of the Oxford Guide to Style (Ritter, 2002). Historical and typological analysis helped to establish how universal standards of punctuation, spelling, citation, and typographic design were formed from the internal regulations of publishing houses.

The next stage was aimed at studying the institutional transformation of the editor's profession and the review mechanisms in the British system. For this purpose, regulatory documents and analytical sources related to the development of professional communities were used, in particular, materials from the Chartered Institute of Editing and Proofreading (n.d.) and Publishers Association (The history of..., 2021). Methodologically, this stage was based on the principles of socio-institutional analysis, which allowed tracking the process of transition from individual skills to professional self-organisation.

At the third stage, the principles of peer review and fact-checking in British publishing practices were analysed. Publications on the evolution of independent fact-checking structures were used (BBC Verify, n.d.; Full Fact, n.d.). As part of this stage, a comparative functional method was applied, which allowed comparing editorial, scientific, and journalistic models of reliability control. The analysis also covered regulations and instructions, in particular COPE Ethical Guidelines for Peer Reviewers (n.d.) and Principles of Transparency... (2022), which define standards for publication ethics. The fourth stage focused on the impact of digitalisation on the structure of the editorial process. British and international technological standards for editing were analysed – from the use of content management systems (CMS) to artificial intelligence tools for checking grammar, stylistics, and facts. Comparative analysis and structural descriptive analysis were applied to compare editorial practices, technological tools, and regulatory standards in British and international publishing. The material base consisted of digital reference books New Hart's Rules (Ritter, 2005), analytical reports on the implementation of Smart Topic Miner (Salatino *et al.*, 2019), and the activities of WoodWing Studio (n.d.). A structural and

analytical method was used to determine the role of automated systems in improving the efficiency of publishing processes. The final stage of the study was devoted to the investigation of the European integration of British standards. For this purpose, a document regulating language norms in European institutions was used (English Style..., 2025). The use of the comparative method helped to determine the degree of borrowing of British editorial principles in continental practices.

Results

Historical development of editorial standards in British book publishing

The origins of professional standards in the British publishing industry date back to the emergence of printing in the 16th–17th centuries, when London and Oxford workshops, operating under the guild rules of the Stationers' Company, gradually developed internal quality control practices (Handover, 2025). During this period, there was no unified spelling, punctuation, or uniform presentation style, so proofreaders and compositors relied on the oral "instructions of the experts". In preserved handwritten sheets from London printing houses of the 17th century (Fig. 1) numerous author and editor corrections were recorded in the margins, and insert sheets – corrigenda slips, which indicates early attempts to standardise the way corrections are fixed. It was in the workshop environment that the main professional roles were formed – proofreader, reader, editor – which became the foundation for further standardisation of editorial procedures.

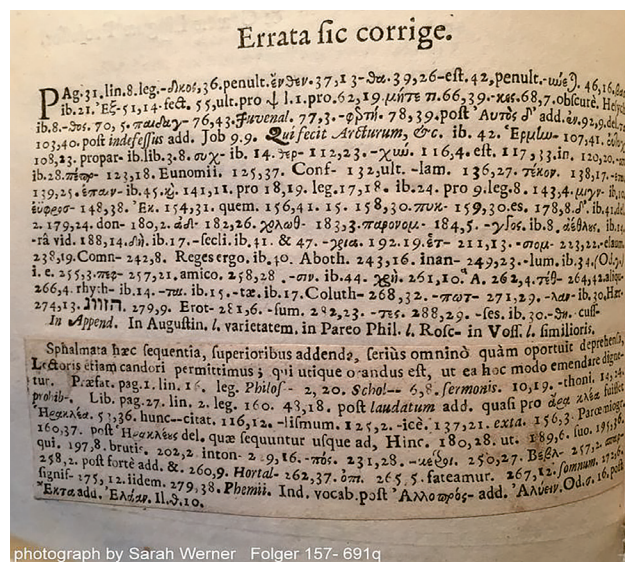


Figure 1. Insert sheet for correcting typos in the publication of selected works by Homer, 1660
Source: Correcting with... (2015)

The image shows a page from the historical publication with a list of corrections under the heading *Errata*

sic corrige, that is, “Correct errors thus” (from Latin). This is a typical example of editorial practice in 17th-century English printing, when errors were discovered after printing was completed and recorded on a separate sheet – an *errata* list. This sample shows detailed page and line numbering, Latin abbreviations, and Greek letters that indicate the exact location of each error. At the bottom of the page, another correction block was added, printed separately and inserted later, reflecting the multi-step accuracy control system in early modern book publishing. This sheet from the collection demonstrates the material aspect of editing before the emergence of the editor’s profession, when the functions of verification, correction, and standardisation were still carried out by the printing house’s technical staff.

The second half of the 18th century was characterised by the expansion of the reader’s market, the development of newspaper and magazine periodicals and the growth of university book publishing. At this time, editorial activity acquired the features of an independent profession. The first written instructions on spelling and citation design began to appear in workshops, and stylistics textbooks focused on the practical needs of printers began to appear in educational institutions. With the industrial revolution and the mechanisation of printing (late 18th – early 19th centuries), publishing became systematic, which stimulated the unification of editorial procedures: preliminary editing of the text before typesetting, double proofreading, checking tables and indexes (Joseph, 2024). The decisive stage in the development of professional norms took place in the 19th century within the framework of university publishing houses. Oxford University Press (OUP) (n.d.) and Cambridge University Press (CUP) (n.d.) became the leading institutions where standards of accuracy, reliability, and scientific integrity were developed. OUP, which began operations in 1478, already had its own printing house, editorial department and staff of proofreaders by the mid-19th century (Maw, 2014). The appointment of Horace Hart as controller of the university press in 1883 marked the beginning of the systematisation of editorial rules. Based on his internal circulars, the first version of *Rules for Compositors and Readers at the University Press, Oxford*, was published in 1893 – a document that became the prototype of modern stylistic reference books (Hart, 1912). Hart’s *Rules*, originally as an internal instruction of the OUP, was already used by other publishers in the early 20th century. Hart’s *Rules* covered punctuation, quote design, italicisms, abbreviations, formatting, note control, font selection, and typographic conditions. The first edition appeared as an internal 24-page booklet of the Clarendon printing house (OUP) in 1893, and was subsequently reprinted many times and expanded in scope and scope, remaining continuously updated for more than a century (James, 2013). It is known about cooperation with the compositors of the Oxford English Dictionary: in early public publications, spelling norms were revised by

James A.G. Murray and Henry Bradley, which increased the authority of the handbook as a source of spelling conventions and spelling consistency (Ritter, 2005). Hart’s *Rules* paid the greatest attention to the constancy of writing and unification of small but critical elements: spelling and variants of British spelling; the use of capital letters; hyphenation (separation and merging of complex words); punctuation (in particular controversial cases of commas, dashes, quotation marks); italics and highlighting of foreign words; abbreviations; numerals and units; correspondence between headings, content and captions of illustrations; and technical conditions for typing and proofreading (Hart, 1912). In practical terms, this meant that the form (spelling, punctuation, font selection) had to strictly correspond to the content and be reproduced equally throughout the publication, including content lists, indexes, and bibliographic elements.

Several factors contributed to the rapid distribution of the manual among publishers. The institutional weight of Oxford University Press as a leading printing and editing unit has provided the handbook with high trust and visibility in the professional environment. Hart’s *Rules* was originally a practical desktop tool for typesetters and proofreaders: its compact format, clear prescriptions, and focus on everyday production solutions made it easily applicable in the workplace (even early public releases had an affordable price, which made it easier to distribute among specialists). Subsequent editions integrated new areas of application – from foreign languages and transliteration to markup of illustrations and complex types of links – so that the reference book remained relevant in the publishing cycle. Together, these guidelines ensured consistency of style from manuscript to galley proofs and final print run, which explains the enduring influence of Hart’s *Rules* in the publishing ecosystem. The balance between the author’s style and the corporate standard determined the editorial tradition of Great Britain. Cambridge University Press (n.d.) created its own editing school. In the 20th century, Judith Butcher, the main subeditor of CUP, was particularly influential in systematising editorial procedures in the *Copy-editing manual: the Cambridge Handbook for Editors, Copy-editors and Proofreaders* (Butcher *et al.*, 2006). This guide is considered a key source in the British editorial tradition.

During the industrial revolution and the subsequent growth of the reader market (19th – early 20th centuries), the production capabilities of book printing significantly expanded: the use of a steam engine, metal presses, automatic font typing, mechanical reproductions of illustrations (Feather, 2005). This allowed reducing costs and scaling book releases, but also created new quality challenges: print runs were larger, production times were shorter, and the verification system had to adapt. In response, publishers gradually divided editing functions into separate roles: proofreader, subeditor, and copyeditor, and introduced procedures for checking citations or facts. It is during this era that the signs of the editorial

profession become noticeable, when subeditors begin to receive specialised training and work as individual specialists. By 1914, British book publishing had become sufficiently institutionalised, with well-established roles and processes that allowed it to withstand competition in the mass market (Plant, 2024). Within the professional organisation of standards, an important step was the creation of associations of editors and proofreaders. In 1988, the Society of Freelance Editors and Proofreaders (Our background, n.d.), which was later transformed into the Chartered Institute of Editing and Proofreading (n.d.). Through this organisation, ethical principles, recommendations for practitioners, exchange of experience and quality standards were developed – all this contributed to the professionalisation of editing in the UK. In addition, publishing associations, in particular the Publishers Association (established in 1896), issues of publishing practice standards were considered in the context of author protection, contractual practice, quality control, and pricing (The history of..., 2021). Although the Publishers Association was not an editorial organisation, it had an impact on systems thinking about professional norms in the publishing industry as a whole.

In the second half of the 20th century, Oxford University Press (n.d.) carried out a thorough editorial revision of its own internal standards and, building on the legacy of Hart's Rules, prepared a new generalised version – the Oxford Guide to Style (Ritter, 2002). For the first time, its structure shows a clear distinction between editorial and author's functions. The manual formalised the norms of citation, bibliographic description, use of capital letters, abbreviations, numerals, units of measurement, and designation of illustrations, that is, it established the foundation for practical standardisation of the entire publishing process. Its consistency allowed using the material not only in publishing houses, but also in academic institutions, media, bibliographic centres, and even in state publishing structures. Thus, the OUP has transformed its internal editorial regulations into a universal standard of British publishing style. A further stage of evolution was the appearance of the compact new Hart's Rules: The Oxford Style Guide (Ritter, 2005), which was distinguished not only by its convenient format, but also by its adaptation to the conditions of digital book publishing. It made a comprehensive update of the style reference book, considering not only print formats, but also digital publications, web content, and electronic publications. According to the preface of the handbook, the new edition contained 21 sections, among which an adaptation for "ebook, websites and other digital products" (Waddingham, 2014) was highlighted separately. In particular, section 1 of "The parts of a book" included comments on how traditional concepts "recto", "verso", "spread" lose their importance in digital formats, in particular, in e-books publishing, where the layout adapts to the screen and has no fixed pages. This aspect – the transition from print layout to adaptive display – became

one of the key innovations and responded to the need for digital transformation in publishing practices. The directory also significantly expanded the "Languages", "Science, mathematics and computing" and "Copyright and other publishing responsibilities" sections to meet the requirements of metadata, DOI, URL links, and online archiving. For example, the "Preparing copy" section states that online editing and converting electronic files to digital products, along with classic typesetting processes, should be considered when editing (Oxford University Press, n.d.). In addition, the publication emphasises compatibility with the Oxford English Corpus dictionary base, with which spelling and stylistic solutions are coordinated in the reference book. The compact format of the guide allowed for quick reference to style points both in layout studios and in digital CMS (content management system) environments. The adaptation to the digital environment was also reflected in the fact that the publication was published in electronic format (eBook ISBN 978-0-19-164914-1) and was integrated with the Oxford Dictionaries Online platform (n.d.), which provided online access to updates, usage examples and links to the Oxford dictionary and thesaurus. This reduced the time delay between updating stylistic guidelines and their implementation in publishing processes.

The editorial standards given in this handbook included a clear order of content: preparation of the manuscript, spelling and hyphenation, punctuation, capital letters, proper names, italics and other changes in font design, title of labour works, design of citations and direct expressions, abbreviations, numbers and dates, multidisciplinary texts (legal, mathematical, computer), lists, tables and illustrations, notes and bibliography, indexing and copyright protection. This systematisation makes the reference book a universal reference point for working with both paper and online formats. The consequence of these innovations was that the handbook not only recreated the traditions of British stylistics, but also set the framework for modern multi-format publication. It met the needs of publishers who worked simultaneously with books, electronic and audio formats. This approach is important for professional practices, as it allows ensuring consistency of style and technological solutions in the context of digital publishing transformation. It retains the basic logic of the classic reference book, but includes sections on electronic publication formats, web source design, DOI, internet links, and style matching in hypertext environments. Such refinements confirm the transition from a print culture to an editing system focused on hybrid content. Thus, the evolution of standards in British book publishing has moved from improvised local rules of printing houses to institutionalised norms that cover not only typographic aspects, but also stylistics, editing, citation, and ethical requirements. These standards laid the foundation for further transformation of editor roles, which helped to transform editing from an archaic workshop practice

into a professional discipline with its own tools, organisations, and standards.

Evolution of editing, reviewing, and fact-checking principles

With the development of publishing in Britain, the functional boundaries between the roles of editor, reviewer, fact-checker and content producer were increasingly outlined. In early practices, often the same person combined several of these roles, for example, a subeditor could perform fact-checking and stylistic editing at the same time. But the growing volume of publications and the complexity of content stimulated the division of labour. The editor is responsible for the overall quality of the manuscript, coordination of the structure, logic of sections, stylistic aspects; the reviewer is an external or internal expert who evaluates scientific or content correctness, argumentation and validity; the fact-checker has the task of verifying statements, data, citations, references; and the content producer coordinates the entire production cycle- from receipt of manuscripts to final publication, monitors the budget, deadlines, and approvals between authors, editors, and the publisher (Cavaliere, 2020). This specialisation allows improving quality control and reducing the likelihood of errors.

In the scientific and academic context, the peer review system has become a fundamental mechanism for quality assurance (Reinhart & Schendzielorz, 2024). Oxford University Press (n.d.) as a leading university publishing house actively used reviews from external scientists for monographs and journals, which helped to identify thematic, methodological, or conceptual shortcomings of manuscripts. In industry and multidisciplinary journals, such as publications Nature Publishing Group (Nature, n.d.), peer review has been established as a standard: manuscripts are sent to reviewers with special instructions for evaluating the reliability of arguments, clarity of presentation, originality of research, and correctness of citation. In many cases, double-blind peer review is used, in which the author and reviewer do not know each other's identity, which should reduce bias. Open peer review (where the names of reviewers are known) also attracts attention as an alternative, with a discussion of possible biases (Horbach & Halffman, 2020).

The move to institutionalise fact-checking has largely manifested itself in journalism and the non-fiction segment. Large media organisations, such as BBC (n.d.), established fact-checking departments: in particular, the BBC Verify service (n.d.) uses open source, OSINT data (OSINT – Open Source Intelligence), image and video analysis to verify the validity of statements in news and public statements. In the UK, there is also an independent organisation Full Fact (n.d.), which works to verify statements that appear in the media, in political discourse, and in public debates. This service has become one of the key actors in the development of a culture of fact-checking in society. In book publishing, the

issue of fact-checking has become important, especially in documentary, historical or biographical literature, but the amount of resources allocated for verification is often limited due to budget and time frames. In the book sphere, it is noted that the British edition is sometimes inferior in such aspects to the American practice of fact checking, that is, some books are published without careful verification of statements ("Carelessness rife"..., 2025). Editorial ethics has undergone a transformation as a result of the conflict between the requirements of accuracy, pressure on the speed of publication, and responsibility to the reader. Publications, especially in newspapers and online publications, face deadlines, which sometimes reduces the time required to check information. Simultaneously, there was a need for guarantees: foreseeing corrections, retractions, and responsibility systems. Publishers, for their part, have developed ethical principles that oblige authors to bear responsibility for the accuracy of their sources. However, editing and fact-checking can be limited by resources – and this creates an ethical dilemma: how much should a publisher "help" or control the text without violating the author's intellectual freedom (Liu *et al.*, 2023).

The interaction between the author and the editor is a key component of building trust in content. The author submits the manuscript with their own arguments and sources; the editor asks questions, offers clarifications, and sometimes requires additional checks or confirmations. In British publishers, it is often assumed that the author must provide proper references to sources, provide primary materials (archived data, statistics, etc.) – and the editor has the right to request documentary evidence in case of questionable claims (Murphy, 2019). This approach contributes to the responsibility of the author and increases the likelihood of detecting errors before publication. The practical impact of these principles on the quality of printed and electronic products can be traced in different segments. In the academic environment, manuscripts usually go through several stages of review, editing, stylistic proofreading, and citation verification. This ensures the rigour of arguments, the relationship with the literature, and compliance with disciplinary norms. In commercial book publishing (non-fiction, popular science literature), the role of fact-checking varies: large publishers, such as Penguin Random House UK (Penguin Random..., n.d.), sometimes have their own fact-checking departments or order external fact-checking services, especially for books with scientific or historical content. But due to resource savings, not all books are thoroughly reviewed, which sometimes leads to corrections in subsequent editions. For example, British journal publications of book critics indicate that in some non-fiction books, the level of fact-checking is lower than in journalism or academic articles ("Carelessness rife"..., 2025).

In the media environment (newspapers, magazines, online publications), the practice of fact-checking is

becoming increasingly important due to the growing spread of disinformation. Fact-checking organisations and services systematically publish the analysis of statements in political debates, policy statements, and statistics (Perceptions, power..., 2024). They are also subject to editorial review, but their openness and the role of public responsibility set new standards for publishing. Such practices shape the expectations of readers: statements used without due diligence can be publicly requested or criticised. Digital versions of publications (e-books, online articles) have special problems: hyperlinks, multimedia components (images, interactive elements), and the ability to quickly correct them. Here, the role of the editor and fact-checker can be combined with technological support (version control systems, change tracking, built-in link checks) (Cushion, 2025). In such cases, the practice of reviewing can be extended, for example, code verification, metadata verification, and verification of the correctness of links (URL, DOI). This tangible impact of new formats shows that the classical principles of editing and reviewing are being adapted, but not replaced: manual proofreading, argument analysis, and source verification remain central.

As a result, the evolution of the principles of editing, reviewing and fact-checking in the British publishing space demonstrates a gradual transition from amateur multi-role practice to a differentiated functional model. The separation of roles has allowed improving the quality of control, especially in academic publications where peer review was established as a standard. In the journalism and non-fiction segment, fact-checking has

received institutional support, but faces resource constraints. Editorial ethics are transformed by the pressure of publication speed, but the interaction between the author and the editor remains the key to building trust and responsible content. Such practices have a direct impact on the quality of both printed and electronic publications: they determine how well the text will be scientifically and factually sustained, considering changes in formats and technologies.

Digitalisation of editorial processes and European integration of British standards

In the UK publishing processes, there is a gradual transition from traditional editing methods to hybrid formats in which print publications are combined with electronic (e-book) and audiobooks (Table 1). This transition provided for a change in workflows, when manuscripts that were previously transmitted in paper or printed form for proofreading and editing are now received in digital formats (Word, XML, sometimes Markdown or LaTeX). After content processing and final editing, they are converted to ePub, MOBI, and other formats for e-readers, and to audio formats via voice acting. In such a hybrid format, it is important that editorial procedures are suitable for both traditional text and media elements or audio components. For example, in audiobooks, the editor must consider the logic of reading aloud, rhythmic pauses, matching accents, and editing dialogues that may have been stylistically designed on paper, but may require changes in audio for clarity. This adaptation is often performed by the editor in collaboration with the narrators.

Table 1. Transformation of editorial processes in British publishers under the influence of digitalisation

Parameter/Stage of the editorial process	Traditional model (before the digital transition)	Digital/hybrid model (after the introduction of AI, CMS, and e-formats technologies)
Manuscript format	Typewritten paper; printed copies with author's corrections	Digital formats DOCX, XML, ePub; integration with version systems
Proofreading and editing	Manual editing, margin symbols, typographic prints	Electronic editing, automatic style and grammar hints
Stylistic coordination	Application of Hart's Rules and Oxford Style Manual in printed form	Using digital style guides and integrated AI editors
Fact-checking and links	Manual verification, comparison of bibliographies and citations with printed sources	Using the CrossRef API, ORCID Lookup, automatic DOI and URL verification
Content management (workflow)	Paper archives, editorial notebooks, typographic layouts	CMS-systems that support multi-format output (print + e-book + audiobook)
Author's proofreading	Mail exchange of edits; corrections in the proofs before printing	Online version approval with changes recorded
Editor's role	Proofreader and stylist responsible for paper accuracy	Curator of multimedia content, moderator of AI edits, metadata controller
Technological tools	Dictionaries, printed stylistic manuals, manual indexing	AI assistants, style verification, metadata integration
Ethical and legal control	Human control over citation and reliability of sources	Codes of ethics for AI, copyright, and language
Publication formats	Printed book, magazine issue	Hybrid product: print + e-book + audiobook, with multimedia applications

Source: compiled by the author based on N. Hart (1912), R.M. Ritter (2002), I. Heibi *et al.* (2019), D.R. Desai & M. Riedl (2024)

One of the most significant changes was the use of artificial Intelligence (AI) and Natural Language Processing (NLP) techniques for automatic text verification, stylistics, and – in some cases – fact-checking. Among the tools that have become widespread in the professional environment, – Grammarly (n.d.), PerfectIt (n.d.), Trinka (n.d.) and others – are able to detect grammatical errors, stylistic inconsistencies, punctuation errors, matching numbers, and even repeating phrases. However, an analysis of the operation of such systems indicates that AI- tools can make erroneous sentences, interfere with the author's style, or make incorrect adjustments, especially when the context of the text is complex (for example, scientific terms or interdisciplinary constructs) (Baron, 2024). In addition to purely stylistic correction, leading publishers use automated systems to help with indexing, thematic labelling, and metadata processing. For example, Springer Nature in the Improving Editorial Workflow and Metadata Quality project uses the Smart Topic Miner (STM) tool, an ontologically managed system that assists editors in classifying scientific topics for books, which significantly reduces the time for initial processing and improves content search (Salatino *et al.*, 2019). In the field of journals and scientific publications, digital manuscript management platforms integrate automated modules for plagiarism checking, reference standards, style matching, version tracking, and automatic metadata verification (Digital Tools & AI..., n.d.). These systems help editors to coordinate peer review and editing in the digital space, while maintaining control over parallel changes. One of the innovations in digital publishing is integration²⁰ in working publishing systems, for example, in the WoodWing Studio system (n.d.), where artificial intelligence helps to automate layout, and generate variants of titles, teasers, SEO texts, and other components of a multimedia product, leaving the final decision to the human editor.

Despite technological innovations, classical editing principles are preserved and often combined with automated tools. Manual proofreading, context matching, stylistic matching, author proofreading, and citation control remain necessary, especially in cases of complex or specialised texts. Automated tools usually serve as the first filter, but they do not replace attentive human control, especially when it comes to clarifying logic, nuances of context, or interdisciplinary borrowing. Digital transformation has also changed the role of the editor. In a digital environment, it acts not just as a proofreader, but as a multimedia content curator. The editor can now be responsible for integrating multimedia elements (images, videos, audio, graphics), checking hyperlinks, metadata, and SEO text optimisation. For example, in electronic journals, the editor can control that all links (URL, DOI) are working properly, that illustrations have the correct captions and metadata, and that multimedia inserts do not violate readability. This advanced functionality of the editor in a digital environment creates

additional skills: knowledge of XML/HTML, understanding of web formats, knowledge of content management systems (CMS), and the ability to work with version control systems and changes.

On the other hand, implementation of AI and digital technologies carry social and ethical challenges. One of the key issues is copyright: if an automated tool is trained on publishers' texts, there is a risk that its suggestions will imitate the style or content without giving the author proper recognition. In discussions, some professionals draw attention to the copyright issue of text that serves as an AI training body (Samuelson, 2023). Another problem is inclusive language and sensitive content. When automatically editing a sentence, the tools can fail to consider cultural, gender, or language nuances. Therefore, the editor should make sure that automatic changes do not violate the principles of ethics or distort the original message in the context of sensitive topics. In addition, algorithmic biases can lead to automatic edits that prefer certain stylistic norms or language clichés, which can devalue the regional, stylistic, or author's version. Editing with such a tool without control can be made by the "average style", which erases the difference in the author's personality. Another challenge is the transparency of algorithms and the ability to check for changes. When AI suggests changes, the editor should see what changes were proposed, why, and on what basis. Therefore, among technological solutions, it is important to support version control, the suggestion log, and the ability to go back to the previous version (Schofield & Zhou, 2025). Ultimately, the integration of digital and automated components increases the requirements for data security and storage: electronic files, metadata, version changes, editing history – all this requires proper archiving and backup. In the process of moving to digital platforms, there is a need for policies for preserving originals, backups, accessing version history, and controlling the publishing chain. Thus, digitalisation of editorial processes in the British publishing context leads to a complex integration of technologies and classical techniques. It requires the editor to be not only a language and stylistic specialist, but also a multimedia content operator, a user of digital environments, a change controller, and a guarantor of the ethics of automatic corrections. However, classic manual verification and careful attention to context remain essential means of quality control in a hybrid editing environment. The transition from technological modernisation to international cooperation took place organically: digital tools that optimised internal editorial processes in the UK created the basis for unifying standards at the level of inter-publishing and professional associations. This institutional consolidation allowed British publishers to adapt their own practices to the digital environment and also to become leading initiators of the development of European standards of quality, ethics, and editorial responsibility.

As part of the European integration of editorial practices, British standards have been specifically reflected in certain regulatory documents and publishing policies on the continent. For example, the European Commission's English Style Guide (2016) states that for the purposes of stylistic consistency, the type of English on which the rules are based – British or Irish – borrows from British spelling and style standards. In addition, the handbook states that verbal design standards should be applied to multilingual publications of the European Union (EU), which demonstrates the transfer of the British model of stylistic standardisation to the level of EU institutions. Similarly, the publication *Country Compendium: A companion to the English Style Guide* (n.d.) contains special sections on style and spelling for each EU member state using the British variant language base. In the context of publishing policy, this meant that publishers in Europe often adopted British reference books as a reference point for developing their own stylistic guides. This approach contributed to the unification of publishing products, when British standards became the starting point for continental practice. Integration also manifested itself at the level of recognition of the British model for international academic publishing associations. The requirements for publications in scientific journals often specify that the style should be "British English" or "UK spelling, consistently applied" (Editorial style..., n.d.). This dimension means that British spelling and stylistics are not only used within the UK, but also accepted on the continent as the standard of editorial practice.

British publishers actively participate in international professional associations, which allows them to promote their editorial approaches as a reference in the European publishing environment. For example, the Federation of European Publishers (n.d.) is the main representative of the national publishing associations of Europe and regularly considers the opinions of British publishers in its policy appeals and standardisation initiatives. In addition, British publishers cooperate through International Publishers Association (n.d.), which coordinates the policy of copyright protection, freedom of publication, and promotion of the global book market. In the academic and professional segment, the Association of Learned and Professional Society Publishers (n.d.) plays an important role, with British university and professional publishers participating in the development of standards for peer review, open access, and ethical norms. The European integration of editorial norms was primarily conditioned by the spread of the requirement to use the British version of English or, at least, to ensure consistency between British and American writing within a single article: for example, the Journal of the Nature Publishing Group (n.d.) expressly required compliance with spelling according to the Oxford English Dictionary (Formatting guide, n.d.), and in the instructions of another edition of this group, "UK English spelling" (Submission guidelines, n.d.). Thus, it

is not a question of "exporting" a single British standard to all English-language publications, but rather of the coexistence of variants within editorial policies and institutional guidelines (Modiano, 2023). As for international recommendations and standards, British publishers have also contributed to their creation or implementation. For example, the ISO 9001 standard for quality management systems (What is ISO..., n.d.) is used not only in industry, but is also adapted for publishing activities as a framework for quality control of production processes (planning, verification, correction). An additional vector of integration was the large-scale adoption of the Oxford legal citation standard: the official guide to legal references developed at Oxford was used not only in UK institutions, but also by law schools and journals abroad, which recorded the penetration of British norms into the European academic space of humanities and law (OSCOLA..., n.d.). Alongside, the pan-European level of standardisation was confirmed by stylistic documents from European Union institutions: the English-language reference guide of the European Commission was based on "British/Irish usage" and applied the relevant spelling and stylistic rules to the Union's web publications and multilingual materials, which reinforced the role of British linguistic convention as a regulatory standard for continental publications (English Style..., 2016). Ultimately, the harmonisation of ethical and procedural requirements was ensured by international professional networks: the journals' membership in the committee on publication ethics provided for a formal obligation to comply with the code of publication integrity (Guide to applying..., n.d.), and the Association of Learned and Professional Society Publishers (n.d.) through the rules and curricula, it disseminated unified approaches to editorial policy and interaction with authors and reviewers in Europe.

Thus, the British experience often serves as a theoretical and practical basis for the development of the European theory of editing. Academic editing courses or professional trainings in European countries borrow British textbooks and use British cases as reference materials. In addition, international conferences of professional editors often have sections dedicated to the British experience, discussing models of peer review, digitalisation, and ethics. Thus, British standards are not just imported, but become an element of an integrated publishing discourse that forms the boundaries of quality, professional response, and ethical acceptance in the European context.

Discussion

The development of editorial standards in British book publishing has demonstrated a pattern of gradual transition from craft practices to an institutionally regulated system, where accuracy and formalisation have become part of the publishing culture. In this context, the observation by L. Chia (2002) is relevant. The researcher

studied commercial book publishing models in Asia in the 11th-17th centuries and showed that production standards were formed through a combination of entrepreneurial initiative and local quality control practices. The results obtained on the activities of the British Stationers' Company, internal circulars of printing houses and early forms of proofreading reproduced a similar logic of self-regulation before the advent of centralised norms. However, unlike Asian traditions, the British process was initially based on university and educational institutions, which led to the transition from guild supervision to academic control. This comparative perspective showed that economic motivation did not deny the standardisation impulse, but rather created conditions for its development.

The relationship between editorial procedures and reader experience in the digital age revealed differences between traditional British editing and modern commercial models. K. Johanson *et al.* (2022) showed that modern book publishing is focused on market attractiveness and narrative effectiveness, while the role of the reader is mainly mediated by analytical data. The results of the study, which traced the transition from printed text to a multimedia product, considering SEO logic, confirmed the tendency to instrumentalise reader reactions. The similarity was in the technological shift, but the British version was distinguished by the formalisation of linguistic and stylistic requirements that ensured the constancy of the form regardless of commercial purposes. Thus, interaction with the reader remained subject to ethical and stylistic codes, and not just marketing strategies. The professional figure of the editor in the British tradition also showed parallels with international concepts of cultural mediation. S.B. Franklin (2025) analysed the phenomenon of the editor as an agent of the establishment of the literary canon, noting the ability of individual specialists to determine the areas of public reception through the selection and modification of texts. In the British context, which was based on the OUP and CUP regulatory documents, the editorial function became less personalised, but more collegial. The comparison showed a general desire to control the quality and preserve the integrity of the text, but the British model was based not on the contribution of individual figures, but on a system of institutional rules. This revealed a difference between the culture of individual authority described by S.B. Franklin (2025), and corporate responsibility consolidated in British editing practices.

The problem of fact-checking in British publishing and media structures revealed a coincidence with the principles outlined by K. Suomalainen *et al.* (2025), who proposed an epistemological model of fact-checking as a collective verification process. In the British context reflected in the study, the role of structures such as BBC Verify or Full Fact was consistent with this concept: the truth of the text was ensured not only by data

verification, but also by transparency of procedures. However, academic book publishing showed a different balance – resource restrictions reduced the scale of verification, but increased the requirements for author responsibility. This discrepancy showed that British practice was aimed at forming a system of joint responsibility between the author and the editor, while journalistic fact-checking was more operational and public in nature. Comparative analysis of international agencies carried out by P. Hidalgo-Cobo *et al.* (2024), allowed correlating British fact-checking mechanisms with the practices of France and Spain, revealing both common methodological foundations and significant organisational differences. The study emphasised that independent fact-checking structures in all three countries used similar tools – analysis of open sources, examination of audio and visual materials, cross-checking data in public and private databases, and attracting specialists from related industries. The results, which reflect the growing role of OSINT, algorithmic identification of visual forgeries and multimedia verification in British services, confirmed this trend. However, there was a difference in institutional organisation: British agencies, in particular Full Fact and BBC Verify, functioned in direct cooperation with public broadcasters and university laboratories, which increased confidence in their conclusions and contributed to the development of transparent protocols. The comparison showed that the British model was characterised by greater procedural standardisation, in particular, in fixing sources, verifying citations and publishing reports, while continental services were more likely to work with local initiatives and had more flexible, less formalised reporting mechanisms.

Coverage of political content in the British media was marked by a different structural logic than, for example, in the United States, which was confirmed by M. Robinson (2025). The researcher noted differences in balance mechanisms, editorial autonomy, and ways to control authenticity. In the British context, the editorial system was based on internal codes of ethics, a clear distinction between the functions of the editor, fact-checker and content producer, which allowed minimising the risks of manipulation or selective presentation of facts. The results of the analysis showed that multi-level editing, mandatory verification of citations, and a quick correction procedure maintained a high level of transparency in the work of news publications. The similarity with American practice was evident in the desire for accuracy, but the British model had a more institutionalised nature of control. It was based on the corporate responsibility of editorial staff acting within agreed professional standards, contributing to the stability of public discourse and audience trust. In terms of the effectiveness of fact-checking observation, E. Porter & T.J. Wood (2021) allowed considering the British experience in a global context. The results of the study show that the introduction of systematic fact-checking

contributed to the correction of misconceptions, although the scale of the effect depended on the socio-cultural environment. An analysis of British practice confirmed this pattern: verification of statements and transparency of sources strengthened confidence in the content, but did not eliminate the impact of information overload. The similarity between the identified patterns was the recognition of the evidentiary impact of inspections, while the difference was determined by the degree of formalisation, because in the UK the control process had more established regulatory parameters.

The review system in British publishers, which functioned as a mechanism for monitoring academic credibility, correlates with the analysis by S.W. Chong & S. Mason (2021). Their research reflected the process of developing reviewers' competence through the practice of reviews, which developed standards of clarity and reasonableness. In the British context, this function was implemented through institutional mechanisms – two-stage peer review, style guides, COPE protocols. The similarity between the approaches was the understanding of peer review as a process that improves the quality of the text, and the difference was in the degree of institutionalisation: British mechanisms were part of the editorial rules, while the practices described by the researchers were individual in nature. The integration of automated tools into publishing workflows correlated with the findings of K. Heints *et al.* (2022). The researchers found that the effectiveness of automatic proofreading systems was high in basic linguistic tasks, but human editing remained indispensable in contextual analysis. The results of British publishers reproduced this trend: tools like Grammarly or PerfectIt performed initial error filtering, but the final control was carried out by the editor, who ensured the content consistency and accuracy of terminology. The comparison revealed a consensus on a hybrid model where technology systems unloaded editors, but did not replace professional expertise. Thus, British practice combined automation with human control within the regulatory framework.

A comparison of the historical and contemporary dimensions of British editorial standards has shown their sustainability as an institutional resource of trust. Unlike the models described in comparative studies, the British system demonstrated a balance between technological innovation and ethical control. Professionalisation of editing, development of peer review and institutional fact-checking functioned as interrelated components of a single reliability assurance system. The coincidence with international observations confirmed the universality of the basic principles of verification, while the differences reflected the special role of academic publishers as carriers of norms. Such results showed that the British experience remained a reference point for European publishing practice, forming a model that combines historical continuity, technological adaptation, and ethical regulation.

Conclusions

As a result of the research, it was found that the development of editorial standards in British book publishing has a continuous historical continuity from local craft practices to a contemporary institutional system based on ethical, stylistic, and technological principles. The analysis confirmed that back in the 16th-17th centuries, the foundations of quality control were laid within the framework of Stationers' Company's activities, which were later transformed into formalised editorial procedures. These results showed that the professionalisation of editing in the UK developed through the gradual expansion of the roles and functions of editors, the emergence of systematic manuals, style standards, and codes of ethics. Documents such as Hart's Rules and The Oxford Guide to Style were found to have played a key role in the development of the British model of editing, where accuracy, consistency, and structural discipline were integrated into the publishing culture. The results of the study showed that the evolution of editorial standards was accompanied by differentiation of functions within the publishing process. It was established that in the 20th-21st centuries, a clear system of distribution of professional roles was formed – editor, reviewer, fact-checker, and content producer. This structure helped to improve the quality and reliability of publications, ensuring mutual control between the participants of the editorial cycle. It was found out that the peer review system, established in British university publishers, is a central element of ensuring scientific validity and objectivity. Its use in various types of publications (scientific, academic, media) has confirmed the flexibility and stability of the British editorial tradition.

Analysis of fact-checking processes has shown that the British model of fact-checking is based on a combination of editorial responsibility and public trust. It was established that the activities of services such as BBC Verify and Full Fact are not only a verification tool, but also an important part of the public media responsibility infrastructure. The study confirmed that the integration of OSINT- technologies, algorithmic identification of images, and open databases in the operation of these services creates conditions for improving the objectivity and accuracy of publications. Digitalisation of editorial processes has changed not only the technical, but also the conceptual structure of editing. It was established that contemporary British publishers successfully integrate artificial intelligence and natural language processing tools into the processes of stylistic verification, indexing, link verification, and content management. It was found that tools such as Grammarly, PerfectIt, and Smart Topic Miner perform the function of primary control, while the final editing remains the responsibility of a human being. This confirmed that automation does not displace professional expertise, but creates a hybrid model of human-technology cooperation.

The study had certain limitations related to the lack of quantitative data on the frequency of application of certain procedures in publishing houses and incomplete openness of internal corporate policies. These circumstances made it difficult to statistically evaluate the effectiveness of standards, but did not affect the reliability of analytical conclusions. Further research may focus on quantifying the impact of editorial and fact-checking protocols on readers' trust, and comparing the British system with new European digital publishing models. An appropriate area is also the analysis of algorithmic ethics in publishing processes, the study of the role of AI in

the development of a standardised language of publications, and the investigation of new formats of cooperation between the editor and technological systems.

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Редакційні стандарти в європейських видавництвах на прикладі Великої Британії

Аліна Бондаренко

Доктор філософії з права, дослідник, що перебуває під загрозою
Юридична школа Бристольського університету
BS8 1RJ, просп. Тіндолл, 5, м. Бристоль, Велика Британія
<https://orcid.org/0009-0009-0031-4230>

Анотація. Метою цього дослідження було простежити еволюцію редакційних стандартів у видавничій справі Великої Британії та з'ясувати їх вплив на формування етичних, лінгвістичних і професійних норм у європейському видавничому просторі. Дослідження охоплювало п'ять етапів, у межах яких проаналізовано історичні, інституційні, технологічні та інтеграційні аспекти британської редакторської традиції, що еволюціонувала від ремісничих практик до сучасних систем контролю якості. Результати показали, що професіоналізація редагування у Великій Британії сформувалася як багаторівнева система, яка поєднує мовну уніфікацію, етичний нагляд і технологічну модернізацію. Встановлено, що стандарти, розроблені в університетських видавництвах, стали основою європейських норм текстової точності, а запровадження кодексів редакційної етики й систем рецензування забезпечило стабільність видавничих процедур. Виявлено, що механізми фактчекінгу та контролю достовірності у британській практиці мають чітку інституційну структуру, а їх ефективність підтверджується рівнем прозорості, публічністю звітів та взаємодією незалежних організацій із суспільними мовниками. Дослідження також показало, що цифровізація редакційних процесів у Великій Британії не призвела до втрати гуманітарної сутності професії: автоматизовані інструменти використовуються як допоміжні засоби для забезпечення граматичної правильності та стилістичної узгодженості, проте остаточний контроль залишається за людиною. Аналіз засвідчив, що британська модель редагування слугує орієнтиром для досягнення балансу між технологічною ефективністю та етичними принципами, формуючи основу для подальшої уніфікації європейських стандартів. Практичне значення дослідження полягає у можливості застосування британських принципів редагування для вдосконалення національної видавничої політики, створення спільних критеріїв контролю якості та розроблення програм підготовки редакторів у європейських країнах.

Ключові слова: професійна етика; контроль достовірності; рецензування; фактчекінг; вичитування; цифрові інструменти



Development of archival practice in the context of digitalisation and the implementation of electronic document management in the Republic of Poland

Arlind Kasa*

Doctor of Sciences

Aleksander Moisiu University

2009, New Campus, Miqesia Str., Durres, Albania

<https://orcid.org/0000-0001-5192-3997>

Abstract. The relevance of the study lies in the need to enhance the efficiency, transparency, and long-term preservation of archival collections through digitalisation. The purpose of the study was to evaluate electronic document management and digitalisation of archival resources of the Republic of Poland to identify their advantages, challenges, and development prospects. The study adopted a descriptive and analytical approach and employed documentary, comparative, and case-study methods, thereby enabling a comprehensive evaluation of the regulatory and practical dimensions of the digitalisation of archives in the Republic of Poland and the identification of prospects for the development of the national digital infrastructure. The study demonstrated that the archival system of the Republic of Poland was undergoing a systemic digital transformation, with the implementation of electronic document management forming its key component, which ensured the automation of the document-processing cycle and compliance with international standards such as the Open Archival Information System, Encoded Archival Description, Metadata Encoding and Transmission Standard, and Electronic Identification, Authentication and Trust Services. The findings indicated a considerable increase in the efficiency of archival operations: the time required for document registration was reduced from three days to four hours, losses of files decreased by 92%, and a complete electronic cycle of the development and transfer of archival packages was ensured. Comparative analysis showed that the central infrastructural projects are the Search the Archives portal and the National Digital Archives, which form a national digital ecosystem and are integrated with international platforms such as Europeana and Archives Portal Europe. Content analysis demonstrated dynamic growth in the digitalisation of archival collections: the number of digitised documents increased from 8.2 million to 70.3 million, and the share of collections in digital format rose from 11.3% to 77.6%. However, key constraints were identified: uneven technical capacity among regional archives, issues concerning the long-term preservation of digital copies, the safeguarding of metadata integrity, insufficient staff qualifications, and cybersecurity challenges. The findings are of academic value for researchers, specialists in archival digitalisation, staff of archival institutions, and public administrators interested in the modernisation of archival practice and the integration of national archival resources into the international digital space

Keywords: digitisation; metadata; digital repository; electronic archival systems; digital transformation; archival infrastructure

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*Corresponding author

Introduction

Archival practice in the period 2020-2025 underwent intensive transformation under the influence of digitalisation and the implementation of electronic document management. The Republic of Poland, a state with a developed network of national and regional archives, actively integrates digital technologies to ensure access to archival collections, their long-term preservation, and greater efficiency in document processing. These processes, however, are accompanied by challenges: the scale of digitising collections, shortages of financial and human resources, the need for metadata standardisation, the safeguarding of digital objects, and the legal regulation of access. The examination of the current state of the archival system of the Republic of Poland, the evaluation of implemented projects, and the analysis of challenges and development prospects are relevant for identifying effective strategies for digitalisation, the modernisation of archival practice, and increased accessibility of historical and cultural heritage for scholars and the wider public.

The review of the literature on the development of archival practice and digitalisation indicates strong academic interest among Polish researchers in the issues of implementing electronic document management and digitising archival collections. In the study by A. Rosa (2025), emphasis is placed on the historical dimension of archival digitalisation, covering the period from the initial computerisation initiatives of the 1990s to the establishment of the National Digital Archive (NDA) and the Search the Archives portal. The author traced the evolution of the technological infrastructure of the archival system, arguing that digitalisation is not a single technical step but the result of a consistent modernisation policy combining metadata standards, centralised management of collections, and state-level support. The study by D. Drzewiecka (2024) adopted a socio-legal approach and examined the issue of access to archival materials in the post-communist period. The researcher demonstrated that the democratisation of the archival sphere after 1989 was accompanied by structural constraints, including the slow pace of digitisation, varied levels of technical capacity across regional archives, and complex procedures for granting access to documents. The study also highlighted that digitalisation in the Republic of Poland has not only a technical but also a value-based dimension since ensuring openness of collections is linked with the development of public trust in state institutions and the maintenance of democratic memory practices. In contrast, M. Kawczyńska (2024) examined archival digitalisation within the broader context of European open-data policy, focusing on the legal aspects of the re-use of public sector information. The author analysed the impact of EU directives on data openness, interoperability, and electronic identification on the transformation of Polish archives into a component of the integrated European digital space.

Other studies confirm the importance of a comprehensive approach to archival digitalisation, the implementation of electronic document management, and the preservation of electronic documents. N. Korzyk *et al.* (2023) examined the state of state archives of Ukraine during Russian aggression, outlining major challenges and achievements in the preservation and accessibility of documents. The researcher emphasised the need for an integration of technological solutions and adaptive management of archival processes even under crisis conditions. The study by R. Nurbatyrova *et al.* (2024) investigated the digital transformation of archives in Kazakhstan in the context of the introduction of an electronic document-management system. The authors demonstrated that the comprehensive implementation of electronic services increases efficiency in processing and accessing archival materials, while requiring metadata standardisation and adequate staff training. In turn, L. Žaja (2021) focused on regulatory frameworks, legislation, and standards for controlling and preserving electronic documents in northern European countries, emphasising that clear legal and methodological regulation of electronic archival processes is a necessary condition for their long-term reliability and accessibility. The analysis of these studies confirms that contemporary archival practice requires the integration of technological, regulatory, and organisational approaches that ensure the effective functioning of digital archives and the resilience of electronic document management.

In turn, G. Colavizza *et al.* (2021) examined the role of artificial intelligence in archives, analysing current debates and the prospects for employing artificial intelligence to automate cataloguing, classification, and the retrieval of archival materials. The authors emphasised that the introduction of intelligent algorithms may substantially increase the efficiency of processing large volumes of data, but requires careful regulation and the safeguarding of system reliability. A. Hawkins (2022) explored the use of linked data in digital archives and the humanities, demonstrating how the application of semantic web technology enhances the accessibility of both digitised and born-digital collections. The author drew attention to the standardisation of metadata and the integration of archival systems to ensure convenient and reliable information retrieval. G. Zaagsma (2023) analysed the political and cultural context of digital history, investigating how digitisation processes influence the representation of historical narratives and access to digital historical sources. The study showed that the digitalisation of archives requires not only technical modernisation, but also an understanding of the sociocultural and political dimensions of access and interpretation.

The analysis of previous studies indicates substantial progress in the field of archival digitalisation, the introduction of electronic document management, and the use of contemporary technologies to improve the

accessibility of archival materials. However, most studies concentrate on technical or regulatory aspects, such as the standardisation of metadata, the implementation of electronic document-management systems, and the use of artificial intelligence to automate document processing. A comprehensive analysis that simultaneously encompasses regulatory, organisational, and technological contexts of archival digitalisation in Poland has not been conducted, nor has the effectiveness of specific projects for digitising collections and providing online access to them been assessed. The purpose of the study was a comprehensive analysis of the current state of the archival system of Poland in the context of digitalisation and the introduction of electronic document management, including an evaluation of implemented digitisation projects and the provision of online access to archival collections, as well as the identification of existing challenges and prospects for further development. Two objectives were set within the study: identifying and systematising the existing regulatory, organisational, and technological frameworks underpinning the digitalisation of archival work in Poland; examining specific projects for the digitisation of archival collections and online platforms, assessing their effectiveness, accessibility, and problematic aspects that influence the further development of electronic archival document management.

Materials and Methods

The study adopted a descriptive and analytical approach with elements of case study and comparative analysis. The timeframe covered the period 2015–2024, which included the most recent legislative amendments, updates to methodological standards, and the implementation of the principal digital initiatives of voivodeship archives. The methodology entailed a combination of several analytical methods. First, a documentary and comparative analysis was conducted, which enabled the systematisation of provisions of laws, secondary legislation, and methodological standards, and the identification of key aspects of digitalisation: the creation, transfer, preservation, description, and access to electronic documents. The main sources of information comprised regulations, secondary regulatory documents, and strategic plans of state archives dedicated to archival digitalisation. The principal regulations examined included the Act “On National Archival Resources and Archives” (1983), which defines the structure of the archival system, the State Archives (n.d.), and approaches to the preservation and transfer of electronic documents. The analysis also covered the Regulation of the Minister of Culture and National Heritage No. 1743 (2015), which sets the rules for classifying and transferring digital documents to archives, and the Regulation of the Prime Minister No. 67 (2011), which introduces the Electronic Document Management system (EDM) in state institutions. The Strategy for the developed by the author based on of archival resources for 2021–2030 (State Archives, 2021) and the Standards for

the digitisation of archival materials (Grochowski, 2017) served as the strategic documents for analysis, detailing directions for digital transformation and technical standards for the digitisation of collections. The methodological foundation was the Open Archival Information System (OAIS) (2022), which adapts the OAIS reference model – ISO 14721:2025 (2025) – to national conditions. Key digital platforms and infrastructural solutions were analysed to evaluate practical aspects of digitalisation: the Search the Archives (n.d.), which aggregates descriptions and scans of archival materials; the National Digital Archives (NDA) (n.d.), which provides the preservation of and access to large volumes of digital copies; and the local systems of voivodeship archives, which support regional digitalisation initiatives. Second, the case-study method was employed to evaluate the practical implementation of digital projects. Specific projects of NDA and voivodeship archives were analysed with regard to the scale of digitisation, technical solutions (file formats, preservation levels, back-up procedures), and the accessibility of resources for users via the Search the Archives (n.d.). Therefore, the combination of documentary, comparative, and case-study methods enabled a comprehensive examination of both regulatory and practical aspects of the digitalisation of the archives of Poland, an evaluation of the effectiveness of implemented projects, and the identification of promising areas for the development of digital archival infrastructure.

Results

Overview of the current state of the archival system of Poland

The archival system of Poland is structured as a multi-level state network that integrates three central archives in Warsaw with regional (voivodeship) archives and their branches. The central institutions include the Central Archive of Historical Records (CAHR), the Archives of Modern Records, and the National Digital Archives (n.d.). The legal framework is defined by the Act “On National Archival Resources and Archives” (1983), which specifies the competences of the General Director of the State Archives (State Archives, n.d.), the procedures for establishing and administering archival holdings, the conditions for transferring materials, their preservation, and the provision of access. The act and its related regulations also establish the principles governing digitisation, the conditions for the transfer of electronic documents to archives, and the responsibilities for preservation and access. NDA serves as the central coordinator of digitisation in the archival sector. Its work is guided by two strategic documents: the Strategy for the digitisation of archival resources for 2021–2030 (State Archives, 2021), approved by the General Director of the State Archives, which sets out the principles of large-scale digitisation, open data, and continuity of access; and the Standards for the digitisation of archival materials (Grochowski, 2017), methodological guidelines

that specify scanning parameters, storage formats, metadata structures, and requirements for systems describing digital copies. NDA performs both technical and methodological functions: it develops protocols for digitisation, storage, and checksum verification, together with standards for long-term digital preservation. Within its structure, the National Digital Archives operates a multi-layered preservation system comprising an Access Layer that provides public metadata and digital copies through the Search the Archives portal, an Archival Layer that holds primary high-resolution copies, and a Backup Layer that maintains duplicates in remote data centres.

The key instrument for accessing digitised materials is the Search the Archives (n.d.), a centralised aggregator that merges descriptions and scans from state and selected non-state archival institutions across the country.

The portal enables metadata searching, browsing of scans, ordering of copies, and the creation of personal collections, thereby significantly enhancing the accessibility of archival resources for researchers and the wider public. The functions and services of archives encompass conventional operations such as acquisition, storage, conservation, inventorying, and reading room access, together with an expanded range of digital services including digitisation on request, systematic large-scale digitisation of priority collections, provision of metadata in open formats, electronic ordering, remote access, and user-oriented educational and informational projects. Many archives combine physical conservation with digital copies as part of a broader strategy to ensure both accessibility and preservation. The principal institutions of the archival system of Poland are presented in Table 1.

Table 1. Key institutions of the archival system in Poland

Institution	Role / Main functions	Examples of digital initiatives
Central Archive of Historical Records	Preservation of historical documents, reference and information services	Digitisation of metric books, Search the Archives
Archive of Contemporary Records	Archives of central institutions, state registries	Electronic fonds descriptions, collaboration with NDA
National Digital Archives	Coordination of digital projects, preservation of audiovisual materials, development of digitisation standards	Mass scanning, National Digital Archives
Voivodeship archives	Collection of local fonds, local digitisation	Regional projects, integration of descriptions into Search the Archives
Search the Archives	Aggregation of descriptions and scans, search and access tool	Metadata search, copy ordering, personalised user accounts

Source: developed by the author based on research by L. Harc (2021)

Table 1 reflects the structural organisation and functional role of the key institutions within the archival system of Poland, with a focus on digitisation and resource accessibility. It shows how the different levels of the archival network interact and what contribution each makes to digital preservation and access provision. The central archives, such as the CAHR and the Archives of Modern Records, perform classical functions of storage and reference services, while integrating digital tools, for example, digitisation of parish registers and the creation of electronic descriptions of collections. This illustrates the combination of conventional archival procedures with contemporary digital services. NDA occupies a central position in coordinating digital projects, defining digitisation standards and protocols, conducting large-scale scanning, and maintaining its own digital repository. Its role is essential for ensuring the unification of digitisation processes, methodological consistency, and open access to resources. The voivodeship archives focus on local collections and the integration of digitised outputs into national systems, which highlights the importance of the multi-level

structure and the coordination between central and regional institutions. The Search the Archives (n.d.) functions as an aggregator, providing centralised access to metadata and scans, which significantly increases the accessibility of archival resources for researchers and the public, while supporting personalised user experiences through accounts and copy requests. Overall, Table 1 demonstrates the effective integration of organisational structure, functional responsibilities, and digital tools that together shape the contemporary digital archival ecosystem of Poland.

Figure 1 illustrates the logical structure of the archival system of Poland and the flows of digital resources, showing the interaction between state administration, central and regional archives, and users. It presents how the multi-level organisational model ensures the preservation of archival holdings, coordination of digitisation, and access to materials through centralised platforms. This visual representation allows both vertical and horizontal connections between system components to be assessed, emphasising the integrative character of the contemporary digital archival infrastructure.

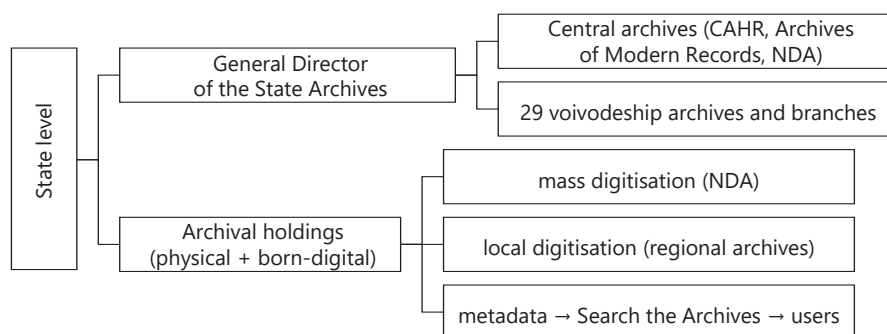


Figure 1. Structure of archival system of Poland and flows of digital resources

Source: developed by the author based on the study by D. Magier & S. Posokhov (2022)

At the national level, the coordinating role is performed by the State Archives (n.d.), who supervises the central archives and regional units. The central archives, which include CAHR, the Archives of Modern Records, and NDA, concentrate key functions of preservation, standardisation, and large-scale digitisation of holdings. The regional voivodeship archives implement local digitisation projects and integrate their results into national systems. Archival holdings, represented by both physical and born-digital documents, follow two parallel digital trajectories: large-scale digitisation conducted by NDA ensures standardised high-quality copies of key collections, whereas local digitisation in the regional archives enables the processing of specific holdings and the preservation of local cultural features. Metadata and digital copies are transmitted centrally to the Search the Archives (n.d.), which serves as the single interface for end users, providing accessibility, search, and document ordering. The diagram highlights the efficiency of the multi-level structure, which combines centralised management, process standardisation, and regional flexibility. It demonstrates how the archival system of Poland maintains sustainability, accessibility, and consistency of digital resources, while supporting the integration of physical and digital holdings into a unified information ecosystem.

The key document that defines the framework of digital archival policy is the Act "On National Archival Resources and Archives" (1983). The Act sets out the concept of the national archival resource, establishes the responsibility of state bodies for the transfer of electronic documents to archives, and delegates the competences of the State Archives (n.d.) in the field of standardising digital processes. In its recent versions (following

the amendments of 2018 and 2020), the Act for the first time provided a clear definition of documents in digital form and the procedures for their preservation in state repositories. The legislative framework is complemented by the Regulation of the Minister of Culture and National Heritage No. 1743 (2015) on the classification and transfer of materials to archives. It defines the rules for receiving electronic documents, the requirements for formats, metadata structures, signatures, and authentication systems. The document stipulates the mandatory use of long-term formats (TIFF, PDF/A, XML) and the implementation of digital preservation policies. Another important instrument is the Government of the UK (2011), which introduced electronic document circulation in public institutions. It obliges state authorities to use Electronic Document Management (EDM) systems compatible with archival requirements and mechanisms for transfer to state archives. Table 2 presents the key regulatory and methodological documents that define the legal and technical landscape of digitisation in the archival domain in Poland.

The general overview of the documents shows that digitisation in the archival system of Poland is founded on a comprehensive approach that combines legislative requirements, technical standards for digitisation, and methodological guidelines for managing digital data. Regulations establish the legal foundation for electronic document circulation and define the roles of key institutions. Strategic documents outline the development pathways of the digital archival infrastructure and open access to materials, whereas standards and national adaptations of international models guarantee compatibility and long-term preservation of digital resources.

Table 2. Key regulations and methodological documents on digitisation

Document	Year	Content / Significance
Act "On National Archival Resources and Archives"	1983 (amended 2020)	Establishes the principles of archival practice, defines the concept of electronic documents, and outlines the competencies of the General Director of the State Archives
Regulation of the Minister of Culture and National Heritage No. 1743	2015	Regulates digitisation, sets standards for formats, description, and transmission of electronic documents
Regulation of the Prime Minister	2011	Implements the EDM system in the public sector
Archival Resources Digitisation Strategy 2021-2030	2021	Defines areas of digitisation policy and infrastructure development

Continued Table 2.

Document	Year	Content / Significance
Archival Materials Digitisation Standards	2022	Provides methodological guidelines on technical parameters and formats of digital copies
Polish OAIS Model	2022	National adaptation of the model for long-term digital preservation

Source: developed by the author based on the study by K. Kowalczyk (2021)

Figure 2 illustrates the structure of governance of digitisation within the archival sector of Poland at the state level and the hierarchical links between the central bodies responsible for policy development, methodological standards, and the direct implementation of

digital initiatives. The diagram shows how the Ministry of Culture and National Heritage delegates authority to the General Director of the State Archives for coordinating archives and approving standards, while ensuring technical and methodological implementation through NDA.

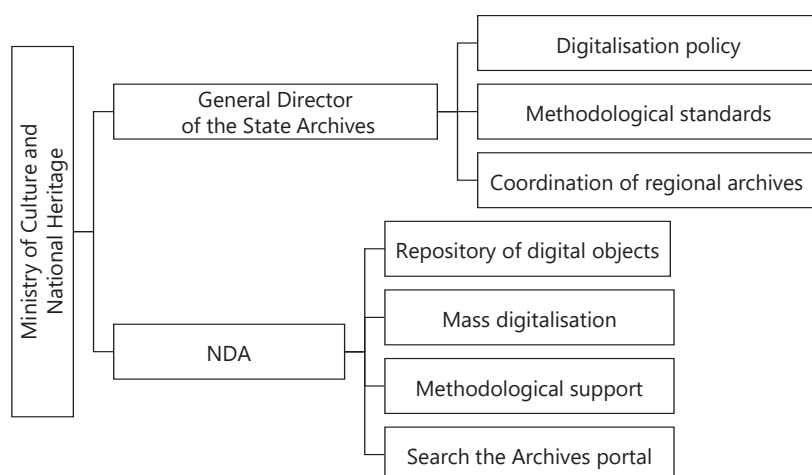


Figure 2. Text-based scheme of digitalisation management in the archival sector

Source: developed by the author based on the study by M. Sobęcka (2025)

The diagram highlights the separation of strategic and executive functions in the governance of digitisation within the archival system. The General Director of the State Archives is responsible for policy development, approval of methodological standards, and coordination of the activities of the 29 voivodeship archives, which ensures consistency of approaches throughout the country. NDA implements direct digitisation measures, including large-scale scanning of archival collections, management of the digital object repository, and methodological support of processes, and offers user access through the Search the Archives portal. This structure ensures effective integration of regulatory requirements, technical solutions, and open access, while supporting standardisation and long-term preservation of digital resources. The legislative framework of Poland therefore provides a comprehensive regulatory basis for digital archival activity, combining legal guarantees of authenticity, durability, and accessibility of documents. The central role of NDA extends beyond the preservation of digital resources to the development of unified standards for state archives, which ensures an integrated archival policy in line with European principles of digital continuity and open access.

Analysis of the implementation of electronic document circulation in archival practice

The contemporary archival system of Poland is undergoing a profound digital transformation, with the introduction of electronic document circulation (Electronic Document Management System) forming its core element. This process encompasses not only the replacement of paper-based administrative practices with digital workflows but also the development of a coherent ecosystem for managing information flows, where documents are created, processed, signed, transmitted, and archived in digital form. Two interlinked platforms play a key role in state archives in Poland: Electronic Documentation Management in the EZD RP system (EDM EZD PR) (n.d.) and European Pressure Ulcer Advisory Panel (EPUAP) (n.d.), which support the functioning of e-government and create the normative and technological foundation for digital archival practice. The system of electronic document circulation in the state sector of Poland is based on the principle of a single information chain that includes the stages of creation, approval, validation, registration, and transfer of a document to the archive. This process may be summarised in the form of a diagram (Fig. 3).

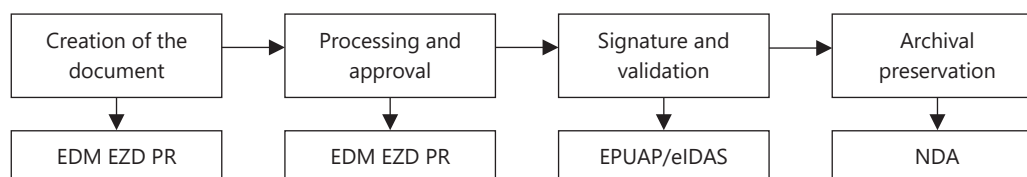


Figure 3. Electronic document management system based on a unified information chain

Source: author's development

In this framework, the Electronic Documentation Management in the EZD RP system (n.d.) serves as the primary tool for electronic record management, whereas EPUAP provides the infrastructure for electronic identification, digital signatures, and inter-agency interaction. EDM EZD PR system, developed by the Podlaskie Voivodeship Office, had become the standard for the majority of Polish state institutions, including archives. It supports the full lifecycle of document management, from creation to transfer to the archive. The main functional modules of EDM EZD PR include registration and classification of documents according to the national file classification scheme, electronic circulation between departments and institutions, digital signatures and authenticity verification

through integration with EPUAP (n.d.) and Electronic Identification, Authentication and Trust Services (eIDAS) (n.d.), automated generation of archival packages for transfer to state archives, and an embedded module for retention schedule control in compliance with JRWA (Uniform Material List of Files) standards. According to the State Archives (n.d.), by 2024, the EDM EZD PR system was used by over 1,200 state institutions, including most regional archives. Its advantages include open-source architecture and state support, ensuring adaptability to regulatory and technological changes. Table 3 presents a comparative overview of the two key systems forming the technological basis of electronic record management in Polish archival practice – EDM EZD PR and EPUAP.

Table 3. Comparative characteristics of electronic document management systems in the archival practice of Poland

Characteristic	EDM EZD PR	EPUAP
System type	Electronic document management system	Electronic administrative services platform
Main function	Creation, processing, and archiving of electronic documents	User identification, digital signature, inter-agency exchange
Use in archives	Preparation and transmission of archival packages	Receipt, authentication, and transfer between institutions
Interaction with NDA	Automatic creation of archival copies	Transmission of authenticated electronic documents
Compliance with standards	OAIS, EAD, METS, JRWA	eIDAS, ISO/IEC 27001:2022
Level of integration	High (API and REST support)	Medium (via GOV.pl gateway)

Note: EAD – Encoded Archival Description; METS – Metadata Encoding and Transmission Standard

Source: developed by the author based on the study by D. Drzewiecka (2024)

The Table 3 demonstrates that the EDM EZD PR system plays a leading role in the digitalisation of internal documentation processes, as it covers the complete cycle of electronic document processing, from creation to the transfer of archival packages to state archives. High levels of integration with other information systems are supported through open APIs and adherence to international archival standards (OAIS, EAD, METS, JRWA). Conversely, EPUAP functions as an overarching system that provides electronic identification, signatures, inter-agency exchange, and document authenticity verification in accordance with eIDAS (n.d.) requirements and ISO/IEC 27001:2022 (2022) security standards. The EPUAP platform constitutes a central element of the e-government framework of Poland, through which official communication is conducted between citizens, institutions, and state archives. Users can submit official requests, receive documents, and sign them using a qualified electronic

signature with legal validity. Through integration with the EDM EZD PR system, documents created and approved via EPUAP automatically acquire official status and may be transferred to the archive without printing. This substantially reduces processing time and the risk of data loss. Within archival practice, EPUAP also functions as a virtual gateway for electronic archive transfer, ensuring compatibility across different departmental record management systems (Drzewiecka, 2024).

Evaluation of the efficiency of electronic record management in Polish state archives indicates a positive impact on productivity, transparency, and archival quality. According to the Digital Decade Country Report (2023), implementation of EDM EZD PR reduced the average document registration time from three days to four hours, while the number of lost cases decreased by 92%. Electronic interaction via EPUAP reduced administrative burden, providing remote access to documents

and enabling a fully electronic approval cycle. Certain challenges remain, including the migration of legacy documents, ensuring metadata authenticity, and standardising archival package formats, which are not yet fully harmonised across all voivodeships.

The implementation of electronic record management is a key aspect of the digital transformation of the archival sector in Poland, closely linked to the need to enhance documentation efficiency, ensure authenticity, and guarantee long-term preservation. This process began in the 2010s with the introduction of the national e-government

programme and the transition of public sector institutions to digital recordkeeping formats. The Polish archival system, as a vital component of the national information infrastructure, integrated its procedures with state platforms, primarily the EDM EZD PR system and the EPUAP platform. This integration established a unified electronic document lifecycle, from creation within departmental systems to archival preservation at the NDA. The structural-functional diagram below illustrates the flow of electronic documents between the principal elements of the archival-information ecosystem (Fig. 4).

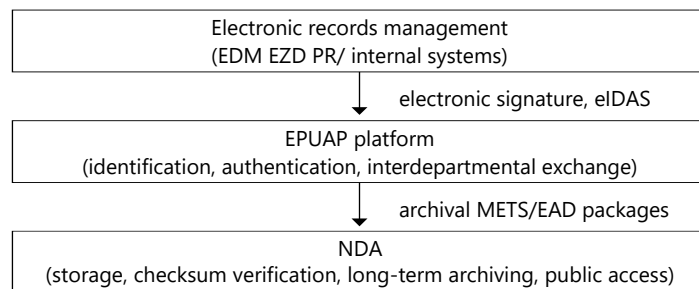


Figure 4. Model of electronic document management in the archival system of Poland

Source: developed by the author based on the study by S. Kotyla (2021)

At the first level, electronic record management (EDM EZD PR) operates, overseeing the creation, processing, and registration of electronic documents within institutions. This stage generates the primary data set, with each document signed using a qualified electronic signature in accordance with eIDAS (n.d.) standards, thereby ensuring the legal validity of digital records. The second level is represented by the EPUAP (n.d.), which functions as an intermediary between institutions and state archives. It provides electronic user identification, document authentication, and the transfer of records between various administrative structures. EPUAP effectively establishes a unified information exchange space in formats compatible with archival standards, including METS and EAD. The third level comprises the NDA, which constitutes the terminal point for the preservation of electronic archival packages. This stage involves checksum verification, compliance with long-term archival standards (Open Archival Information System, 2022), and public access provision through the repository and the Search the Archives (n.d.). Collectively, the framework illustrates an integrated ecosystem of digital archival infrastructure of Poland, with each level performing a clearly defined function: EDM EZD PR – document creation, EPUAP – authentication and transfer, NDA – preservation and access (Kotyla, 2021). This approach guarantees not only technological integrity but also the legal reliability of all electronic document circulation processes. The implementation of electronic record management in Polish archival practice thus proceeds systematically and methodically. Its foundation lies in the integration of EDM EZD PR and EPUAP, which

together form a unified digital chain of document circulation from creation to archival preservation. This arrangement enhances archival efficiency, fosters transparency, strengthens cyber-resilience, and ensures the long-term preservation of the state's digital heritage.

Evaluation of implemented digitisation projects of archival collections and online access

The digitisation of archival collections in Poland represents one of the most successful examples of systemic modernisation of the archival sector in Central and Eastern Europe. Between 2015 and 2025, the state archives of Poland undertook a series of large-scale initiatives aimed at providing open access to historical sources, optimising search capabilities, and preserving cultural heritage in digital format. Among the most significant projects are the Search the Archives (n.d.), the National Digital Archives (n.d.), and inter-archival digitisation programmes within European initiatives, including Europeana (n.d.) and Archives Portal Europe (APE) (2025).

The Search the Archives (n.d.) constitutes a key infrastructural platform, developed by the National Archives of Poland in collaboration with the Ministry of Culture and National Heritage. Launched in 2009, the portal became the central access point for digital copies of documents produced through mass digitisation. Its current version, updated in 2021, supports integration with the EDM EZD PR system, the NDA, and European databases. By early 2025, the Search the Archives database contained over 70 million scanned archival documents, encompassing more than 45 terabytes of data. The portal holds materials from 33 state archives in Poland, including parish registers,

cadastral plans, court cases, and documents from state institutions of the nineteenth and twentieth centuries.

The system interface is constructed on a REST API model, enabling integration with other archival databases, academic repositories, and libraries. Portal architecture

adheres to the OAIS model and descriptive standards EAD and Dublin Core, ensuring full interoperability with international metadata systems. The dynamics of Polish archival collection digitisation through the Search the Archives portal are presented in Table 4.

Table 4. Dynamics of the digitisation of Polish archival collections via the Search of the Archives portal

Year	Number of digitised documents (million)	Data volume (TB)	Share of archival collections (%)
2015	8.2	4.6	11.3
2018	24.5	14.2	28.7
2021	48.0	29.8	53.1
2024	70.3	45.1	77.6

Source: developed by the author based on the study by K. Kowalczyk (2024)

As shown in Table 4, between 2015 and 2024, the digitisation of archival collections in Poland demonstrated consistent and rapid growth. The number of digitised documents increased from 8.2 million to 70.3 million, representing more than an eightfold rise. Concurrently, the volume of digital data expanded from 4.6 TB to 45.1 TB, while the proportion of archival holdings available in electronic format rose from 11.3% to 77.6%. This trend reflects the systematic deployment of digital transformation processes, encompassing both national and regional archives. Significant growth occurred during the period 2018-2021, when large-scale mass digitisation programmes were implemented under the Strategy for the digitisation of archival resources for 2021-2030 (State Archives, 2021). This enabled the integration of millions of pages from parish registers, civil status acts, notarial documents, and cartographic materials into the portal. The system is now approaching full digital representation of archival

holdings, establishing a foundation for further automation of metadata description, intelligent search, and the application of artificial intelligence technologies for document identification.

Polish archives actively integrate into international digital cultural heritage networks. Through the use of standardised metadata (EAD, EDM), over 2.3 million digital objects from Search the Archives (n.d.) are already accessible via the Europeana (n.d.), positioning Poland as a regional leader in the volume of represented archival resources. Furthermore, Poland participates in the APE project, encompassing 33 European countries. This facilitates the integration of Polish archival metadata into a shared search system, enhancing international visibility and accessibility of Polish collections (Rosa, 2025). Figure 5 illustrates the multi-tiered structure of the digital archival ecosystem of Poland, linking national electronic record management platforms, centralised search systems, and European integration initiatives.

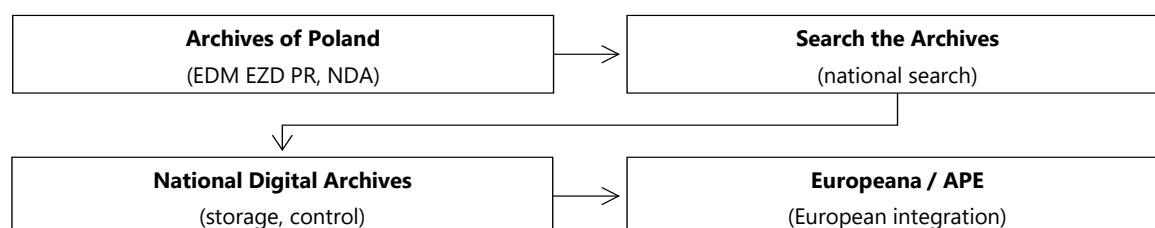


Figure 5. Information interaction of Polish archives in the context of the digital ecosystem

Source: developed by the author based on the study by A. Rosa (2025)

The Polish model of archival digitisation is built upon a clear vertical hierarchy of interconnected elements. The central role is occupied by the Search the Archives (n.d.), which functions as the national tool for archival material discovery, providing open access to millions of digitised documents. Its effectiveness is supported by EDM EZD PR, the electronic record management system that automates processes of document creation, storage, and transfer within the public sector. In parallel, the National Digital Archives (n.d.) operates to provide centralised storage of digital copies, version

control, and metadata standardisation, ensuring the reliability and authenticity of archival objects. An essential component of the strategy is integration with the Europeana (n.d.) and Archives Portal Europe (2025) platforms, which incorporates Polish archives into the shared European digital cultural heritage space. The framework therefore demonstrates not only technical interaction between systems but also an institutionally coordinated approach to managing archival resources, from the national to the international level. This enables Poland not only to preserve its documentary heritage

effectively but also to promote global accessibility of historical data within the European information space.

Consequently, the implemented digitisation projects of Polish archival holdings represent a defining stage in the modernisation of the archival system. The Search the Archives (n.d.) and the National Digital Archives (n.d.) have established a national digital infrastructure that ensures openness, standardisation, and long-term preservation of documentary heritage. International integration through Europeana (n.d.) and Archives Portal Europe (2025) has enhanced the visibility of Polish archives and created conditions for data exchange, academic collaboration, and the development of shared European standards in digital archiving. The Polish experience in archival digitisation demonstrates an effective model combining technological innovation, state policy, and methodological support, which may serve as an example for other Central and Eastern European countries.

The state of Polish digital archival infrastructure demonstrates substantial progress in the creation of databases, the development of electronic services, and the integration of archival resources into national information systems. The digital transformation process, however, faces a series of organisational, technical, and legal challenges affecting the efficiency of digital document preservation and utilisation. A key issue remains the uneven level of technical equipment among regional archives, resulting in variable rates of digital technology implementation. Long-term preservation of digital copies of archival materials also presents a challenge. The Polish system currently employs a hybrid storage

model, combining local servers with a centralised repository within the National Digital Archives (n.d.). The absence of a unified format migration strategy and regular media updates, however, generates risks of data loss. Particular attention is given to metadata management: although the EAD standard is applied, its practical implementation is often fragmentary, complicating integration with international systems, including Europeana Archives (Augustyn *et al.*, 2021).

Organisational challenges are associated with preparing personnel capable of working in the field of digital archival science. Research conducted by the National Archives of Poland indicates that only around 40% of staff possess formal competencies in digital data processing, which slows the implementation of large-scale digitisation initiatives. Limited funding for server infrastructure modernisation projects and the procurement of licensed software further complicates the situation. From a cybersecurity perspective, the primary challenge lies in protecting archival data from unauthorised access and cyberattacks. Although the EDM EZD PR system features multi-level authentication, there is a need to update encryption protocols and incident monitoring. Implementation of backup systems and access auditing remains critical, yet these procedures are currently regulated only at the level of internal guidelines of individual institutions rather than by a nationwide standard. Table 5 summarises the main challenges faced by Polish archival institutions in the context of digitisation and identifies potential areas for further system improvement in accordance with European standards and practices.

Table 5. Key challenges and prospective areas for the development of the digital archival infrastructure of Poland

Problem category	Examples of manifestation	Potential solutions and prospects
Technical	Lack of contemporary servers, risk of data loss	Cloud archives, automated systems for format migration
Organisational	Insufficient staff qualifications, fragmented policy	Development of educational programmes in digital archival studies
Financial	Limited budgets for digitisation	EU support programmes, public-private partnerships
Security	Cyberattacks, vulnerability of storage systems	Implementation of Zero Trust, access auditing, encryption
Legal	Absence of unified metadata standards	Harmonisation with European regulations eIDAS and INSPIRE

Note: INSPIRE – Infrastructure for Spatial Information in the European Community

Source: developed by the author based on the study by T. Aparac-Jelušić (2022)

Data presented in Table 5 demonstrate that the contemporary digital archival infrastructure of Poland is undergoing profound systemic transformation, accompanied by technical, organisational, financial, security, and legal challenges. Each of these categories is complex and requires coordinated solutions at the level of state policy, technical standardisation, and management approaches. Technical issues form the foundation, directly determining the stability and reliability of archival systems. Core challenges include limited server capacity, outdated storage technologies, and risks of data loss due to format migration or the absence of backups. Addressing these issues involves implementing a

comprehensive programme for transition to cloud-based archival solutions built on Microsoft Azure infrastructure, alongside the establishment of national data centres for long-term archival storage. According to the Strategy for the digitisation of archival resources for 2021-2030 (State Archives, 2021), these systems are expected to provide multi-level redundancy, automated format migration in accordance with international OAIS standards – ISO 14721:2025 (2025), and support for metadata in EAD and Dublin Core formats. This approach positions digital archives not merely as data repositories but as integral components of a unified cultural heritage management ecosystem. Organisational challenges primarily concern

staffing and the fragmented nature of digital transformation policies at the regional archive level. Despite centralised management of the state archives system under the General Director of the State Archives, regional institutions exhibit varying levels of technical preparedness and digital competencies among personnel. Financial barriers are typical for the public sector but are partially mitigated through EU funding and public – private partnership mechanisms, supporting the modernisation of technical infrastructure and software. Security challenges carry strategic significance, as digital archives contain critically important national memory data. In response to increasing cyberattacks and threats to data integrity, Poland is gradually implementing a Zero Trust architecture. This framework includes network micro-segmentation, multi-factor user authentication (MFA), continuous monitoring of behavioural anomalies, transaction auditing, and a policy of least privilege for access to archival resources. Implementation of the Zero Trust framework combined with AES-256 data encryption, digital signatures, and ISO/IEC 27001:2022 (2022) certification establishes a multi-layered cybersecurity model for archival infrastructure. Plans include integration of this architecture with a national cyber incident response centre, enhancing threat detection speed and ensuring continuity of digital processes. Legal challenges are related to the need for harmonisation of metadata standards, electronic signatures, and electronic record management formats. Poland is undertaking legal alignment with European eIDAS (n.d.) regulations, ensuring compatibility of Polish archival platforms with European resources, including Europeana and APE, and enabling cross-border exchange of digital metadata. Systematic implementation of cloud technologies, Zero Trust architecture, European metadata standards, and highly qualified personnel thus provides the foundation for creating an integrated national model of the digital archival ecosystem of Poland. This model combines technological, organisational, legal, and security components, ensuring not only the preservation of cultural heritage but also its sustainable development in the digital environment (Kotyla, 2021).

Prospects for the development of the digital archival infrastructure of Poland include the implementation of artificial intelligence technologies for automatic document classification, text recognition, and duplicate detection. Machine learning applications will optimise archival processes and enable the creation of intelligent search systems capable of semantic analysis of document content. Another area involves opening archival data for public use in open data formats, aligning with contemporary European transparency policies for public administration. The National Archives of Poland is developing API access to its collections, which will enable integration of archival resources with educational, research, and media platforms. The digital archival infrastructure of Poland is therefore undergoing comprehensive modernisation, encompassing technical, organisational,

security, and legal dimensions. Implementation of cloud technologies, Zero Trust architecture, European metadata standards, and eIDAS principles establishes the foundation for a resilient, secure, and interconnected archival ecosystem. Future development, focused on integrating artificial intelligence, open data, and process automation, will enhance the efficiency of cultural heritage management and improve accessibility for research, education, and society at large.

Discussion

Analysis of studies from 2020 to 2025 indicates substantial progress in the field of archival digitisation and digital data management. I.A. Carbajal & M. Caswell (2021) examined critical aspects of digital archives, emphasising the importance of regulatory and methodological frameworks for ensuring long-term preservation of digital materials. Compared with the present study, which analysed the implementation of EDM EZD PR and EPUAP systems in Polish archives, their paper demonstrated a broader critical approach to digital collection management. The current study, however, focuses on the practical effectiveness of electronic record management and the integration of national and European platforms. T. Řezník *et al.* (2022) investigated metadata management methods in digital systems, highlighting the importance of standards for ensuring compatibility and inter-system integration. This directly correlates with the findings of the present study, as the implementation of EAD, Dublin Core, and OAIS standards in Polish archives confirmed the practical value of unified metadata for interaction with Europeana and APE. Some aspects, such as the fragmentary implementation of standards at the regional archive level, did not entirely align with T. Řezník *et al.* recommendations, which can be attributed to organisational and resource limitations of Polish archives.

J. Yap *et al.* (2024) analysed the impact of museum digitisation on visitor experience, noting positive effects of open access and interactivity of digital resources. In comparison, the Polish Search the Archives model similarly demonstrates improved access to archival materials and the possibility of remote document use, although archives, unlike museums, require additional mechanisms for data protection and authentication, reflecting the sector's specificities. L. Espina-Romero & J. Guerrero-Alcedo (2022) reached similar conclusions, summarising digitisation trends across various academic domains and emphasising the growing role of technologies in open access and inter-system integration. The findings of the present study correlate with this observation, confirming that Polish archives are actively integrating into European platforms, while also highlighting that technical, organisational, and legal challenges remain significant barriers to the sustainable development of the digital archival infrastructure.

Analysis of the studies by A. Guss (2020) and T. Balogun (2025) allows further evaluation of the legal and

technical aspects of archival digitisation. A. Guss examined the digitisation of cultural heritage in Poland from the perspective of copyright law, emphasising the difficulties in accessing materials protected by legislation and the need to balance openness with legal restrictions. These findings partially correlate with the present study, as Polish archives indeed face challenges regarding the regulation of access rights and the use of digitised documents. The current analysis, however, also highlights technical and organisational components that A. Guss did not explore in detail. T. Balogun investigated strategies for protecting temporary online data, focusing on risks of information loss and methods for its long-term preservation. Compared with the present study, these findings confirm the importance of hybrid preservation models and regular format migration in Polish archives. Current observations indicate, however, that practical gaps exist in metadata standardisation and backup procedure unification, which do not entirely align with T. Balogun general recommendations, reflecting the specific characteristics of the national archival system and resource limitations. Comparison with the studies by A. Guss and T. Balogun thus emphasises that a comprehensive evaluation of Polish archival infrastructure enables more detailed identification of practical issues and solutions than international reviews alone.

Review of papers by F. Amiraslani & D. Dragovich (2022), K. Kutt *et al.* (2024), and L. do Valle Miranda *et al.* (2024) deepened understanding of contemporary approaches to digitising archival and cultural resources. F. Amiraslani & D. Dragovich conducted an interdisciplinary review of documentation, highlighting the role of metadata systematisation and standardisation in ensuring effective search and integration of digital resources. These findings correlate with the conclusions of the present study regarding the importance of unified document description (EAD, Dublin Core) in Polish archives, while also emphasising technical and organisational aspects of digitisation. K. Kutt *et al.* described a cloud-based workflow for cultural heritage digitisation with automated collection of enhanced metadata. Their study confirmed the potential of transitioning to centralised digital repositories with multi-level data integration, reflected in the Polish model through the National Digital Archives and integration with Europeana. However, the Polish system has not yet fully implemented automated metadata processing and relies on fragmentary EAD adoption in regional archives, explaining certain deviations from the idealised cloud workflow model. L. do Valle Miranda *et al.* focused on enhancing metadata for manuscripts within university collections, particularly regarding integration of semantic descriptions and multi-level tagging. These findings partially correspond with the approach observed in the context of national Polish archives but differ in scale and nature of collections: the Polish system combines heterogeneous documents from parish registers to cadastral plans, creating additional

challenges for metadata standardisation and integration. Thus, Comparison with these studies confirms the importance of standardisation, centralised repositories, and semantic enrichment of metadata.

Comparison of the study results with other academic sources demonstrates that the Polish experience of archival digitisation broadly aligns with international trends in the management and preservation of digital cultural resources. Other researchers also emphasise the importance of standardised metadata, platform integration, provision of open access, and long-term preservation of digital materials. International sources highlight legal, organisational, and technological challenges, including cybersecurity, copyright, and process automation, which partially correspond with issues identified in Poland. Overall, the comparison indicates that the Polish archival digitisation system reflects contemporary global approaches, although further development and sustainability require integration of new technologies and enhancement of management practices.

Conclusions

The study demonstrated that the contemporary archival system of Poland is undergoing systemic digital transformation, with the implementation of electronic document management systems as a key element. The system encompasses the entire document lifecycle, from creation and registration to archival transfer, establishing a unified ecosystem for managing information flows within the public sector. Central platforms enabling electronic document management are EDM EZD PR and EPUAP. EDM EZD PR manages internal documentation processes, automated creation of archival packages, and their transfer to state archives, ensuring a high level of integration and compliance with international standards, including OAIS, EAD, METS, and JRWA. EPUAP functions as a supersystem, providing electronic identification, digital signatures, inter-agency exchange, and verification of document authenticity in accordance with eIDAS and ISO/IEC 27001:2022.

The implementation of electronic document management considerably enhances archive efficiency: it reduces document registration time from three days to four hours, decreases the number of lost cases by 92%, and enables a complete electronic approval and transfer cycle for archival packages. Challenges remain in the migration of legacy documents, standardisation of formats, and assurance of metadata authenticity. The study confirmed that archival digitisation in Poland is systematic and extensive, providing open access to historical sources, optimising search, and preserving cultural heritage. Key projects include the Search the Archives portal and National Digital Archives, which form the national digital infrastructure, enabling centralised storage and standardisation of digital copies and integration with international platforms Europeana and Archives Portal Europe. Over the past decade, the

number of digitised documents rose from 8.2 million to 70.3 million, and the proportion of archival holdings in digital format increased from 11.3% to 77.6%, reflecting effective and consistent implementation of digital technologies. The Search the Archives platform supports integration with EDM EZD PR and international databases, ensures compliance with OAIS, EAD, and Dublin Core standards, and serves as the national tool for searching archival materials.

Alongside technical achievements, substantial challenges persist: uneven technical capacity among regional archives, long-term preservation of digital copies, metadata integrity, staff training, and cybersecurity. Poland actively develops mechanisms to address these issues through cloud storage implementation, automated data migration systems, digital archival training programmes, international integration, and adoption of a Zero Trust architecture. Key limitations of the study include its focus on the national context of Poland, which restricts the direct applicability of con-

clusions to other states with different archival practices and legal frameworks. Future research should include an in-depth analysis of artificial intelligence integration in digital archival processes, including automated document classification, text recognition, and semantic search. Further investigation of the digital archival infrastructure management model as a comprehensive phenomenon, encompassing technological, organisational, legal, and security aspects, is also promising, aiming to develop recommendations for other Central and Eastern European states.

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Розвиток архівної справи у Польщі в контексті цифровізації та впровадження електронного документообігу

Арлінд Каса

Доктор наук

Університет імені Александра Моїсіу

2009, вул. Мік'есія, Новий кампус, м. Дуррес, Албанія

<https://orcid.org/0000-0001-5192-3997>

Анотація. Актуальність дослідження полягає у потребі підвищення ефективності, прозорості та довготривалого збереження архівних фондів через цифровізацію. Метою дослідження було оцінити процеси впровадження електронного документообігу та цифровізації архівних ресурсів Польщі для визначення їхніх переваг, проблем і перспектив розвитку. Дослідження мало описово-аналітичний характер із документальним, компаративним та кейс-методом, що дозволило оцінити нормативно-правові й практичні аспекти цифровізації архівів Польщі та визначити перспективи розвитку національної цифрової інфраструктури. Дослідження продемонструвало, що сучасна архівна система Польщі перебуває на етапі системної цифрової трансформації, ключовим компонентом якої стає впровадження електронного документообігу, що забезпечує автоматизацію циклу обробки документів та відповідність міжнародним стандартам Open Archival Information System, Encoded Archival Description, Metadata Encoding and Transmission Standard, Electronic Identification, Authentication and Trust Services. Результати показали суттєве підвищення ефективності функціонування архівів: скорочення часу реєстрації документів із трьох днів до чотирьох годин, зменшення втрат справ на 92 % та забезпечення повного електронного циклу формування й передачі архівних пакетів. Компаративний аналіз засвідчив, що ключовими інфраструктурними проєктами стали портал Search the Archives та National Digital Archives, які формували національну цифрову екосистему та інтегрувалися з міжнародними платформами Europeana і Archives Portal Europe. Контент-аналіз засвідчив динамічне зростання цифровізації архівних фондів: кількість оцифрованих документів збільшилась із 8,2 млн до 70,3 млн, а частка фондів у цифровому форматі – із 11,3 % до 77,6 %. Водночас були виявлені ключові обмеження: нерівномірна технічна оснащеність регіональних архівів, проблеми довготривалого зберігання цифрових копій, забезпечення цілісності метаданих, недостатня кваліфікація персоналу та виклики кібербезпеки. Отримані результати будуть науково цінними для дослідників, фахівців у сфері цифровізації архівів, працівників архівних установ та державних управлінців, зацікавлених у модернізації архівної справи та інтеграції національних архівних ресурсів у міжнародний цифровий простір.

Ключові слова: оцифрування; метадані; цифровий репозитарій; електронні архівні системи; цифрова трансформація; архівна інфраструктура



Libraries as hubs of digital literacy: A case study of public libraries in Kyiv, Lviv, and Kharkiv

Alla Zlenko*

PhD in History, Professor
Hryhorii Skovoroda University in Pereiaslav
08401, 30 Sukhomlynskyi Str., Pereiaslav, Ukraine
<https://orcid.org/0000-0002-5586-3984>

Alla Burmaka

Doctor of Philosophy, Associate Professor
State University of Telecommunications
03035, 7 Solomianska Str., Kyiv, Ukraine
<https://orcid.org/0000-0002-0905-9725>

Abstract. The aim of the research was to explore the role of Ukrainian libraries in developing digital technology skills based on international practices. The methodology involved a systematic analysis of Ukrainian libraries in Kyiv, Lviv, and Kharkiv, content analysis of digital platforms and tools, an international review of practices in Finland, India, Moldova, Romania, and Nigeria, and a descriptive-analytical method for summarising programmes and initiatives with the purpose of assessing the effectiveness of digital technology integration into library activities and formulating recommendations. The main results of the study examined the state of Ukrainian public libraries in Kyiv, Lviv, and Kharkiv, and it was established that they have undergone a transformation, evolving from traditional repositories of printed materials into centres of digital education and innovative activities. It was explored how the implementation of digital platforms, such as "Diia. Digital Education", Google Workspace, Canva, electronic libraries, and webinars, has enabled users of different ages to enhance their digital competencies and information literacy. In particular, tools such as "Diia. Digital Education", Canva, Google Workspace, Zoom, Microsoft Teams, and chatbots assist librarians in effectively organising training, managing learning groups, and adapting materials for users. International experience highlighted that library development programmes as centres of digital education in Finland, India, Moldova, Romania, and Nigeria contributed to enhancing citizens' information and technological skills. It was investigated that in Ukraine, the Digital Education Hub network enabled vulnerable population groups to master practical digital skills, whereas centralised resources in Finland and programmes in India provided access to knowledge for the general population, including rural areas and individuals with limited capabilities. The results demonstrated that the technical upgrading of libraries and the training of librarians as digital facilitators will contribute to enhancing the population's digital literacy, the inclusivity of educational services, and the development of critical thinking skills, ensuring Ukraine's integration into the global information space. The recommendations envisage expanding the network of library hubs, combining in-person and distance learning, creating a national digital platform, and developing specialised courses for socially vulnerable groups. The practical significance of the research lies in the fact that its results can be used by librarians and educational managers to enhance digital literacy

Keywords: digital competence; social inclusion; digitalisation centres; training; international practices

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*Corresponding author

Introduction

Libraries are instrumental in shaping the population's digital literacy, becoming hubs of access to knowledge, information resources, and technologies. The case of public libraries in Kyiv, Lviv, and Kharkiv demonstrates an active transformation of traditional reading halls into innovative spaces where citizens acquire skills for working with digital tools, electronic services, and online platforms. The development of libraries as hubs of digital literacy has contributed to reducing the digital divide, supporting lifelong learning, and engaging various age groups in the digital transformation of society. Such initiatives have strengthened social integration, ensured equal opportunities for learning, and contributed to enhancing citizens' competitiveness in the information environment.

Public libraries worldwide have shown a tendency to transform into centres of digital literacy and lifelong learning, combining educational, social, and technological functions. A significant number of scholars have focused on this topic, forming various approaches and interpretations of its content. For instance, the study by E.-S.T. Abumandour (2021) demonstrated that libraries provided equal access to e-learning, contributed to overcoming educational barriers, and served as platforms for developing self-learning skills. This approach reflected a new paradigm of the library space, oriented towards interactive interaction between users and staff. Similar results were recorded in the study by A. Garoufali & E. Garoufallou (2024), where libraries in Greece were considered as collaborative learning centres that integrated physical and digital space. The authors proved that the implementation of a shared learning space model ensured effective support for visitors in mastering digital technologies, increased the level of information competence, and fostered social learning. A notable place in these transformations was occupied by the formation of digital creativity. In particular, T. La Rose & B. Detlor (2021) showed that digital storytelling and work in library makerspaces contributed to the development of digital skills and creative thinking, especially among students of social specialisations. Projects of this type allowed users to combine technological knowledge with humanities content, which expanded the perception of the library as an environment for innovative learning. Similar trends were observed in Ukrainian public libraries, where the creation of media laboratories, creative rooms, and digital classrooms fostered youth engagement with digital practices, enhancing their competitiveness in the labour market.

International research has paid attention to the problem of overcoming the digital divide. In particular, X. Neumeyer *et al.* (2021) established that digital literacy served as a social bridge, reducing technological barriers among socially vulnerable groups. Libraries acted as intermediaries between users and technologies, providing opportunities for practical learning and support for entrepreneurial initiatives. In turn, D. Radovanović *et*

al. (2020) developed a system of key digital literacy indicators for sustainable development, proving that libraries could become core institutions for its measurement and expansion within communities. The work of P. Reddy *et al.* (2023) presented a model for developing digital skills that narrowed the gap between different population groups. The scholars emphasised that libraries had the potential to implement such models through free training, consultations, and joint events with educational institutions. This aligned with the research of M. Ridley & D. Pawlick-Potts (2021), who identified the need for developing algorithmic literacy among librarians and users. Their conclusions confirmed that library staff performed not only the role of intermediaries in access to information but also that of mentors capable of explaining the principles of digital technologies, algorithms, and artificial intelligence systems. S. Strover *et al.* (2020) showed that in rural regions, libraries ensured digital inclusion, compensating for inequality caused by spatial factors. The authors concluded that such institutions formed hubs of community interaction where digital literacy developed through collaborative learning, knowledge sharing, and local initiatives. This conclusion resonated in the urban environment of Ukraine; public libraries in Kyiv, Lviv, and Kharkiv implemented programmes such as "Digital Education", "Library as a Space for Development", and "Smart Library", which united citizens around the idea of open access to digital resources. Confirmation of these trends was found in the work of T. Withorn *et al.* (2020), who proved that library instruction and information literacy formed the foundation of digital learning, ensuring users' adaptation to changing information conditions. The researchers emphasised that systematic training in the fundamentals of information literacy in libraries contributed to increasing visitors' autonomy and expanded their capabilities in using digital resources.

Despite the aspects covered by previous researchers, gaps remained in the study of specific practices for developing digital literacy in public libraries in Kyiv, Lviv, and Kharkiv. There was a lack of systematic analysis of the effectiveness of local initiatives, methods for engaging different age groups, and the integration of the latest digital tools into library training programmes. The impact of such initiatives on bridging the digital divide among different social and demographic groups of library users was insufficiently researched. The aim of the study was to assess the effectiveness of Ukrainian libraries in functioning as centres for learning digital skills and, based on international experience. The objectives of the study were to analyse digital initiatives and the transformation of public libraries in Ukraine; to evaluate the process of integrating digital platforms into modern library activities; to highlight international practices of developing libraries as hubs of digital literacy; to formulate recommendations for the development of Ukrainian libraries as centres of digital education.

Materials and Methods

The study conducted a systematic analysis of the digital transformation of public libraries in Ukraine, particularly in Kyiv, Lviv, and Kharkiv, with the aim of identifying key practices for integrating digital tools into library activities. Specifically, the National Library of Ukraine named after V.I. Vernadsky (n.d.), the Lviv Regional Universal Scientific Library (n.d.), and the Kharkiv State Scientific Library named after V.G. Korolenko (n.d.) were selected to assess their involvement in digital transformation and the development of media education competencies. The analysis of these sources was carried out to determine their potential for developing users' digital literacy, creating an interactive learning environment, and supporting libraries in their role as centres of digital education.

The study sequentially carried out several stages of analysing digital platforms and tools used in public libraries in Kyiv, Lviv, and Kharkiv. First, the Diia. Digital Education (n.d.) platform was identified and evaluated; it provided access to online courses and training materials for enhancing citizens' digital literacy. The next step was to examine the capabilities of Canva (n.d.) with AI functions for creating educational presentations, informational materials, and interactive resources. Subsequently, the application of Google Workspace (n.d.) was analysed, which facilitates collaborative work, document management, and remote educational events. Simultaneously, the use of interactive chatbots was investigated; these provided prompt consultations and ensured feedback with users. At the final stage, the possibilities of conducting online training sessions via Zoom (n.d.) and Microsoft Teams (n.d.) were assessed, allowing for the organisation of synchronous educational events and ensuring interaction between participants regardless of their location. This step-by-step approach enabled a comprehensive assessment of the functionality and effectiveness of digital tools in the library environment. These tools were selected due to their practical significance for developing digital competencies among users of different ages, ensuring the accessibility of educational resources, the interactivity of the educational process, and the possibility of forming practical skills in using digital services. The selection was based on criteria such as: the presence of official library support, regular use in training programmes, adaptability to different user groups, and the ability to support independent digital activity by visitors.

The study conducted an international review of library digital transformation practices aimed at identifying effective models for developing libraries as centres of digital literacy. For analysis, Ukraine, Finland, India, Moldova, Romania, and Nigeria were selected, as they participate in the international SollarSpell (n.d.) project, since they demonstrated the most indicative and diverse models of developing libraries as hubs of digital literacy. For this purpose, a descriptive-analytical method was applied, which involved summarising government

programmes and materials, namely: in Ukraine (the Digital Education Hub (n.d.) initiative through the United Nations Development Programme Ukraine (2023)), libraries functioned as free educational spaces for enhancing citizens' digital competence. In Finland (the E-library (n.d.) and Finna (n.d.) platforms), a centralised ecosystem of electronic resources was created, ensuring equal access to knowledge. In India (the Digital Empowerment Foundation (n.d.) project), libraries supported digital inclusion of the population in rural regions. In Moldova, Romania, and Nigeria (the IREX (International Research & Exchanges Board) Libraries for Development (IREX, n.d.a) programme), which contributed to the formation of digital literacy and entrepreneurship skills. This approach made it possible to identify innovative directions for integrating technologies into the library sphere and their role in the development of digital communities. Recommendations for Ukrainian libraries as hubs of digital literacy were provided based on the conducted research.

Results

Digital initiatives and transformation of public libraries in Ukraine

In the modern information society, public libraries are undergoing significant transformations: from classical repositories of printed collections to multifunctional centres of digital education, communication, and innovative activity. Furthermore, electronic and digital libraries are becoming a necessary tool that complements traditional library activities. For example, the National Library of Ukraine named after V.I. Vernadsky offers a wide range of electronic resources, including the digital library "Ukrainica", a repository of scholarly works, collections of historical and cultural heritage, as well as access to international projects such as the World Digital Library, which provide remote access for users to unique scientific and cultural materials. Specifically, the "Ukrainica" digital library systematises and disseminates scientific and educational materials of Ukrainian origin, the repository of scholarly works preserves research results and promotes academic integrity, the collections of historical and cultural heritage support the preservation of national memory and cultural identity, and international projects, particularly the World Digital Library, ensure information exchange, intercultural dialogue, and the inclusion of Ukrainian scholarship in the global digital space. These digital tools contribute to the development of open science, the preservation of national heritage, and the enhancement of the information literacy of society (National Library of Ukraine named after V.I. Vernadsky, 2023). This example demonstrates how libraries can act as coordination centres for uniting materials from many institutions into a unified digital system.

In Lviv, public libraries are also actively implementing digital technologies. In particular, the Lviv Regional Universal Scientific Library (n.d.) is implementing the "Fifth Element" project, which helps children from displaced

families through interactive learning of digital skills, information literacy, and critical thinking (Rubryka, 2024). Furthermore, in 2025, Lviv libraries restored over 7,000 publications and created centres for non-formal education for adults, which contributes to the development of media education competencies among youth and adults (Rubryka, 2025). In Kharkiv, the Kharkiv State Scientific Library named after V.G. Korolenko (n.d.) actively conducts media literacy training, organises cultural and educational events, and provides consultations for users. In particular, the organisation of non-formal and informational education for users and librarians contributes to the development of critical thinking and skills for the safe use of information technologies among different age groups (Chytomo, 2022). The Kharkiv State Scientific Library named after V.G. Korolenko is actively modernising and updating its space, combining traditional services with digital technologies: a micro-library and the digital platform "Ideas Cube" have been created, providing users with access to thousands of educational

and cultural materials, integrating online media literacy courses, and ensuring the possibility of work even with limited internet access, as well as introducing interactive training and digital services to improve the media education competencies of visitors (Official Site of Kharkiv City Council, 2025).

Overall, the public libraries in the three cities are actively implementing digital technologies and media education programmes, which contributes to the development of digital literacy among the population. These initiatives help citizens adapt to rapid changes in the digital environment and ensure equal access to educational resources. The role of libraries during wartime is positive, as they are hubs of informational support and learning for the population. Table 1 summarises the key digital initiatives and tools in the public libraries of Kyiv, Lviv, and Kharkiv, showing the different approaches of the cities to digital transformation depending on infrastructure, socio-economic conditions, and community needs.

Table 1. Digital initiatives and tools in the public libraries of Kyiv, Lviv, and Kharkiv

City	Initiative title	Description
Kyiv	Launch of Digital Tools for Librarians at the V.I. Vernadsky National Library of Ukraine	In June 2024, two tools for librarians were launched on the Diia. Digital Education platform: a digital competence framework and the "Digigram" test, which contribute to the professional development of staff in the field of digital technologies, as well as to the integration of electronic catalogues and the resources of the "Ukrainica" digital library.
Lviv	Opening of the Centre for Non-Formal Adult Education at the Lviv Regional Library for Adults	On 19 April 2024, the Centre for Non-Formal Adult Education was opened, offering courses in digital literacy, media literacy, and interactive training sessions for adults, including internally displaced persons, as well as providing access to online resources and digital collections.
Kharkiv	Installation of a Micro-Library and the "Ideas Cube" Digital Library at the V.G. Korolenko Kharkiv State Scientific Library	In September 2023, the library organised a micro-library and the "Ideas Cube" digital platform, which provides access to thousands of educational and cultural materials, integrates online media literacy courses, and supports user operations during limited internet access, including during wartime.

Source: compiled by the authors based on research from United Nations Development Programme Ukraine (2024), InLviv (2024), United Nations Development Programme Ukraine (2025)

Table 1 demonstrates that the digital initiatives in the libraries of Kyiv, Lviv, and Kharkiv have different emphases due to the specificities of the cities: the capital prioritises the implementation of national platforms and the professional development of librarians, Lviv focuses on the development of educational centres and access to electronic resources, while Kharkiv emphasises ensuring remote access to knowledge through micro-libraries and digital hubs. These differences are conditioned by the level of infrastructure, cultural and socio-economic conditions, as well as the needs of local communities. The public libraries of Kyiv, Lviv, and Kharkiv are actively modernising and undergoing digitalisation, helping users to navigate information flows effectively, forming a modern reference and bibliographic base, and providing access to educational and cultural resources even with limited internet access, which is a significant aspect in wartime. In Kyiv, the National Library of Ukraine named after V.I. Vernadsky (n.d.) has implemented digital tools

on the Diia. Digital Education (n.d.) platform, including a digital competence framework and the "Digigram" test, which enable librarians to quickly orient themselves in digital resources and help users find relevant information and electronic collections. The Diia. Digital Education platform is designed to enhance the digital literacy of users and the professional development of library staff, providing access to learning materials, interactive tools, and electronic resources. It includes a digital competence framework, which defines the key skills required for working in a modern digital environment, as well as the "Digigram" test, which allows for the assessment of the digital awareness level of users and librarians. The primary objective of implementing this platform and test is to ensure rapid orientation within digital resources, enhance the efficiency of searching for relevant information, facilitate access to electronic collections, and promote the development of independent learning skills and the critical use of digital technologies. The Lviv Regional

Universal Scientific Library (n.d.) has opened a Centre for Non-Formal Education, where courses in digital literacy, media literacy, and interactive training are conducted, providing users, including internally displaced persons, with skills for critical information analysis and access to online resources. The Kharkiv State Scientific Library named after V.G. Korolenko (n.d.) has created a micro-library and the digital platform "Ideas Cube", which provides access to thousands of educational and cultural materials, integrates online media literacy courses, and supports users' work under the difficult conditions of wartime. Overall, these practices not only contribute to the development of digital skills and media education competencies but also demonstrate Ukrainian experience in comparison with European trends in library and book studies, strengthening the role of libraries as modern educational and cultural centres.

Although the cited examples indicate positive shifts, there are challenges and limitations that should be considered. According to a study by Y. Horban *et al.* (2024), which analyses the digital transformation of libraries across Ukraine, only 41% of libraries have computers, and 33% of libraries have access to high-speed internet. This means that a proportion of libraries are not prepared to provide digital services in full. This technical shortcoming is corroborated by a report from the Ministry of Digital Transformation: as early as 2020, it was recorded that approximately 92% of libraries lacked quality internet, with only 954 of them connected to fibre-optic broadband. This state of affairs limits the possibilities for using online platforms, webinars, interactive services, and providing comfortable electronic access for visitors.

Another challenge lies in the qualification level of library personnel. New roles as facilitators, trainers, and technology consultants are being added to digital functions. Not all librarians have prior training in this sphere, which necessitates additional training and support (which, in fact, the tools of Diia. Digital Education (n.d.) are attempting to address). Risks also lie in the unevenness of coverage; specifically, urban libraries typically have better resources, while libraries in rural areas or remote districts may be left with obsolete equipment or no internet access at all. This can exacerbate the digital divide between urban and rural populations. Funding is another aspect of instability; the development of digital services in libraries depends on grants, donor support, or project funding. When a project concludes, there is no guaranteed sustainability for these services (United Nations Development Programme Ukraine, 2024).

Real-world examples from various libraries in Ukraine confirm that even under difficult circumstances, libraries are actively engaging in innovative activities as local centres of digitalisation. Consequently, the implementation of digital tools in Ukrainian libraries is not merely a matter of fashion, but a strategic necessity in the context of the information society. It enables not only the preservation of the library's traditional function as a custodian

of knowledge but also the expansion of its mission into that of an active educational incubator, a centre of digital competence, and an inclusive platform. However, for the sustainability of such transformations, systemic state support, long-term funding, staff training, careful planning of technical infrastructure, and the adaptation of interfaces to the needs of all user categories are required.

Integration of digital platforms into modern library practice

In modern library science, the primary task of public libraries is not only the preservation and provision of access to printed and digital resources but also the development of information literacy, support for educational programmes, ensuring inclusive access to knowledge, and fostering critical thinking skills in users. Libraries serve as educational centres where visitors of different ages learn to use information resources, develop digital competencies, and acquire practical skills necessary in the modern information society. To fulfil these tasks, traditional approaches are gradually being supplemented by contemporary digital platforms, allowing for the expansion of the service spectrum and enhancement of library work efficiency. For example, the Diia. Digital Education (n.d.) platform is integrated into library programmes for organising training sessions on basic digital literacy, safe internet practices, and the use of state electronic services. Through this, users independently complete courses or participate in group sessions under the guidance of a librarian, which facilitates the learning process and makes it more systematic and accessible. Canva (n.d.) with its artificial intelligence functions can be used for preparing educational materials, informational brochures, posters, and presentations for users, as well as for creating interactive tasks and visualising information during educational events. This enhances the appeal of the learning process and promotes the engagement of youth and creative users. During wartime, the digital platforms implemented in libraries enable users to obtain up-to-date information on safety and state services, complete online courses on digital literacy and safe internet use, support distance learning for children, internally displaced persons, and people with limited mobility, and ensure community communication and educational activity, maintaining access to knowledge and resources even under the difficult conditions of war.

An additional platform is Google Workspace (n.d.), integrated to organise collaborative work on projects, remote sharing of materials, and conducting online consultations. Libraries create group classes or channels for discussing educational topics, which helps to form an active community of users who support each other in knowledge acquisition. Furthermore, the integration of Zoom (n.d.) and Microsoft Teams (n.d.) helps conduct webinars, lectures, seminars, and thematic meetings online, which expands the geographical reach of access to educational programmes and ensures flexibility

in learning, especially for users from remote regions or with limited mobility. Interactive chat-bots are used to automate part of user service: they answer frequently asked questions, provide information about library services, and help with registration for events or online courses. This reduces the workload on library staff and increases the efficiency of information provision, simultaneously fostering the development of digital service usage skills among visitors.

Through the implementation of these platforms, libraries are modernising their traditional services and transforming into hubs of digital education, where users

not only gain access to information but also actively learn how to use it. The use of such tools helps standardise educational programmes, making them more interactive and adapted to different user categories, including the elderly, persons with disabilities, and internally displaced persons. Moreover, the integration of digital platforms develops competencies such as critical thinking, creativity, communication, and collaboration, which are objectives of modern library science. Table 2 summarises the main functional capabilities of modern digital platforms that support the activities of librarians and provide users with access to educational and information resources.

Table 2. Functional capabilities of digital platforms in library activities for librarians and users

Programme / Platform	Functionality for librarians	Functionality for readers / users
Diia. Digital Education	Organising digital literacy training, monitoring learning groups, creating courses	Completing online courses, self-directed learning, access to digital educational materials
Canva with AI Features	Creating educational materials, presentations, brochures, content visualisation	Using prepared materials, participating in interactive tasks, creating own visual content
Google Workspace for Education	Organising collaborative work, remote storage and sharing of educational materials, conducting online classes	Access to learning resources, participation in remote classes, collaborative work on projects
Interactive Chatbots	Automating responses to enquiries, event registration, rapid provision of information	Receiving prompt responses, navigating library services, registering for courses and events
Zoom	Conducting webinars, online lectures and consultations, session recording	Participating in webinars and lectures, viewing recordings, taking part in remote learning events
Microsoft Teams	Organising online classes and training, collaborative discussion of materials, group management	Access to online classes, participation in group discussions, collaborative completion of learning tasks

Source: compiled by the authors based on analysis of Diia. Digital Education (n.d.), Canva (n.d.), Google Workspace (n.d.), Zoom (n.d.), Microsoft Teams (n.d.)

Specifically, the tasks of libraries include the continual updating of digital resources and educational programmes, the adaptation of tools to meet new user needs, as well as the professional development of librarians as digital facilitators. The integration of platforms such as Diia. Digital Education (n.d.), Canva (n.d.), Google Workspace (n.d.), Zoom (n.d.), and Microsoft Teams (n.d.) enables the comprehensive resolution of educational and informational tasks, enhances the effectiveness of the learning process, and ensures the inclusivity, flexibility, and accessibility of services. Thus, contemporary library practice is transforming from a traditional repository of knowledge into an active educational and digital hub, where technology, learning, and community interaction converge.

International practices in developing libraries as hubs of digital literacy

Countries such as Finland and India successfully combine modern technological infrastructure, centralised electronic resources, and large-scale educational programmes that cover virtually the entire population and marginalised groups, enabling citizens to rapidly acquire digital skills and engage critically with information; meanwhile, in Moldova, Romania, and Nigeria, coverage remains limited, access to electronic materials depends on the technical equipment of individual

institutions, and educational initiatives are gradual, necessitating further infrastructure development, staff training, and programme expansion for broader citizen engagement. In Ukraine, projects for library development and digital literacy have been implemented, providing access to learning and resources for broad segments of the population. Table 3 demonstrates the key programmes, achievements, and innovative approaches of various countries in transforming libraries into centres of digitalisation.

The implementation of library programmes in various countries actively contributes to the acquisition of competencies in working with information resources and technological tools. In Ukraine, established centres allow citizens to practise practical skills, notably working with electronic services, which is particularly important for representatives of vulnerable groups. In Finland, platforms provide access to a wide range of electronic materials, helping users master methods of searching, evaluating, and systematising information. The activities of the Indian organisation DEF cover rural areas and help people with limited opportunities learn to apply digital tools for everyday life and professional activities. In Moldova and Romania, programmes are aimed at enhancing skills in using state electronic services and communication platforms, facilitating the independent completion of tasks and interaction with administrative structures.

In Nigeria, initiatives concentrate on developing practical skills for youth and women, providing access to modern learning tools and entrepreneurial platforms. Thanks to these approaches, people acquire the ability

to use digital technologies effectively, evaluate information critically, and organise their own learning, creating a sustainable foundation for integration into the modern information environment.

Table 3. Features of library development programmes as hubs for digital literacy in international countries

Country	Programme	Achievements	Innovations
Ukraine	"Digital Education Hub" Project (Diia.Education / UNDP)	Over 3,000 library-hubs provide digital literacy training. In 2024, over 25,000 individuals across 22 regions completed training. Pre-full-scale invasion, there were approximately 6,000 hubs; post-invasion, approximately 3,000, the majority being libraries.	Establishment of a network of library-hubs, offline access to courses, trainer training, inclusion of vulnerable population groups in the programme.
Finland	National E-Library Project (E-library) + Finna and Digital Library Services	The service covers 97% of the country's population through the inclusion of 280 municipalities. In 2024, over 200,000 registered users, more than 7,000 book titles (electronic), 100+ journals, approximately 1 million books loaned, 4 million journals read via the E-library.	Centralised collection, uniform e-resources for all users, high utilisation rate, significant proportion of new users who previously did not use libraries.
India	Digital Empowerment Foundation (DEF)	Over 30 million people impacted through DEF's educational and digital activities. More than 10,000 digital entities (libraries, organisations, etc.) utilise digital tools. (Projects also span 24 states, 135 districts).	Focus on work in rural areas, with marginalised groups – women, people with disabilities, the elderly. Creation of a network of information centres, training in online safety and digital literacy, support for entrepreneurship.
Moldova	IREX "Libraries for Development" Programme	Approximately 1,070 libraries supported (~80% of the country's libraries). Serve approximately 763,000 people annually through these libraries. 29 libraries became accredited e-centres for providing e-services, 15,000 people accessed government online services through libraries.	Modernisation of libraries, access to e-services through libraries, libraries as hubs for entrepreneurial and educational activity.
Romania	IREX / Libraries for Development Programmes	Over 80% of the country's libraries were equipped with technology and internet. Over 600,000 new internet users via libraries. Libraries recorded approximately 5.3 million visits from the population in one year.	Extensive coverage of technical infrastructure, inclusion of new users, active use of libraries as access points for the internet and digital resources.
Nigeria	IREX Library Development Programmes	70% of libraries were equipped to support digital and entrepreneurial skills for women and youth.	Focus on gender equality, youth, employability skills; technological support for libraries in local communities.

Source: compiled by the authors based on research from United Nations Development Programme Ukraine (2023), CENL News (2025), Digital Empowerment Foundation (n.d.), IREX (n.d.a)

Based on the conducted research, aimed at analysing international practices of developing libraries as centres of digital education, a set of recommendations for Ukrainian libraries regarding their functioning as hubs of digital skills was prepared. The analysis encompassed the experience of Ukraine, Finland, India, Moldova, Romania, and Nigeria, which allowed for the identification of key aspects for the successful implementation of such initiatives. First and foremost, the research showed that the effectiveness of library work depends on a combination of offline and online learning formats. In Ukraine, for instance, the Digital Education Hub (n.d.) project engaged over 25,000 individuals in practical trainings across more than 3,000 institutions, demonstrating high demand for access to contemporary technological knowledge and the need to develop relevant skills among various population groups (United Nations Development

Programme Ukraine, 2023). Considering this, it is advisable for Ukrainian libraries to expand the network of such centres, integrating offline sessions with distance learning courses and webinars for maximum citizen reach. The experience of Finland and its national E-Library showed that centralised electronic collections ensure equal access to materials for all users regardless of region. Readers use e-books and journals, which fosters the formation of skills for independent mastery of information and critical assessment of its reliability. For Ukrainian libraries, this implies the necessity of creating a unified digital platform that allows visitors to simultaneously use electronic resources, educational materials, and interactive tools for enhancing digital competencies.

The Indian experience of the Digital Empowerment Foundation (n.d.) demonstrates the importance of focusing on marginalised groups, particularly women, people

with disabilities, and rural inhabitants. Over 30 million people were reached by DEF's educational and digital programmes, enabling them to use technologies independently for solving everyday tasks and enhancing professional mobility (Association for Progressive Communications, 2009). Ukrainian libraries can adopt this practice by organising specialised courses for vulnerable population categories, as well as offering support in using state electronic services and online tools (United Nations Development Programme Ukraine, 2023). IREX programmes, notably "Beyond Access", "Learn to Discern", and "Media Literacy in Libraries" in Moldova, Romania, and Nigeria, confirmed that modernising library infrastructure and providing access to innovative resources promote broader citizen engagement with the digital environment. For example, in Moldova, over 1,000 institutions became centres for providing electronic services, and in Romania, new users gained access to modern technologies, which stimulated the active use of libraries as educational platforms (IREX, n.d.b). For Ukraine, this signifies the need for the technical upgrading of libraries, ensuring stable internet connection, and integrating modern software for teaching.

Through the implementation of these recommendations, Ukrainian libraries can transform into modern educational centres where citizens can acquire the necessary skills for successful interaction with information resources, develop critical thinking, and effectively use digital technologies in everyday life and professional activities. Thus, the implementation of these measures will contribute to raising the general level of digital competence among the population and the integration of Ukraine into the global information space.

Discussion

Public libraries in Kyiv, Lviv, and Kharkiv have gradually transformed into multifunctional spaces where not only traditional user services took place, but also the formation of population digital literacy. The expansion of the spectrum of library services, the introduction of educational programmes on digital skills, as well as the use of artificial intelligence technologies, cloud services, and online resources confirmed the orientation of libraries towards meeting societal needs in the context of digital transformation. These results were consistent with the findings of the research by M.B. Atoy Jr *et al.* (2020), where libraries were considered as hubs of digital learning and social inclusion. The fact identified in the research concerning the active participation of Ukrainian libraries in digital education programmes coincided with the approach outlined in the works of S. Dias-Trindade & A. Ferreira (2020), where the process of transition from digital literacy to digital competence was interpreted as evolutionary. The analysis of the activities of Kyiv, Lviv, and Kharkiv libraries showed that library staff were gradually transitioning from basic computer skills to using interactive learning platforms, adaptive online courses, and

digital services for user engagement. This confirmed the opinion of the aforementioned authors that digital literacy is not a static characteristic but is formed as a continuous process in response to socio-technological changes.

The collected data revealed that in all three cities, libraries functioned as open educational spaces that contributed to the reduction of the digital divide. This conclusion was consistent with the findings of the study by M.Y. Ali *et al.* (2020), in which libraries were identified as key institutions for the popularisation of artificial intelligence technologies within educational communities. In Kyiv libraries, particularly at the V.I. Vernadsky National Library of Ukraine, a digital competence framework and the "Digigram" test were implemented on the Diia. Digital Education platform in June 2024 for the professional development of librarians. These tools enable effective work with electronic catalogues and digital resources, fostering users' digital skills and critical thinking. This example aligned with the approaches described in international practice by M. El Benny *et al.* (2021), where librarians acted not merely as intermediaries between the user and information, but also as facilitators of the digital learning process, corresponding to the concept of critical digital literacy defined by E. Beck *et al.* (2021). These authors emphasised that digital literacy education must include an awareness of the risks of the online environment, and the development of privacy skills and critical thinking. Within the context of Ukrainian libraries, a transition was occurring from traditional book storage functions to the role of centres for digital education and media literacy. Electronic catalogues, digital libraries, online courses, and interactive platforms for librarian upskilling and user training were introduced, which allowed for the development of critical thinking, digital skills, and ensured access to knowledge even under challenging conditions, particularly during wartime.

This social orientation was consistent with the conclusions of the research by R. Hernandez-Ramos *et al.* (2021), which substantiated the necessity of developing digital accompaniment programmes for groups with low levels of digital literacy. In Lviv, at the Lviv Regional Universal Scientific Library, an Adult Non-Formal Education Centre was opened on 19 April 2024, offering courses in digital literacy and media literacy. The centre provides access to online resources and digital collections, helping users to develop self-directed learning skills and critical information evaluation. This aligned with the findings of F. Hamad *et al.* (2021), who demonstrated the influence of librarians' digital skills on the perception of technological innovations in the library environment. The analysis of Ukrainian libraries showed that through the implementation of these initiatives, Ukrainian libraries are becoming modern educational centres where visitors acquire skills for working with information resources, develop critical thinking, and the ability to effectively use digital technologies in both daily life and professional activities. Such interaction corresponded to the

conclusions of H. Haryanto *et al.* (2024), who considered libraries as incubators for social entrepreneurship and inclusion, capable of contributing to the achievement of the Sustainable Development Goals (SDGs). From this perspective, Ukrainian libraries need to work towards the technical modernisation of libraries, ensuring stable internet connectivity, and integrating modern software for training. A comparison with the results of the study by K. Kumpulainen *et al.* (2020) revealed that the formation of digital practices among children and youth was reflected in library activities.

In the libraries of Kyiv, Lviv, and Kharkiv, active development of digital resources and educational initiatives aimed at enhancing users' digital literacy was observed. Library staff implemented electronic catalogues, digital collections, interactive online courses, and adaptive learning platforms, which contributed to the formation of critical thinking and information resource skills among visitors. This assertion is consistent with the research by A. Kuek & S. Hakkennes (2019), which assessed the level of digital literacy and staff attitudes towards information systems in the context of implementing electronic library records. The results showed that the majority of respondents (70-80%) possessed a high level of digital literacy and a positive attitude towards information systems, but approximately one-fifth experienced anxiety when using such systems. In particular, libraries in Kyiv and Lviv utilised user progress assessment tools, which increased learning motivation and corresponded to the concepts of digital competence development in the scholarly works of B. Le *et al.* (2022) and A. Lilian (2022), who asserted that librarians' skills exceed the average level but require improvement in specific aspects, such as information security and digital content management. In Kharkiv, positive dynamics in the adoption of digital technologies among staff and users were observed, which aligned with the approaches to critical digital literacy and active civic participation in the digital society of G. Polizzi (2023). Simultaneously, the analysis showed that a significant proportion of users required additional training and support, particularly among adult and elderly visitors, which was corroborated by the studies of S. Oh *et al.* (2021) and M. Tsai *et al.* (2021), which noted that the use of interactive platforms and group training stimulated user engagement and allowed for the adaptation of learning tasks to different skill levels. Overall, Ukrainian libraries have become spaces for social interaction and knowledge exchange, where users could receive support from trainers and volunteers, master digital tools, and learn critical information analysis. This comprehensive approach to digital education is consistent with the conclusions of E. Tour *et al.* (2023), who emphasise the importance of combining technical skills and social support, especially for vulnerable user categories, including internally displaced persons and refugees.

The analysis of practices in the libraries of Kyiv, Lviv, and Kharkiv showed that digital resources are actively

used for the development of users' critical thinking, information literacy, and digital competencies. This is supported by data from the article by O.B. Onyancha (2020) and L. Pangrazio *et al.* (2020), who indicated that libraries introduced integrated learning programmes that combined computer skills, information literacy, and civic engagement. Furthermore, the study indicated that digital literacy training and learning group control for librarians were organised on the "Diia. Digital Education" platform, while users could complete online courses and independently master digital educational materials. The use of Canva with AI functions allowed librarians to prepare learning materials, presentations, and interactive tasks, and visitors could create their own visual content and work with prepared materials, which fostered creativity and information visualisation skills. Additionally, the authors K. Spjeldnæs & F. Karlsen (2022) determined that Google Workspace for Education tools provided librarians with the capability to organise collaborative work, remote storage of materials, and online classes, while users could participate in remote sessions and collaboratively execute projects. Interactive chat-bots ensured the automation of responses to enquiries, course registration, and quick information retrieval, enabling users to efficiently navigate library services. Zoom and Microsoft Teams platforms were used for conducting webinars, lectures, and group online classes, and users had the opportunity to participate in lectures, view recordings, and collaborate on learning tasks. This is confirmed by J. Yu *et al.* (2024), as such practices allowed libraries to adapt educational programmes to different levels of users' digital competence, including adults, elderly individuals, and displaced persons, and also stimulated active participation and motivation for learning.

This comprehensive approach supported the simultaneous development of users' technical, critical, and social competencies, creating conditions for the effective use of digital technologies in daily life and professional activities. Overall, the implementation of interactive and online tools in libraries fostered the formation of an inclusive and flexible educational environment, which corresponds to the modern demands of the digital society and the needs of wartime.

Conclusions

As a result of the research, it was established that the public libraries of Kyiv, Lviv, and Kharkiv have taken significant steps towards digital transformation and the development of media education competencies. In 2024, the V.I. Vernadsky National Library of Ukraine implemented digital tools for librarians on the Diia. Digital Education platform, specifically a digital competence framework and the "Digigram" test, which enhanced staff qualifications and promoted the integration of electronic catalogues and the "Ukrainica" digital library. The Lviv Regional Library for Adults opened a Non-Formal Education Centre in April 2024, where courses in

digital literacy, media literacy, and interactive training for adults, including displaced persons, were organised, and users gained access to online resources and digital collections. At the V.G. Korolenko Kharkiv State Scientific Library, a micro-library and the "Ideas Cube" digital platform were created, providing access to thousands of educational and cultural materials, integrating online media literacy courses, and supporting users' work even with limited internet access, which was particularly important during wartime. Overall, these initiatives contributed to the formation of critical thinking, the development of digital skills and information literacy among various age groups, ensured access to quality educational resources and interactive platforms, and strengthened the role of libraries as modern educational and cultural centres in complex socio-economic conditions and during military conflict.

The study demonstrated that the integration of digital platforms into the work of Ukrainian libraries has transformed the format of educational service provision, enabling users of different ages to master skills for working with information resources, create their own content, and participate in remote learning events. Specifically, tools such as Diia. Digital Education, Canva, Google Workspace, Zoom, and Microsoft Teams enable librarians to effectively organise training sessions, manage learning groups, and adapt materials to the needs of visitors, while simultaneously enhancing their digital competencies and critical thinking. The analysis of international practices revealed that library development programmes functioning as digital education centres in various countries have contributed to enhancing citizens' competencies in the sphere of information and technological skills. In Ukraine, the Digital Education Hub network provided

users with the opportunity to practise practical skills in using electronic services and platforms, which proved particularly beneficial for vulnerable population groups. In Finland, centralised electronic resources enabled citizens to effectively master the search, evaluation, and structuring of information, while in India, the activities of DEF extended digital learning to rural areas and supported people with disabilities in applying technologies for their daily and professional lives. Moldova and Romania implemented programmes that developed skills in using state electronic services and communication platforms, thereby facilitating interaction with administrative structures. In Nigeria, initiatives were aimed at teaching youth and women practical digital skills and entrepreneurial abilities. Thanks to such approaches, users acquired the capacity to effectively apply technologies, critically evaluate information, and organise their own learning, which established a stable foundation for integration into the modern information environment. Prospects for further research may include an algorithm for using artificial intelligence to personalise educational programmes in libraries, an analysis of the effectiveness of adaptive platforms for different age and social groups, and the modelling of scenarios for expanding access to online resources in small towns and rural communities.

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None.

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Бібліотеки як хаби цифрової грамотності на прикладі публічних бібліотек Києва, Львова та Харкова

Алла Зленко

Кандидат історичних наук, професор
Університет Григорія Сковороди в Переяславі
08401, вул. Сухомлинського, 30, м. Переяслав, Україна
<https://orcid.org/0000-0002-5586-3984>

Алла Бурмака

Доктор філософії, доцент
Державний університет інформаційно-комунікаційних технологій
03035, вул. Солом'янська, 7, м. Київ, Україна
<https://orcid.org/0000-0002-0905-9725>

Анотація. Метою дослідження було вивчення ролі українських бібліотек у розвитку навичок використання цифрових технологій на основі міжнародного досвіду. Методологія дослідження включала системний аналіз діяльності українських бібліотек у Києві, Львові та Харкові, контент-аналіз цифрових платформ і інструментів, огляд міжнародних практик у Фінляндії, Індії, Молдові, Румунії та Нігерії, а також описово-аналітичний метод узагальнення програм і ініціатив з метою оцінювання ефективності інтеграції цифрових технологій у бібліотечну діяльність і формулювання рекомендацій. Основні результати дослідження засвідчили сучасний стан українських публічних бібліотек у Києві, Львові та Харкові та дали змогу встановити, що вони зазнали трансформації, еволюціонувавши від традиційних сховищ друкованих матеріалів до центрів цифрової освіти та інноваційної діяльності. Досліджено, що впровадження цифрових платформ, зокрема «Дія. Цифрова освіта», Google Workspace, Canva, електронних бібліотек і вебінарів, дало змогу користувачам різного віку підвищити рівень цифрових компетентностей та інформаційної грамотності. Зокрема, такі інструменти, як «Дія. Цифрова освіта», Canva, Google Workspace, Zoom, Microsoft Teams і чат-боти, допомагають бібліотекарям ефективно організовувати навчання, керувати навчальними групами та адаптувати матеріали для користувачів. Міжнародний досвід засвідчив, що програми розвитку бібліотек як центрів цифрової освіти у Фінляндії, Індії, Молдові, Румунії та Нігерії сприяли підвищенню рівня інформаційних і технологічних навичок громадян. Установлено, що в Україні мережа хабів цифрової освіти дала змогу вразливим групам населення опанувати практичні цифрові навички, тоді як централізовані ресурси у Фінляндії та програми в Індії забезпечили доступ до знань для широких верств населення, зокрема мешканців сільських територій та осіб з обмеженими можливостями. Отримані результати доводять, що технічне оновлення бібліотек і підготовка бібліотекарів як цифрових фасилітаторів сприятимуть підвищенню цифрової грамотності населення, інклюзивності освітніх послуг та розвитку навичок критичного мислення, забезпечуючи інтеграцію України у глобальний інформаційний простір. Рекомендації передбачають розширення мережі бібліотечних хабів, поєднання очного та дистанційного навчання, створення національної цифрової платформи та розроблення спеціалізованих курсів для соціально вразливих груп населення. Практичне значення дослідження полягає в тому, що його результати можуть бути використані бібліотекарями та менеджерами у сфері освіти для підвищення рівня цифрової грамотності.

Ключові слова: цифрова компетентність; соціальна інклюзія; центри цифровізації; навчання; міжнародний досвід



Media education in Europe: The experience of France, Poland, and Sweden in the context of journalism and social informatics

Ewa Pancer-Cybulska*

Habilitation Doctor, Professor

Wrocław University of Economics and Business
53-345, 118/120 Komandorska Str., Wrocław, Poland
<https://orcid.org/0000-0002-4242-8713>

Yana Zlenko

Lecturer

Hryhorii Skovoroda University in Pereiaslav
08401, 30 Sukhomlynskyi Str., Pereiaslav, Ukraine
<https://orcid.org/0009-0001-6052-7897>

Abstract. The aim of this study was to examine the implementation of media education in France, Poland, and Sweden, focusing on identifying common trends and differences in approaches to developing media literacy. The methodology included methods such as cross-cultural analysis to identify similarities and differences in media education models, cultural-historical analysis to determine the evolution of media education between 2020-2025, comparative analysis of national platforms such as Pix, Media and Information Literacy Sweden Network, and DigComp, as well as the development of recommendations. It was confirmed that the use of digital tools and social informatics contributed to the development of critical thinking, digital literacy, and social responsibility among students in France, Poland, and Sweden. It was established that between 2020-2025, France implemented the "Digital Education" programme, opened the TUMO Lyon centre, and integrated the educational series "Adolescence" into school curricula, fostering media literacy through practical tasks and the integration of media into various subjects. In Poland, the "New Literacy" programme was launched in 2020, with digital competence of teachers enhanced between 2021-2023. In Sweden, the Media and Information Literacy Sweden Network was established in 2020, the digital education strategy was updated in 2022, and in 2023-2025, a national Media and Information Literacy survey was conducted, alongside the preparation of a ban on mobile phones in schools. The development of national platforms was studied: in France, Pix certified students' digital skills, while in Poland, DigComp formed curricula and digital competence assessments. Common data regarding the integration of media into curricula, development of practical skills, teacher training, and active student involvement in project-based activities were identified. The results of the study can be used by educational institutions, teachers, government bodies, and international organisations to improve curricula, enhance students' media competence, and develop national and international media education strategies

Keywords: students; critical thinking; information security; digital literacy; digital technologies

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*Corresponding author

Introduction

Media education in Europe is regarded as a strategic direction for preparing young people and professionals to critically engage with information flows and use digital resources responsibly. The experiences of France, Poland, and Sweden demonstrate different models for integrating media literacy into school and university programmes, combining journalism and social informatics. In France, the focus is on fostering critical media analysis through collaboration between educational institutions and media outlets; in Poland, there is an emphasis on combining theoretical preparation with practical civic engagement; and in Sweden, the focus is on interdisciplinarity and the broad coverage of digital competences. This approach allows for the evaluation of the effectiveness of media education in developing skills in analysis, counteracting manipulation, and building a culture of information security, thereby creating a foundation for the development of journalism and social informatics as tools for the democratisation of society.

In the academic discourse, media education in Europe has evolved as a multi-dimensional phenomenon combining pedagogy, social informatics, and journalism. Scholars have addressed this topic and outlined various approaches to its interpretation. Research by A. Curaj *et al.* (2020) focused on the transformation of the European higher education space, highlighting the importance of information technologies in shaping a new paradigm of learning. Media education approaches were examined as a means to integrate digital competences into curricula, which opened up opportunities for the development of critical thinking and the ability to work with various sources of information. The topic was further developed by P. de Place Bak *et al.* (2023), who studied the spread of misinformation in the European Union. Their results confirmed that studying the mechanisms of digital misinformation directly impacts the development of media education strategies, as school and university curricula must adapt to the conditions of information security. Meanwhile, J. Wawrzuta *et al.* (2021) found that the spread of materials about measles on European social media created risks for public health but also demonstrated how quickly information spreads without proper verification. This demonstrated that media education must consider not only technical skills in working with digital platforms but also foster a responsible approach to communication.

A similar direction was developed in the research by J. Brailovskaia *et al.* (2021), who analysed factors influencing trust in vaccination in Europe, the US, and China. They found that information campaigns and access to reliable sources determine the public's willingness to accept media messages. A separate discourse was presented by V. Dagienė *et al.* (2022), who studied approaches to teaching computational thinking in primary schools. Their findings showed that the development of digital literacy begins at an early stage, and therefore, media

education gradually integrates elements of social informatics even in basic education. This creates the foundation for further studies in journalism and an analytical approach to digital media. Comparable ideas were presented by I. Iliopoulos *et al.* (2022), who demonstrated that monitoring national press through natural language processing technologies is significant for predicting social processes in Europe. This reinforced the need for systematic training of journalism specialists capable of analysing large data sets. On the other hand, A. Papaathanasopoulos & A. Stavrianea (2025) emphasised the transformation of print media and advertising strategies in Southeastern European countries. Scholars noted that the shift to digital formats requires specialists with skills to work in new economic conditions.

In particular, the contribution to understanding behavioural aspects of digital interaction was made by M.A. AlAfnan (2025), who examined European social media users' preferences based on their personal characteristics. This contributed to adapting media education to personalised learning conditions, which has a direct impact on the development of social informatics. Meanwhile, O. MacGregor & B. Badurova (2025) showed that the refusal to use the Internet in education and healthcare in Slovakia and Sweden creates new ethical dilemmas. This experience confirmed that media education is not solely about developing technical skills but also about shaping ethical guidelines in digital environments. J. Żywiłek *et al.* (2025) studied knowledge exchange in the energy sector in the example of Poland, France, and Sweden. Although the research focused on renewable energy issues, it revealed parallels with media education, as limited access to quality information resources hindered innovation development. This highlighted the importance of curricula that provide open information exchange and foster interdisciplinary thinking, uniting journalism with social informatics. Despite the themes addressed by the aforementioned authors, gaps included insufficient attention to the interdisciplinary integration of journalism and social informatics and limited research on the effectiveness of media education programmes at various levels of education. A comparative analysis of the practices of France, Poland, and Sweden in terms of developing critical thinking and information literacy was lacking. The aim of this study was to compare the media education models of France, Poland, and Sweden to identify their shared and distinct characteristics in the development of media literacy. The objectives of the study were to conduct a cross-cultural analysis of media education models in France, Poland, and Sweden; present a cultural-historical analysis of the evolution of media education; conduct a comparative analysis of national media education platforms; and formulate recommendations for improving media literacy teaching in educational institutions.

Materials and Methods

An interdisciplinary approach was used in the study, combining methods of comparative-historical analysis, cultural-historical analysis, and comparative analysis. Three countries were selected for comparison: France, Poland, and Sweden, based on their different historical trajectories of media education development and the specifics of state-educational institution interaction. France was included due to its humanistic paradigm of critical thinking and active state support for media education through CLEMI (Centre pour l'Éducation aux Médias et à l'Information, n.d.). Poland was chosen as an example of a country that developed democratic approaches to media education after the transformations of 1989, as reflected in the Centre for Civic Education (n.d.). Sweden was notable for its emphasis on digital inclusion and the development of social trust in the context of media education, implemented through the Media Smart initiative (n.d.). Cultural and educational traditions of each country were studied based on official sources and documents: in France, CLEMI (Centre pour l'Éducation aux Médias et à l'Information, n.d.); in Poland, European Commission (2025a); in Sweden, European Commission (2025b). A comparative analysis of policies and practices in media education was conducted. Criteria for analysis were determined, such as the cultural-values paradigm of education (humanistic, democratic, inclusive), the level of media education integration into educational policy, pedagogical approaches to developing critical thinking, and the socio-cultural context of digital literacy. Additionally, a comparative analysis of media literacy levels in France, Poland, and Sweden was conducted based on data from the Open Society Institute – Sofia (2023), which allowed for the identification of common traits and differences in approaches to teaching digital and media competences.

Cultural-historical methodology was used to determine the stages of media education evolution from 2020-2025 as a result of the interaction of cultural practices in Sweden, Poland, and France, state strategies, and social education institutions. Official documents and educational reforms from UNESCO (n.d.) were analysed to determine the main directions for integrating media education into curricula. Additional international initiatives and programmes from the Council of Europe (n.d.) were also considered to clarify the role of state and intergovernmental structures in shaping national policies. Analysis of data from the European Media Literacy Week (European Commission, 2019) and the European Parliament (Laaninen, 2025) allowed for tracing the impact of joint European standards and campaigns on the development of media education practices in the countries studied.

The evolution of media education policies and programmes in Sweden was analysed based on national reports and research from the Media and Learning (2023), M. Jaakkola (2023), and NordMedia Network (2020). Additional sources from the European Commission (2025e)

and D. Schofield *et al.* (2021) were used to clarify the details of initiatives and practices. Changes in media education in Poland were analysed through national and international research from the Council of Europe (2024b), European Commission (2025a), and European Commission (2025d). To detail specific measures and practices, sources from the European Association for Viewers Interests (n.d.) and the CHANSE Project (n.d.) were used. The evolution of media education policies and programmes in France was determined based on national and international research from INRIA (2023; 2025), the TUMO (n.d.) centre, and other sources. The analysis was supported by data from European Commission (2023), Council of Europe (2024a), and materials from The Guardian (2025).

For comparative analysis, national platforms reflecting the specific development of media education in each country were selected: Pix (n.d.) in France as the official state instrument for certifying digital skills, the MIL Sweden Network (NordMedia Network, 2020) in Sweden as the coordination platform between state institutions and educational organisations promoting media literacy, and the Digital Competence Framework (n.d.) in Poland as the basis for forming curricula and assessing digital competences. The analysis of platforms Pix, MIL Sweden Network, and DigComp was carried out based on the following criteria: institutional integration (degree of implementation in national educational policy), pedagogical effectiveness (impact on the development of media literacy, critical thinking, and digital skills among students and teachers), technological innovation (use of digital tools, evaluation algorithms, and online modules), as well as accessibility and scalability (coverage of different education levels and social groups). In particular, the study provided practical recommendations for improving initiatives in the field of media literacy.

Results

Analysis of media education models in France, Poland, and Sweden

Media education is a system of knowledge, skills, and competencies aimed at the critical perception, analysis, and safe use of various media, including digital technologies, social networks, and traditional information resources. Its formation is influenced by historical, social, cultural, and technological factors that affect the content, goals, and methods of educational programmes, as well as pedagogical approaches to teaching. Furthermore, media education involves the integration of practical tasks, project activities, and collective initiatives, enabling students to apply knowledge in real-life situations and develop responsible digital behaviour. In France, media education evolves within a humanistic paradigm of critical thinking. The main tasks include forming students' ability to critically analyse media, evaluate information sources, and understand the role of media in society. Since the 1990s, CLEMI has implemented projects within

school programmes, including annual competitions and events for news analysis, integrating media into subjects, and conducting teacher seminars covering over 70% of educational institutions. In addition, in 2003, a national Media Education Week was launched, during which students performed practical tasks for critically analysing digital and print media, fostering media literacy among those participating in the events (Centre pour l'Éducation aux Médias et à l'Information, n.d.). Approaches in Poland differ, as media education in this country developed during the democratic changes following the 1989 transformations, which set the main directions for the Programme Edukacji Medialnej (Centre for Civic Education, n.d.). Interdisciplinary courses, integration of media into school subjects and projects aimed at developing critical thinking and legal awareness among students were introduced. For example, in 2015, the curriculum for secondary schools was updated, and media education became a mandatory component of social science and technology programmes. Teachers underwent training on digital security and media literacy, and in 2020, approximately 65% of schools implemented local projects on evaluating the credibility of online sources and creating their own media products (Council of Europe, 2024b). Poland actively used the eTwinning platform (n.d.) for experience exchange among schools, enabling students to participate in international projects and increasing the integration of media education into teaching practice. The government defined directions for the safe use of new media, including the organisation of lessons and workshops on cybersecurity for secondary school students, covering over 60% of educational institutions (Jerman Blažič & Jerman Blažič, 2022). In 2018, the Law on the National Cybersecurity System was passed, which defines the principles of operation and organisation of the

cybersecurity system in the country, including the obligations of public authorities and private individuals for protecting information systems (Act on the National Cybersecurity System, 2018). In 2022, the Polish government adopted a Regulation on changes to security education curricula, incorporating cybersecurity as an additional element in the education for safety curriculum. This decision aims to raise students' and teachers' awareness of the risks associated with the use of digital technologies (Ministry of Education and Science, 2022).

In Sweden, media education focused on digital inclusion and the development of social trust through national strategies like Media Smart (n.d.). In 2015, the government tasked the Swedish National Agency for Education with developing IT (Information Technology) strategies for preschool, compulsory education, and secondary school (National Agency for Education, n.d.). The strategy aimed to implement programmes ensuring the development of digital skills for all students, integrating digital tools into the learning process, and fostering the ability to critically assess information. Since 2017, elements of programming were introduced into technology and mathematics subjects, work with digital texts and media, as well as tasks for critically evaluating sources and analysing the impact of digitalisation on society. Additionally, Swedish schools actively used the Swedish Safer Internet Centre (European Commission, 2025c) to teach safe internet use, covering over 70% of secondary school students (European Commission, 2025b). Table 1 presents a comparative cross-cultural analysis of media education models in France, Poland, and Sweden based on criteria such as cultural-value paradigms, the level of integration into educational policy, pedagogical approaches to developing critical thinking, and the socio-cultural context of digital literacy.

Table 1. Cross-cultural analysis of media education models in France, Poland, and Sweden

Criteria / Country	France	Poland	Sweden
Cultural-Value Education Paradigm	Humanistic: emphasis on critical thinking, student independence, and personal development.	Democratic: development of civic participation skills, openness post-1989 transformations.	Inclusive: focus on digital inclusion, social trust, equal opportunities for all.
Level of Media Education Integration	High: state programmes and standards for schools, national certification of digital skills.	Medium: integration of media education into curricula, but no full centralisation.	High: systemic digital education programmes, state and local initiative support.
Pedagogical Approaches to Critical Thinking	Use of project-based learning, media content analysis, discussions, and debates.	Tasks involving media analysis, developing civic competencies through interactive exercises.	Practical tasks with digital content, integration of critical thinking elements in learning projects.
Socio-Cultural Context of Digital Literacy	Focus on media ethics, safe information handling, and critical source evaluation.	Development of digital competencies through educational platforms, increased civic participation.	Emphasis on technology accessibility, digital inclusion, developing collaboration skills in online environments.

Source: compiled by the authors based on Centre pour l'Éducation aux Médias et à l'Information (n.d.), European Commission (2025a), European Commission (2025b)

The cross-cultural analysis (Table 1) shows that France focuses on the humanistic development of individuals through critical thinking and systematic

certification of digital skills. Poland demonstrates a democratic approach reflecting historical transformations after 1989, emphasising civic competencies and

the integration of media education into school curricula. Sweden stands out for its inclusive approach with broad access to digital resources and support for social trust, ensuring equal opportunities for all students. In all countries, there is a trend towards using

interactive and practical pedagogical methods to develop critical thinking, but the level of integration of media education into education policy varies. Table 2 compares the media literacy levels in France, Poland, and Sweden.

Table 2. Comparison of media literacy levels in France, Poland, and Sweden

Country	Media Literacy (Media Literacy Index 2022)	Rank among 41 countries	Position on "Education" criterion	Position on "Media Freedom" criterion
France	62.0	10	16	12
Poland	54.0	19	18	20
Sweden	71.0	3	2	5

Source: Open Society Institute – Sofia (2023)

Table 2 shows the comparative media literacy indicators for France, Poland, and Sweden according to the Media Literacy Index 2022 (Lessenski, 2022). According to the data in Table 2, Sweden has the highest media literacy score at 71%, indicating effective integration of digital education, safe media use programmes, and support for critical thinking in educational institutions. Poland shows the lowest score at 54%, reflecting progressive democratic approaches post-1989, but with gaps in access to digital resources and practical media initiatives for youth. France scored 62%, reflecting limited integration of media education into some educational programmes and less widespread practical tools for developing critical thinking in schools. The analysis of the table leads to the conclusion that, despite a shared focus on critical thinking, digital literacy, and safe media use, the degree of implementation of these approaches varies, highlighting the influence of historical, socio-cultural, and political factors on the effectiveness of media education in each country.

Cultural-historical analysis of media education evolution based on international initiatives

International initiatives play a key role in shaping national media education strategies in France, Poland, and Sweden, providing the foundation for developing critical and responsible citizen engagement with media. UNESCO (n.d.) actively supports member states in developing and implementing media and information literacy (MIL) policies and strategies, offering methodological materials, online courses, and publications to enhance teacher qualifications and expand access to MIL resources. In June 2025, UNESCO organised the first global meeting of cities implementing MIL guidelines,

involving representatives from 24 cities worldwide, fostering experience exchange and adapting strategies to local conditions. A similar support is provided by the Council of Europe (n.d.), recognising MIL as a tool for ensuring citizen participation in global knowledge societies, developing policies and tools to integrate MIL into educational and cultural strategies, including the creation of national support centres coordinating school activities and providing methodological resources. The European Commission (2019) initiates the European Media Literacy Week, which is held annually in March to raise awareness of the importance of media literacy and support national initiatives in EU countries; in 2024, the conference in Brussels gathered 399 professionals from 43 countries, strengthening European cooperation in digital and media education (European Commission, 2025b). Meanwhile, the European Parliament promotes the development of MIL through the analysis of projects in EU countries and recommendations for creating national MIL networks that support continuous learning; in 2025, a study was published covering 547 projects in 28 EU member countries, allowing strategies to be adapted to national needs and facilitating experience exchange (Laaninen, 2025). Thanks to these international initiatives, national strategies in France, Poland, and Sweden are actively integrating MIL into educational programmes, improving teacher qualifications, and creating conditions for critical media consumption among citizens, demonstrating the positive role of UNESCO and the EU in the development of media education. Table 3 illustrates key steps and initiatives in the development of media education in Sweden from 2020 to 2025, including the creation of national networks and updates to digitalisation strategies.

Table 3. Evolution of media education policies and programmes in Sweden

Year	Initiative / Event	Description	Expected outcome
2020	Formation of MIL Sweden Network	Creation of the national MIL Sweden network, uniting 25 public institutions and organisations for coordination in media education.	Coordinated efforts among institutions, unified implementation standards.
2021	National task for the Swedish Media Council	Government tasked the Swedish Media Council with coordinating efforts to improve media literacy among the population.	Increased media literacy among the public and students, systematised initiatives.

Continued Table 3.

Year	Initiative / Event	Description	Expected outcome
2022	Update of the Digital Education Strategy (2023-2027)	Proposal for a new digital education strategy for the period 2023-2027, focusing on integrating digital technologies into the learning process.	Spread of digital skills among students, integration of technologies in all subjects.
2023	National Media Literacy Survey	Large-scale national survey on media literacy initiatives, forming the basis for future actions.	Assessment of the effectiveness of current programmes, adaptation of future initiatives to student needs.
2024	Shift towards traditional reading	Government invests in traditional learning methods, particularly printed books, to reduce screen time and improve reading skills among youth.	Increased reading levels, enhanced concentration and analytical skills among students.
2025	Preparation for a ban on mobile phones in schools	Planned ban on the use of mobile phones in schools starting in autumn 2026 to improve student concentration.	Reduced distractions, increased learning efficiency and student focus.

Source: compiled by the authors based on research by NordMedia Network (2020), D. Schofield et al. (2021), Media and Learning (2023), M. Jaakkola (2023), Swedish Media Council (2025e)

Sweden's state of media education is characterised by gradual institutional support and expanded access to learning resources. The country focuses on coordinating government bodies and educational institutions through national networks, ensuring unified standards and the integration of digital technologies into the learning process. At the same time, the role of national surveys and monitoring is growing to assess the effectiveness of implemented programmes, allowing strategies to be adapted to the needs of students and society. The government actively combines digital literacy with traditional reading skills and critical thinking, supporting a comprehensive approach to developing media competence. Meanwhile, the implementation of restrictions on mobile devices in schools demonstrates the desire to improve student concentration and learning effectiveness. Overall, media education in Sweden is developing as a systematic, integrated, and adaptive model combining state policy, educational programmes, and practical initiatives to form a critical and responsible attitude towards media.

Media education programmes in Sweden, Poland, and France play a key role in developing critical thinking, digital literacy, and information skills among students. In Sweden, initiatives supported by the Media and Learning (2023) and NordMedia Network (2020) focus on developing media literacy through interactive courses, practical tasks analysing media content, and social media studies, enabling students to critically evaluate information credibility and combat misinformation. Additionally, M. Jaakkola (2023) notes that using online platforms and open government data in the learning process helps develop social informatics skills, while the Swedish

Media Council (2025e) and D. Schofield *et al.* (2021) specify that projects include regular webinars for teachers and workshops on digital ethics. In Poland, media education developed based on democratic and international standards, with the Council of Europe (2024b) and European Commission (2025a) outlining competencies for students, while European Commission (2025d) provides detailed descriptions of the structure of media education courses in schools and universities. Platforms and projects such as the European Association for Viewers Interests (n.d.) and CHANSE Project (n.d.) allow students to participate in creating school media, international journalistic collaborations, and analytical tasks, developing critical thinking, working with sources, and digital collaboration skills. In France, media education evolved through the combination of national and international initiatives. INRIA (2023; 2025) and TUMO (n.d.) centre describe the integration of digital tools into curricula, while European Commission (2023), Council of Europe (2024a), and The Guardian (2025) provide data on the implementation of practical tasks, competitions, and projects stimulating the creation of multimedia content by students. These programmes help develop not only technical media skills but also critical thinking, the ability to evaluate source credibility, and ethical interaction in the information space. All these examples demonstrate that the systematic implementation of media education platforms and programmes contributes to the formation of comprehensive competencies in digital technologies, media, and social information among students, providing practical training for work in the modern information society. Table 4 presents the successive state initiatives and programmes for media education development in Poland.

Table 4. Evolution of media education policies and programmes in Poland

Year	Initiative / Event	Description	Expected outcome
2020	"New Literacy" Programme	Launch of a programme aimed at developing media literacy and digital skills among children and youth.	Increase in the basic level of media literacy among students.
2021	Development of teachers' digital competencies	Inclusion of digital competency development for pedagogical staff in the main reform directions under the "National Strategy for the Country's Development 2030".	Increased digital competency of teachers.

Continued Table 4.

Year	Initiative / Event	Description	Expected outcome
2022	Development of a digital core curriculum	Start of developing a digital core curriculum, which includes media education as a part of the learning process.	Integration of media literacy into core subjects.
2023	"Media for All" Programme	Launch of a programme aimed at ensuring access to media education for all sectors of the population, with a particular focus on vulnerable groups.	Increased student engagement and media literacy.
2024	Evaluation of initiative effectiveness	National evaluation of the effectiveness of implemented media education and digital skills initiatives.	Programme adjustments and increased teaching efficiency.
2025	Approval of a new media education strategy	Official approval of the national media education development strategy through to 2030, including media literacy integration at all education levels.	Systematic integration of media literacy into all educational institutions.

Source: compiled by the authors based on research by European Commission (2025d), European Association for Viewers Interests (n.d.), CHANSE Project (n.d.), Council of Europe (2024b), European Commission (2025a)

Table 4 shows that in Poland, media education demonstrates consistent development, combining state initiatives, curriculum modernisation, and teacher qualification enhancement. Initially, the focus was on developing basic digital skills and the safe use of new media among students, gradually integrating critical thinking and media message analysis. At the same time, teacher preparation for effective use of digital technologies in the learning process was conducted, which ensured the sustainable development of media literacy. State programmes

gradually covered broader segments of the population, including vulnerable groups, and established national standards for integrating media education at all levels of education. Over time, the emphasis shifted to a comprehensive approach, combining technological competence, critical information analysis, and social responsibility, thus creating an environment for the conscious and safe use of media among youth. Table 5 shows the steps taken in the development of media education in France from 2020 to 2025.

Table 5. Evolution of media education policies and programmes in France

Year	Initiative / Event	Description	Expected outcome
2020	Publication of the White Paper "Education and Digital Technologies"	INRIA Institute published a document exploring the impact of digital technologies on education and proposing strategies for integrating technologies into the learning process.	Formation of digital education policies.
2021	Launch of the "Digital Education" Programme	A programme initiated by the French Ministry of National Education, Youth, and Sports aimed at accelerating the digitalisation of education, including the development of digital skills among students and teachers.	Improvement of digital competencies among students and teachers.
2022	Opening of TUMO Lyon	The opening of the TUMO centre in Lyon, offering free education for teenagers aged 12-18 in areas such as programming, animation, video games, graphic design, film, robotics, music, and 3D modelling.	Development of practical digital skills and creativity among teenagers.
2023	Presentation of the 2023-2027 Digital Education Strategy	The Ministry of National Education presented a strategy for the development of students' digital skills and certification of digital skills for teachers through the Pix+ platform.	Systematic certification and improvement of digital literacy for both teachers and students.
2024	Presentation of the European Year of Digital Citizenship	France presented the initiative of the European Year of Digital Citizenship at the Educatech exhibition to raise awareness among students and teachers regarding ethics and safety in the digital environment.	Increased awareness of digital ethics and safety.
2025	Integration of the "Adolescence" Series into Educational Programmes	The British series "Adolescence" was integrated into secondary schools to raise students' awareness of toxic masculinity and the dangers of online influence.	Formation of critical thinking regarding online content and social behaviour.

Source: compiled by the authors based on research by INRIA (2023), TUMO (n.d.), European Commission (2023), Council of Europe (2024a), The Guardian (2025), INRIA (2025)

In France, the development of media education is characterised by a high level of state support and the systematic integration of digital skills into educational programmes at all levels. Media education programmes combine both classical pedagogy and innovative digital technologies, allowing students to acquire comprehensive skills in critical thinking, information analysis, and safe use of online resources. Significant roles are played by national and local initiatives such as the "Digital Education" programme and the 2023-2027 digital strategy, which ensure the standardisation of teacher preparation and certification of their digital competencies. Additionally, practical projects and cultural innovations are actively implemented in France, such as the opening of TUMO Lyon for teenagers, where they learn programming, animation, robotics, and design, as well as integrating educational series like "Adolescence" aimed at developing social awareness and critical media perception. Considerable attention is paid to combining digital tools with traditional teaching methods, maintaining a balance between screen-based and offline learning, and contributing to the development of comprehensive media literacy among students. Furthermore, participation in international initiatives and exhibitions such as Educatech and the European Year of Digital Citizenship increases awareness among both students and teachers regarding ethical and safe practices when using digital technologies. Thus, media education in France demonstrates gradual but stable development with a high level of integration of state policies, technologies, and cultural-pedagogical practices.

The analysis of three countries shows that the development of media education depends on historical, social, and cultural contexts: France focuses on critical

thinking and the humanistic paradigm, Poland on the safe use of digital media and democratic approaches, and Sweden on digital inclusion and social trust. Despite different priorities, all three countries combine journalism, pedagogy, and technology to improve media literacy, which allows for the formation of adaptive, responsible, and competent generations of media users.

Comparative analysis of national media education platforms and ways to improve media literacy training

In France, Sweden, and Poland, digital platforms such as Pix, MIL Sweden Network, and Digital Competence Framework (DigComp) are tools for developing media education and digital competence. In France, the Pix platform functions as a national digital literacy assessment tool, actively used in journalism education to develop skills in fact-checking, source analysis, and multimedia content creation. Its results are considered during the certification of students and civil servants. In Sweden, MIL Sweden Network brings together educational and media institutions, offering interactive modules for media message analysis, organising webinars for teachers, and workshops on digital ethics, fostering media competence within social informatics. In Poland, the implementation of DigComp provides a unified system for forming digital skills in schools and universities, where journalism students complete tasks on evaluating information credibility, digital collaboration, and safe use of online resources. The characteristics of national media education platforms in the selected international countries, considering their institutional integration, pedagogical effectiveness, technological innovation, and accessibility, are presented in Table 6.

Table 6. Characteristics of platforms in France, Sweden, and Poland

Criteria	France	Sweden	Poland
Platform / Tool	Pix	MIL Sweden Network	Digital Competence Framework
User categories	Students, teachers, schools.	Students, teachers, government institutions.	Students, teachers, administrators.
Institutional integration	High – official state certification tool for digital skills.	Medium – coordination platform between government institutions and educational organisations.	High – basis for forming curricula and assessing digital competences.
Pedagogical effectiveness	Allows assessing students' digital competencies through test modules, develops safe information handling skills, fosters critical source evaluation.	Provides practical exercises for media content analysis, organises webinars for teachers and students, promotes discussions on fake news and media ethics.	Provides structured tasks for developing skills in creating, analysing, and evaluating digital content, integrates tasks to check critical thinking and collaboration in digital environments.
Technological innovation	Online modules, automated assessments, interactive exercises.	Use of digital resources, integration with educational platforms.	Use of structured competency matrices and digital tools.
Accessibility and scalability	National, covers all schools, accessible to various age groups.	National, adapted for different regions and types of schools.	National adaptation for different education levels and social groups.

Source: compiled by the authors based on Pix (n.d.), Digital Competence Framework (n.d.), NordMedia Network (2020)

The Pix (n.d.) platform in France, MIL Sweden Network in Sweden (NordMedia Network, n.d.), and Digital Competence Framework (n.d.) in Poland can be used

in the context of journalism and social informatics for developing critical thinking, media content evaluation skills, and digital competence for students and teachers.

The Pix platform in France can be used in journalism to assess students' digital literacy through test modules on searching, fact-checking, and working with information sources. MIL Sweden Network in Sweden is used in social informatics as an educational space for analysing fake news, creating media projects, and developing ethical communication. In Poland, DigComp is used to build courses where journalism students master creating digital content, critical thinking skills, and evaluating the credibility of online materials.

Additionally, Pix provides structured digital skills testing, allowing students to assess source credibility, analyse online information, and develop safe data searching skills, which are key in journalistic practice. Teachers can integrate Pix tasks into social informatics lessons, offering students tasks like analysing news materials, creating their own informational products, and evaluating information risks in the digital environment. MIL Sweden Network enables organising practical training and webinars on media literacy, including exercises on recognising fake news, fact-checking, and evaluating information sources. This platform actively supports collaboration between schools and government institutions, allowing educational materials to be adapted to the needs of various social groups and regions. In Poland, DigComp provides a framework for creating tasks related to the analysis of digital content, developing informational products, and evaluating media information, integrating critical thinking into the learning process. The use of DigComp in social informatics allows students to practice creating their own media projects, identifying manipulative techniques in messages, and analysing social networks. In general, all three platforms support the integration of journalism and social informatics into the educational process, ensuring the formation of media-competent citizens capable of critically evaluating information and responsibly using digital resources.

Based on the results of the cross-cultural analysis of media education in France, Poland, and Sweden, recommendations have been formed to improve the effectiveness of media literacy training in educational institutions. The integration of practical journalistic projects significantly enhances the development of critical thinking and digital competencies among students. In France, journalism students create publications for the "Le Pôle Média" online platform, while high school students participate in the "Mon Journal" project, preparing multimedia materials and weekly newspapers (Centre pour l'éducation aux médias et à l'information, n.d.). In Poland, students work with the eTwinning platform (n.d.) for international journalistic collaborations and prepare analytical articles for school websites (European Commission, n.d.), while in Sweden, students use open government data and conduct social network research in their courses. Based on this, it is recommended to actively implement interactive lessons, simulations, and real-life case studies that combine media content analysis, fact-checking, and working

with digital tools such as Pix, Kahoot, LearningApps, Safer Internet, and Google Workspace.

Additionally, the research shows the need for systematic professional development for teachers to effectively integrate media education into various subjects. The use of digital platforms makes lessons more interactive and practical, while also developing critical thinking and media literacy skills. State coordination of programmes, as seen in the framework of European Media Literacy Week, creates opportunities to unite the efforts of schools, media, and civil organisations, increasing the effectiveness of educational initiatives and promoting the development of responsible attitudes towards information among students. Particular attention should be given to adapting programme content to the age, social environment, and cultural context of students, ensuring broader engagement from youth across different regions and social groups (Lessenski, 2022).

It is recommended to expand practical media literacy training so that it goes beyond individual projects and becomes part of regular educational activities. It is advisable to actively use the Pix digital tool for assessing and developing students' digital skills, which will make the educational process more interactive and effective. In Poland, it is recommended to strengthen teacher training through fact-checking workshops, information analysis, and safe media use. The DigComp framework should be applied to enhance teachers' digital competence and align curricula with European standards. In Sweden, it would be beneficial to improve the mechanisms for monitoring the effectiveness of media education programmes, ensuring a balance between digital technologies and traditional teaching methods. MIL Sweden Network should be engaged to share best practices, analyse results, and coordinate actions between schools, government agencies, and educational organisations.

Overall, the recommendations highlight the need for regular monitoring and evaluation of the effectiveness of media education programmes. This includes national surveys, data collection on students' media literacy levels, and adjusting the content of education according to new challenges in the digital environment. The use of simulations, interactive video lessons, and practical case studies helps develop youth skills in recognising manipulation, combating cyberbullying, and safely using digital platforms. Thus, the comprehensive combination of practical tasks, digital tools, and social interaction creates a media education system that enhances critical thinking, digital literacy, and responsibility among students in different educational contexts.

Discussion

Media education in France, Poland, and Sweden has demonstrated different approaches to preparing students and citizens in the fields of digital literacy, social informatics, and journalism. In France, it focused on the development of critical thinking and media literacy

through systematic courses in schools and universities, aligning with the findings of S. Alexopoulou *et al.* (2022), who argued that the digital divide in Europe remained closely tied to the social state model. In France and Sweden, less inequality in access to digital media was observed compared to Poland, confirming the conclusions about the influence of national policies on the inclusivity of media education practices. The analysis showed that media education in France and Sweden was more deeply integrated into state educational policy, whereas in Poland it mostly developed through initiatives from civil organisations and independent media institutes. The consistency of these results was also evident in the research by P.S. Angheluță *et al.* (2023), which stated that the choice of educational directions for higher education graduates was influenced by labor market demand and EU policies. The finding of growing interest in journalism and social informatics educational programmes in France and Poland confirmed that these disciplines were gradually becoming priorities in professional training, responding to society's demand for quality information and the fight against disinformation. The analysis also supported the conclusions of A. Campmas *et al.* (2022), who demonstrated that the interoperability of digital state services stimulated the use of electronic resources in the learning process. In Sweden, examples of integrating state digital platforms into the educational environment were found, creating additional opportunities for the development of journalism education through access to open data and government information systems. This confirmed the identified trend: media education in Sweden was based on the practical use of digital services, distinguishing it from the Polish experience, where the emphasis was placed on the theoretical foundations of critical thinking. The conclusions of F. Davide *et al.* (2021) on the role of digital social innovations in the reform of welfare systems in Europe were aligned with the established fact that media education in France was actively combined with the concepts of digital citizenship and social justice. It was demonstrated that journalism training in France not only included technical skills but also the ability to work in the field of social communications, focusing on citizens' needs. This had strategic importance in the context of post-pandemic challenges, where information crises required effective communicative interventions. The results obtained partially aligned with F. Ferreira-Alfaya (2024) research, which emphasised that inequality in media literacy and information culture often created barriers for newly arrived groups in society. The analysis confirmed that while France and Sweden showed better results in reducing information inequality, Poland still faced challenges in adapting youth and migrants to the digital environment. This indicated that media education in Poland required a more systematic approach, integrated into national educational policies. Data confirmed the position of I. Huvila (2023), who analysed the role of education in knowledge management.

It was proven that the development of media education in France and Sweden had an integrative character, encompassing both journalism and social informatics, which helped form universal knowledge management skills. In contrast, Poland's focus on professional training in journalism remained narrower, creating risks of lagging behind in forming interdisciplinary competencies.

The identified need to adapt educational programmes to the needs of different social groups aligned with the conclusions of R.M. Greenwood *et al.* (2020), who demonstrated the importance of socially oriented programmes in media and communication to overcome marginalisation. Specifically, in France, an effective practice of engaging vulnerable groups in media education programmes was found, contributing to the improvement of their social integration. The work of P. Kardas *et al.* (2023) on optimising digital tools for older generations confirmed that in Sweden, media education considered the needs of various age groups, aligning with the concept of lifelong learning. The study's finding that digital resources were actively used for educating older age groups in Sweden corresponded with the conclusions about the importance of media education accessibility for all generations to maintain social cohesion. Comparing with the results of D. Koca (2023), who studied digital skills development policies in the Netherlands, Sweden, and Germany, it showed that Sweden's digital education had a systemic nature and included media education as a key component. This finding confirmed that integrating media education programmes into national digital literacy strategies created long-term benefits in forming a competent civil society. In comparison with the conclusions of M.D. Todino & S. Di Tore (2025), it was established that media education played a role in overcoming information crises. The experience of France, Poland, and Sweden demonstrated that society's preparedness for handling information determined the effectiveness of responses to global challenges, including the COVID-19 pandemic. Media education in France, Poland, and Sweden was not only a tool for preparing professional journalists but also a socially significant factor contributing to the formation of an information culture in society. The findings aligned with most international research, confirming that the successful development of media education required a combination of educational policy, state digital strategies, and interdisciplinary approaches. This was consistent with the conclusions of M. Krzyżanowski & M. Ekström (2022), who found that the media had become a key platform for the spread of populism and authoritarian tendencies and, therefore, required deeper critical reflection. The development of the French media education model confirmed that critical media text analysis was an essential condition for countering manipulation in the public sphere. In Poland, media education programmes focused on combining language training with the development of intercultural competencies, as reflected in the work of P. Romanowski (2024), which

emphasised the significance of English-language teaching in higher education in Poland for preparing students for global information exchange. It was found that Poland's experience combined a desire to integrate into the global educational space while preserving national cultural characteristics. This approach contributed to forming a balance between national journalism and the requirements of the European information market.

In Sweden, the study's results showed the systemic implementation of digital tools in journalism and social informatics courses aimed at developing competencies in digital communication. This was confirmed by research by H. Nieminen *et al.* (2023), who emphasised that the EU had long been delayed in regulating digital platforms, leaving the responsibility for shaping critical information perception on the education system. Sweden's experience demonstrated that applying digital technologies in media education was a key factor in building society's resilience to information challenges. Comparing results with the work of P. Konieczny (2025) confirmed that national differences in the use of shared digital platforms, particularly in Wikipedia, influenced citizen engagement in collective knowledge creation. In France and Poland, a lower level of participation was observed compared to Sweden, which was explained by different educational traditions and levels of digital culture development. This corresponded with the fact that media education in Sweden had a more practice-oriented character, encouraging active participation in digital environments. The analysis also confirmed the findings of M. Rus *et al.* (2021), who showed that public institution communication through social media determined the perception of European political structures by citizens. In France and Poland, relatively low levels of trust in official media channels were recorded, emphasising the need to develop critical source analysis within educational programmes. Meanwhile, in Sweden, a greater tendency for cooperation between government institutions and educational establishments in digital communication was observed, which enhanced the effectiveness of media education. The research confirmed the importance of an interdisciplinary approach, as noted by A. Sadowski *et al.* (2021), who studied the diversity of e-commerce in Europe. Similarly, in media education, diverse approaches were observed depending on the cultural and political context. Poland's experience was closely linked to the development of the digital economy and international student mobility, while France's focused more on social criticality and Sweden on technological innovation. The data aligned with the findings of A. Septia Irawan *et al.* (2022), who established that social networks became a tool for public discussion on nutrition and health issues in EU countries. In the context of media education, this meant that social media served not only as a channel for information exchange but also as a space for forming social responsibility. Educational programmes helped develop the ability to recognise biased or manipulative

messages, aligning with the Swedish and French experiences. Furthermore, the results aligned with the conclusions of B. Lin *et al.* (2022), who showed that social networks reflected territorial and linguistic differences in the perception of global events. This was evident in Poland, where the dominance of English-language content in the educational environment imposed certain restrictions on forming critical media literacy within the national context. In France, the focus was on analysing the national discourse and aligning it with global trends, which corresponded to the concept of preserving cultural identity in the context of globalisation. Comparing the results with data from P. Silva *et al.* (2022) confirmed that the internet had significant potential to reduce social isolation, particularly among older generations. In France and Sweden, active use of digital media in adult education programmes was observed, helping to expand the audience for media education and increasing social cohesion. In Poland, these processes were less intense, corresponding with a lower level of digital infrastructure development in the education sector. Meanwhile, the study had certain discrepancies with the conclusions of U. Lundström *et al.* (2025), who highlighted the significance of educational programmes in healthcare to improve patients' quality of life. In media education, the analogy was that quality citizen training in digital literacy could have a similar social effect, namely improving societal well-being and the ability to respond to crisis situations. However, unlike healthcare, media education remained a less regulated field, which required further research and regulatory adjustment.

Conclusions

The comparative study of media education in France, Poland, and Sweden showed that, despite a shared focus on developing critical thinking, digital competencies, and safe media usage, each country shapes its own models according to historical, socio-cultural, and political conditions. France, Poland, and Sweden are developing media education based on the humanistic paradigm and national initiatives, democratic principles post-1989, and digital inclusion, while all three countries integrate media into curricula, develop practical skills for students, improve teacher qualifications, and stimulate project activities. Meanwhile, methodological and cultural differences shape the implementation of these programmes, highlighting the need for adapting media education to the national context.

The cultural-historical analysis of the evolution of media education in France, Poland, and Sweden from 2020 to 2025 showed significant changes in the structure, approaches, and practical implementation of media and information literacy. Sweden established a national MIL Sweden Network for coordinating the activities of public and educational institutions, updated the strategy for digitalising education for 2023-2027, conducted a national MIL survey, invested in developing

traditional reading (2024), and planned a mobile phone ban in schools (2025) to improve student concentration. In Poland, media education evolved through modernising curricula and enhancing digital literacy: in 2020, the "New Literacy" programme was launched, in 2021, teacher training was strengthened, and in 2022-2023, the "Media for All" projects were implemented, laying the digital foundation for education, and in 2025, a national strategy for the development of media education until 2030 was approved. In France, a combination of digital technologies and humanistic pedagogy occurred: in 2020, the "White Paper" on digital education was published, in 2021-2022, the "Digital Education" programme was implemented, and the TUMO Lyon centre was opened. In 2023, the 2023-2027 digital strategy was presented, in 2024 the European Year of Digital Citizenship was held, and in 2025, the educational series "Adolescence" was integrated into school curricula. All these changes contributed to the development of critical thinking, digital skills, and social responsibility in students, demonstrating the adaptation of educational systems to the demands of the digital age.

The comparative analysis of national media education platforms in France, Sweden, and Poland highlighted

both shared trends and differences in their development and use until 2025. In France, Sweden, and Poland, students' digital competencies are assessed and developed through state platforms and networks such as Pix, MIL Sweden Network, and DigComp, which provide testing, practical assignments, interactive exercises, webinars, and the standardisation of digital skills with an emphasis on critical thinking, ethics, and online collaboration. The study's limitation was the lack of empirical verification of the effectiveness of national media education platforms directly in the students' and teachers' learning process. Future research should explore the impact of artificial intelligence and adaptive digital technologies on shaping media literacy in educational systems across different countries.

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Медіаосвіта в Європі: досвід Франції, Польщі та Швеції у контексті журналістики й соціальної інформатики

Єва Панцер-Цибульська

Доктор габілітований, професор
Вроцлавський університет економіки та бізнесу
53-345, вул. Командорська, 118/120, м. Вроцлав, Польща
<https://orcid.org/0000-0002-4242-8713>

Яна Зленко

Викладач
Університет Григорія Сковороди в Переяславі
08401, вул. Сухомлинського, 30, м. Переяслав, Україна
<https://orcid.org/0009-0001-6052-7897>

Анотація. Метою цього дослідження було вивчення впровадження медіаосвіти у Франції, Польщі та Швеції, зосереджуючи увагу на виявленні спільних тенденцій і відмінностей у підходах до розвитку медіаграмотності. Методологія включала методи, такі як міжкультурний аналіз для виявлення подібностей і відмінностей у моделях медіаосвіти, культурно-історичний аналіз для визначення еволюції медіаосвіти в період з 2020 по 2025 роки, порівняльний аналіз національних платформ, таких як Pix, Media and Information Literacy Sweden Network і DigComp, а також розробка рекомендацій. Було підтверджено, що використання цифрових інструментів та соціальної інформатики сприяло розвитку критичного мислення, цифрової грамотності та соціальної відповідальності серед учнів у Франції, Польщі та Швеції. Встановлено, що в період з 2020 по 2025 роки у Франції було реалізовано програму «Цифрова освіта», відкрито центр TUMO Lyon, а також інтегровано навчальну серію «Підлітковий вік» у шкільні програми, сприяючи медіаграмотності через практичні завдання та інтеграцію медіа в різні предмети. У Польщі в 2020 році було запущено програму «Нова грамотність», а цифрові компетенції вчителів були покращені в період з 2021 по 2023 рік. У Швеції в 2020 році була створена платформа Media and Information Literacy Sweden Network, оновлено стратегію цифрової освіти в 2022 році, а в 2023-2025 роках проводилося національне опитування з медіаграмотності та готувалася заборона на мобільні телефони в школах. Було вивчено розвиток національних платформ: у Франції Pix сертифікував цифрові навички учнів, у Польщі DigComp формував навчальні програми та оцінки цифрових компетенцій. Виявлено спільні дані щодо інтеграції медіа в навчальні програми, розвитку практичних навичок, підготовки вчителів та активної участі учнів у проєктній діяльності. Результати дослідження можуть бути використані освітніми установами, вчителями, державними органами та міжнародними організаціями для покращення навчальних програм, підвищення медіакомпетентності учнів та розробки національних і міжнародних стратегій медіаосвіти.

Ключові слова: учні; критичне мислення; інформаційна безпека; цифрова грамотність; цифрові технології



Social communication in crisis situations: The case of Ukrainian media, 2022–2025

Vasyl Dudar

PhD in Historical Sciences, Professor
Hryhorii Skovoroda University in Pereiaslav
08401, 30 Sukhomlynskyi Str., Pereiaslav, Ukraine
<https://orcid.org/0000-0001-6064-9408>

Yuliia Molotkina

Doctor of Philosophy in Philology
Hryhorii Skovoroda University in Pereiaslav
08401, 30 Sukhomlynskyi Str., Pereiaslav, Ukraine
<https://orcid.org/0000-0002-5245-726X>

Abstract. The aim of this study was to assess communication mechanisms within the media space during the full-scale Russian aggression (2022–2025). A comprehensive methodology was applied, combining institutional and narrative analysis as well as a detailed case-study approach, focusing on the materials of leading media outlets, state institutions and fact-checking organisations alongside the examination of regulatory documents. The principal finding of the study was the identification of a dialectical tension between high social resilience and decreasing democratic accountability within crisis communication practices. The research demonstrated that Ukrainian media provide rapid information updates and strengthen social cohesion through a patriotic framing and convergent journalism (the speed of Telegram and X combined with verification). The study also revealed internal pressure on independent journalism through SLAPP lawsuits and self-censorship, which undermines its watchdog function. A significant information gap was identified: despite the achievements of the Centre for Countering disinformation and the Centre for strategic communications at the macro-level (international narratives), their effectiveness at the domestic micro-level remains limited due to low adaptability to “meso-news spaces”. The study further substantiated the role of methodological hybridisation in fact-checking practices. The findings indicated that overcoming this paradox requires a transition from a centralised to a network-based communication model and the elimination of technological divides and democratic deficits. The practical significance of the study lies in the fact that its results may be used by stakeholders to strengthen Ukraine’s informational and democratic resilience under wartime conditions

Keywords: social resilience; disinformation; meso-news space; fact-checking; convergent journalism; fake

Introduction

The relevance of the study is conditioned by the radical transformation of the Ukrainian media landscape following the full-scale war. Under these circumstances, the media have become a central element of the system

of national resilience and information security. The war-time environment, marked by constant threats, shelling and social tension, has foregrounded the need for an in-depth understanding of the mechanisms that shape a

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unified national narrative, enable effective counteraction to disinformation and sustain trust in official sources.

Social communication in crises has evolved alongside the rise of social media (for example X), which foster rapid interactions, allowing organisations and individuals to share updates, counter disinformation and engage with the public. This transformation has led to the development of models such as Social-Mediated Crisis Communication (SMCC), which emphasises the interaction between organisations and the public during crises. This position was highlighted in the study by D. Pramata (2025), where the author stressed the role of influencers on social networks and the SMCC model in managing information dissemination during crises such as the COVID-19 pandemic (coronavirus disease 2019). The findings of N. Abd Elfattah (2024) showed that social media function as an essential tool in crisis communication, enabling both formal and informal actors to disseminate information, shape public perceptions and counter misinformation. Their effectiveness was demonstrated during emergencies, including COVID-19, where they contributed to increased public engagement and improved response strategies. A similar view was expressed in the research of N. Zammar (2021), which underlined the importance of social media in crisis communication, particularly the strategy of Dairy Khoury aimed at effective message dissemination and countering rumour-mongering. According to the study, this strategy helps to protect organisational reputation when traditional communication methods prove insufficient.

The role of social communication in crises, especially amid an ongoing conflict such as in Ukraine, is central to shaping public perception, mobilising resources and sustaining social cohesion. The Ukrainian media landscape has not only adapted to wartime conditions, highlighting the importance of communication strategies that resonate with society, but has also become a subject of academic attention. According to O. Snytka (2023), effective crisis communication in wartime Ukraine requires concise and balanced messages that combine factual and emotional components, using suggestive language to support strategic narratives and maintain public morale, including through coordinated media efforts and public addresses. Ukrainian media operate with a strong focus on social responsibility during wartime, prioritising ethical adaptation, audience expectations, and technological strategies throughout 2022-2025 while addressing disinformation and preserving editorial independence amid national security and economic resilience challenges. The results of the study by M. Harmel & O. Buchynska (2025) indicated that the full-scale war has altered the operational structure of Ukrainian media organisations, creating challenges for maintaining standards of democratic journalism while incorporating national security imperatives. The authors argue that wartime realities have led to the emergence of "war media ethics" as a distinct professional paradigm balancing informational

transparency and security considerations. According to O. Marukhovska-Kartunova *et al.* (2023), the effectiveness of social communication under Russian aggression is crucial, as it aims to build and verify the informational foundation, foster mobilisation and uphold public support. Thus, social media address challenges such as disinformation, censorship and psychological threats to journalists. The findings of O. Buchynska (2025) reveal the communicative practices of Ukrainian civil society during the war, concentrating on coordination of volunteer efforts and international advocacy, demonstrating how communication adapted to crisis through innovative digital tools and emotional engagement to mobilise support. The researcher identified four key areas of modern Ukrainian public relations (based on cases such as United24, Army of Drones and #standwithukraine): governmental communication (centralisation, enhanced trust), military communication (strategic messaging, personnel branding), corporate communication (social responsibility, national identity) and civil society communication (volunteer coordination, international advocacy). The study by P. Burdiak (2023) demonstrated that Meta platforms (Facebook, Instagram) apply content moderation restrictions affecting Ukrainian media, journalists, bloggers, activists and ordinary users documenting Russian aggression. To address ongoing moderation issues, platforms must increase transparency of standards and community rules, cease blocking satirical content and update policies according to the geopolitical realities of international armed conflicts. The findings of M. Prokop (2023) demonstrate that in crisis conditions communication is facilitated both internationally and domestically, ensuring multiple forms of assistance and support to victims of war. In addition, social networks (such as Facebook, Instagram, Telegram and X) are used by the Ukrainian government for official announcements of major military developments and for disseminating information worldwide concerning the consequences of Russian aggression.

The literature review identified a research gap in the absence of an analysis of the evolution and interaction of all key types of social communication actors (governmental, military, corporate, civil society) over an extended period (2022-2025), considering the synergetic effect of their influence on the development of a unified national narrative, counteraction to disinformation and national resilience during an existential crisis. Therefore, the aim of this research was to examine effective models for developing a unified national narrative through the media under wartime conditions. The objective involved the following tasks: to analyse the transformation of governmental and military communication strategies (including the use of social media platforms) in Ukraine throughout 2022-2025 and their impact on trust in official sources; to identify major challenges and practical mechanisms for countering external and internal disinformation and manipulation within the Ukrainian media

space, considering interactions between communication actors; to develop systematic recommendations for state institutions aimed at improving the effectiveness of crisis communication.

Materials and Methods

The empirical research was based on the analysis of the transformation and effectiveness of social communication in the Ukrainian media landscape under full-scale war conditions (2022–2025). The selection of materials was guided by the necessity of a comprehensive and representative analysis of crisis communication, covering multiple functions: state response (Centre for strategic communications (n.d.) and Centre for countering disinformation (n.d.)), independent and public journalism ("Suspilne Media", n.d.; "Ukrainska Pravda", n.d.) and systems countering disinformation (StopFake, n.d.; Reuters Fact Check, n.d.). The materials were selected according to criteria of strategic relevance (formation of national and international narratives), demonstration of key communication models (Telegram speed, watchdog function, dual-channel strategies) and documentation of internal challenges (SLAPP lawsuits – Strategic Lawsuit Against Public Participation), enabling the study of the crisis communication paradox: success in external unity amid declining internal democratic robustness.

Institutional analysis was applied to assess the role and effectiveness of key media and governance actors, in particular to identify internal pressures on independent journalism – Directive (EU) 2024/1069 of the European Parliament and of the Council (2024) and Directive of the European Parliament and of the Council 2010/13/EU (2010). Using this method, legal frameworks for media operations under martial law were examined: Order of the Commander-in-Chief of the Armed Forces of Ukraine No. 73 (2022), the Law of Ukraine No. 2849-IX (2022), the Law of Ukraine No. 540/97-VR (1997). This method also guided the analysis of state institution cases (Centre for countering disinformation, n.d.; Centre for strategic communications, n.d.) to determine their mission and achievements.

Narrative analysis was used to deconstruct both pro-Ukrainian and Russian propaganda narratives in fact-checking materials, including Reuters Fact Check "Fact Check: 2024 video of strikes on Kyiv falsely described as Russia retaliation to 2025 drone attack" (Reuters, 2025) and "Fake: Ukrainian TV channel 'dumbed down' audience during Zelensky's speech at the UN" (StopFake, 2025). This enabled the identification of strategic objectives and counter-narratives shaping national and international opinion. Comparative analysis was used to compare the effectiveness of state institutions (CCD and StratCom) at macro- and micro-levels based on criteria such as mission, key achievements and narrative analysis.

The media analysis focused primarily on Telegram (n.d.) and X (n.d.), as they became decisive drivers of the

wartime transformation of the Ukrainian media landscape, replacing traditional news platforms. These platforms were selected due to their role as "meso-news spaces": hybrid environments combining speed, mass reach and engagement, which are critical during crises. The case-study method examined specific crisis communication cases on Telegram (n.d.) and X (n.d.). Each case was treated as an autonomous analytical unit. This allowed the documentation of specific strategies, instruments (Telegram vs official websites, speed vs verification) and audience influence (national resilience, international mobilisation). This method was applied to the cases of Ukrainian media "Suspilne Media" (n.d.) and "Ukrainska Pravda" (n.d.). The analysed "Suspilne Media" materials included: "Russian troops launched more than 50 missiles and about 500 drones against Ukraine – Zelensky" (Svyrydiuk, 2025) and "Information that children in Sumy are being offered to assemble drones for money is fake" (Yukhta, 2025). For "Ukrainska Pravda", the cases selected were: "Russians hit apartment building in Sloviansk: six injured" (Petrenko, 2025) and "Due to massive shelling in the morning, public transport will not operate in Lviv – Sadovyi" (Dyakonov, 2025). Case-study analysis was also used to document internal challenges (SLAPP lawsuits) – "The BIHUS.Info team won the case against the former deputy head of the Foreign Intelligence Service, Serhiy Semechko" (Zmina, 2025). Based on a comprehensive assessment of challenges, including the crisis communication paradox, practical recommendations were developed to enhance media-sector resilience, improve media literacy and neutralise manipulative meaning.

The interpretation of results was carried out within the framework of crisis communication theory and Resilience Theory (Copley, 2025), as well as through the lens of social constructivism. The observed patriotic framing was interpreted as effective crisis communication to achieve social cohesion (strengthening resilience) under existential threat. At the same time, the internal pressure on journalism (SLAPP) was viewed as a decline in democratic resilience, leading to the key conclusion of the study – the paradox of crisis communication. From a social constructivist perspective, the interpretation addressed not only factual content but also how those facts are socially constructed (for example, the portrayal of Ukraine as a victim of aggression) and public perception (uncertainty in top-down vs bottom-up communication), underscoring the significance of the psychosocial context of wartime conditions.

Results and Discussion

The full-scale Russian aggression marked a new phase in the history of social communication in Ukraine. The war has evolved into a conflict in which military operations are synchronised with large-scale psychological and information campaigns. In this context, crisis communication goes beyond traditional information dissemination. It serves a dual purpose: firstly, it provides the public

with urgent information necessary for survival (air raid alerts, evacuation routes, actions during shelling); secondly, it fosters the social and psychological resilience of the nation (dos Reis, 2025). The transformation of the Ukrainian media landscape was rapid. Traditional media (such as "1+1", "ICTV", "Ukraina") lost their dominant position to digital platforms. Independent channels in messaging apps, such as "Ukrainska Pravda" (n.d.) and "Suspilne Media" (n.d.) particularly Telegram (n.d.) and X (n.d.), took a leading role. These platforms offer rapid information dissemination but also create new ethical and verification challenges. This constant information flow underscores the deep sense of public uncertainty, which researchers distinguish into two main types of determination (dos Reis, 2025). Uncertainty stemming from institutional actors (top-down uncertainty) – caused by the actions and messages of authorities, political leaders, and official institutions. Uncertainty created by the environment itself (bottom-up uncertainty) – generated by the chaotic, fast, and unverified information circulating directly in social networks and messengers.

The introduction of martial law in 2022 necessitated the legal regulation of mass media operations. Although direct government censorship was not introduced, clear strategic limitations were established. In particular, the Order of the Commander-in-Chief of the Armed Forces of Ukraine No. 73 (2022) became the main regulator for media operations in wartime conditions. It introduced a mechanism for the accreditation of journalists to access combat zones. A zoning system was established for media workers. Initially, a division into "green," "yellow," and "red" zones was frequently used, with journalists being strictly prohibited from working in the "red" zone. The order clearly outlined a list of prohibited (military-sensitive) information, the disclosure of which could harm the country's defense capabilities. This included: the names of military units and other military objects along with their geographic coordinates; the quantity of weaponry and military equipment and their storage locations; any information about operations (combat actions) being carried out or planned; and information about the movement and deployment of troops (including their names, numbers, and routes). These restrictions were intended to protect national security, but they also affected the boundaries of journalistic activities in frontline zones.

Crisis communication must take into account the deep psychological context of wartime. Society has undergone mass trauma: according to a study, the respondents reported nightmares related to shelling and bloodshed (Alexseev & Dembitskyi, 2022). According to a survey initiated by the Olena Zelenska Foundation and the Kyiv School of Economics with UNICEF (United Nations International Children's Emergency Fund) support, by 2023, 40 percent of Ukrainian children showed symptoms of post-traumatic stress disorder (KSE, n.d.). This level of trauma, coupled with mass displacement (around ten million people were forced to leave their

homes), requires communication strategies to include an element of psychosocial support, fostering social cohesion and unity (de Rassenfosse *et al.*, 2023).

In the face of external aggression, Ukrainian media faced a profound ethical dilemma: how to balance professional standards of objectivity with the necessity of demonstrating patriotism in the face of national attack (Galchenko, 2024). Academic research from 2022-2025 acknowledges that this patriotic influence on the media landscape is contentious but inevitable in the context of an existential war. It was found that mainstream Ukrainian media show a patriotic bias, focusing on military actions and the country's successes. In contrast, less attention is paid to in-depth analysis of the internal political landscape or international relations, and the coverage of the opposing side of the conflict is often minimised. This bias is caused by the phenomenon of self-censorship. Journalists and editorial offices consciously limit the information they provide out of fear of "damaging the Ukrainian side" or adhering to editorial guidelines formed in wartime. This phenomenon becomes evident in the digital "meso-news spaces" (such as Telegram and X), where close interaction with the audience amplifies these ethical negotiations, encouraging selective news dissemination (Weimann-Saks *et al.*, 2025). On one hand, this patriotic bias is successful crisis communication because it effectively contributes to the social cohesion of society and strengthens its resilience against external threats (dos Reis, 2025). The media act as a mobilising factor. On the other hand, such narrative uniformity creates tension. An excessive focus on patriotism and self-censorship may undermine one of the key functions of democratic media – holding power accountable (dos Reis, 2025). This internal tension explains why independent journalism, despite its patriotic stance, often faces internal pressure in the form of lawsuits or covert surveillance by state or political actors. M.C. Stewart (2025) emphasised the importance of proactive social listening and sensitive engagement with social media during crises, highlighting its role in spreading accurate information and managing reputational threats. According to the researcher, to establish best strategic practices, organisations, institutions, and agencies are advised to recognise and consider how social networks can both act as crisis agents and serve as means of transmitting accurate and timely information to interested parties during crises. A similar view is expressed in the work of K.K. Stephens & B.W. Robertson (2022). Examining social communication during the Hurricane Harvey crisis, the researchers noted that various social media platforms allowed both official responders and special groups to effectively communicate, despite the lack of formal preparation, thus enhancing community engagement and information dissemination. This perspective is further supported by M. Ahmad *et al.* (2024), who stated that social media improves crisis communication by providing rapid information dissemination and encouraging

two-way communication. This transparency fosters trust, dispels rumours, and allows victims to share their experiences, thus humanising crises and effectively mobilising support. The results of this study align with the views of E.K. Özdemir (2024), who highlighted the importance of social media in crisis communication, particularly during the Kahramanmaraş earthquakes of 2023, in the context of information dissemination, combating disinformation, and enhancing user engagement, particularly regarding search-and-rescue efforts and reliable communication channels. P.R. Spence & X. Lin (2024) also pointed out that understanding how information spreads, or “information diffusion,” is a key aspect in studying the role of social media during the crisis lifecycle.

In response to the information aggression accompanying the full-scale invasion, Ukraine intensified the work of specialised state institutions. Among them, the Centre for countering disinformation (n.d.) under the National Security and Defence Council of Ukraine and the Centre for strategic communications (n.d.) play a key role. These structures contribute significantly to strengthening Ukrainian society’s resilience and systematically countering Russian propaganda. Their activities include identifying enemy narratives, developing counter-narratives, and conducting public education campaigns. Table 1 provides a comparative analysis of the Centre for countering disinformation and StratCom at the macro level.

Table 1. Centre for countering disinformation (CCD) and StratCom: Achievements at the macro level

Aspect	CCD	StratCom
Main mission (general)	Enhancing national resilience, countering Russian propaganda.	Enhancing national resilience, developing effective state communications.
External contour (macro level)	Effective identification and structural analysis of enemy narratives (as a preventive tool for international partners).	Formation of a positive metaphorical image of Ukraine globally; working at the level of international relations and official state communications.
Internal contour (citizen activity)	Systematic publication of verified information (fact-checking) and identification of enemy narratives for debunking. Serves as an official source of credibility.	Development of counter-narratives and public education (as an active tool for influencing public opinion and strengthening morale).
Key success	Systematic publication of verified information, serving as an official source for media and partners.	Formation of a positive metaphorical image of Ukraine globally (indicating the effectiveness of work in international relations).

Source: compiled by the authors based on data from the Centre for strategic communications (n.d.), Centre For countering disinformation (n.d.)

The comparative analysis of the activities of the Centre for countering disinformation and StratCom (Table 1) differentiates their roles in countering information aggression, showing that these structures work according to the “defensive and offensive” principle. The Centre for countering disinformation performs a predominantly defensive function, focusing on internal contours and preventive actions. Its key success lies in the systematic publication of verified information and effective identification of enemy narratives (fact-checking), serving as an official source of credibility. In contrast, StratCom focuses on offensive functions and external contours, aiming to shape a positive metaphorical image of Ukraine globally and developing counter-narratives. Both institutions contribute to enhancing national resilience, with the Centre for countering disinformation responsible for deconstructing the enemy, while StratCom handles Ukraine’s image on the international stage.

The effectiveness of these institutions is confirmed by their success in external communication. The work of the Centre for countering disinformation and StratCom integrates successfully into the international information space. This enables strengthening support for Ukraine and forming a resilient image of the country as a victim of aggression, defending democratic values. Thus, the

strategy is effective in forming national and international narratives. However, despite progress in developing these initiatives, public awareness of the Centre for countering disinformation’s activities remains low. This indicates a gap between the strategy developed at the macro level and its actual effectiveness at the micro level of internal communication. State institutions, although successful in shaping national and international narratives (as evidenced by the positive metaphorical image of Ukraine globally), appear less adaptable to the dynamics of fast and informal “meso-news spaces” (such as Telegram and X) compared to the speed at which propaganda itself spreads (Farbman, 2023). To increase their influence, the strategies for dissemination need to be reconsidered, possibly through integration or collaboration with independent communication channels and OSINT groups (Open Source Intelligence), which have a higher level of reach in the digital environment. To bridge this gap and increase the impact of state institutions, a transition from a centralised to a networked communication model is required. The strategic goal is to transform the work of the Centre for countering disinformation/StratCom from a “counter-narrative development laboratory” into a “networked communication hub.” This requires two key steps: revising dissemination

strategies (integration into those channels where the audience spends the most time, instead of relying solely on official press releases and traditional media); and collaborating with independent channels (synergy between state structures and independent actors with higher digital reach) (Avrahami *et al.*, 2025).

Fact-checking has institutionalised and gained the status of a specialised professional activity (or a separate genre of journalism) as a response to large-scale information threats and disinformation campaigns characteristic of wartime conditions. Since the full-scale invasion (February 24, 2022), and up to 2024, professional fact-checking organisations around the world have published over 3,000 verifications related to the Russian-Ukrainian war. Among them are StopFake (n.d.), VoxCheck (n.d.), and Reuters Fact Check (n.d.). This demonstrates an unprecedented level of information flow and propaganda efforts (Dierickx & Lindén, 2024). For example, Reuters Fact Check's practice, as a global news agency, focuses on verifying primary sources and chronological context, which is critical in the information war. Reuters actively monitors social media (especially Telegram (n.d.), X (n.d.)), recognising them as key channels for the rapid spread of disinformation. This aligns with the general trend where traditional media must counter fake news circulating in "meso-news spaces". The analysis of the case "Fact Check: 2024 video of strikes on Kyiv falsely described as Russia retaliation to 2025 drone attack" (Reuters, 2025) shows that the main debunking technique is based on the time mismatch. The goal of the fact-check is to disprove the "cause-effect" connection. Reuters confirms the Ukrainian drone operation (providing context: "117 drones launched... at airbases"), but debunks the video sequence that was intended to confirm Russian retaliation, thus breaking the propaganda chain. Fake: the 2024 video is presented as a "response" from 2025 (Reuters Fact Check, n.d.). Reuters clearly establishes that the video showing rockets hitting central Kyiv in 2024 was mistakenly presented as Moscow's retaliation in June 2025. This is a basic but highly effective tool for counteraction, as propaganda often uses old or unrelated content to illustrate new events. Reuters analyses not only the fact itself but also the strategic narrative behind the fake. The narrative of the fake: "Russian retaliation" for a successful Ukrainian drone attack. Reuters uses official statements (Ukraine's claim of launching 117 drones) to establish the factual basis of the 2025 events, separating real events from false visual content spread on X (n.d.). Since Reuters is a global agency, its fact-checking has a broad international impact. This helps prevent the penetration of Russian propaganda narratives into Western media and political discourse. By publishing such debunks, Reuters not only exposes disinformation but also sets a professional standard for other media, showing that verifying chronology and context is essential, especially regarding visual content.

Professional fact-checking practices in Ukraine are characterised by methodological hybridisation. Fact-checkers are forced to combine traditional journalistic methods with advanced use of OSINT to work in conditions of limited resources and time, as well as amidst language barriers and geographical distances. When assessing the credibility of political information related to the conflict, fact-checkers use nine main grounds for evaluation. These include direct quoting/sourcing, metadata verification, reverse image search, analysis of linguistic context/terminology, geolocation verification, cross-checking, expert evaluation, checking official statements, and timeline/event sequence analysis. The most central criteria are the correctness of the information and the ability to verify the event itself. Also, important criteria include temporal and spatial compatibility, as well as comparison by similarities and differences (Savolainen, 2024). According to R. Savolainen (2024) research, the most popular sources of information used as evidence for confirming or disproving statements are government representatives' statements, videos and photos shared on social media, and materials from newspapers and television programmes. The high proportion of references to "government representatives' statements" as reliable evidence sources for verifying information highlights the structural dependence of the fact-checking system on official communication channels. This dependence is effective when social unity is high, but it creates potential vulnerability if trust in state institutions diminishes or political pressure increases. Therefore, ensuring transparency and accountability of state institutions becomes not only a political but also a critical factor in maintaining the effectiveness of countering disinformation.

The "Fake: Ukrainian TV channel 'dumbed down' audience during Zelensky's speech at the UN" (StopFake, 2025) case from the Ukrainian project "StopFake" serves as an example of institutionalised fact-checking practices aimed at countering coordinated information campaigns that use both visual manipulation and official propaganda channels. In this case, fact-checking was carried out by Ukrainian media and organisations (notably StopFake) in response to actions by pro-Russian channels and official figures (Russian Ministry of Foreign Affairs). The fact-checking process began with recognising the strategic goal of the disinformation: the narrative – Ukrainian media allegedly "altered" the broadcast of Zelensky's speech at the UN General Assembly by "filling the hall", when in fact, "no one was there". The goal of the fake: to create the impression of decreased international support for Ukraine; to undermine trust in Ukrainian media by portraying them as a "factory of lies". Distribution channels: pro-Russian Telegram channels, anonymous social media pages, and official persons (Russian Ministry of Foreign Affairs spokeswoman Maria Zakharova). Disproving this fake required a combination of visual and contextual verification (Table 2).

Table 2. Case analysis of "StopFake"

Fact-checking method	Application in case	Evidence
Source verification	Checking the original footage broadcast during the Ukrainian telethon.	"Unified News" (e.g., on 1+1 channel). It was found that Ukrainian media showed the real broadcast, and no "added" viewers were present.
Analysis of visual evidence (forensic media expertise)	Analysing the fake video.	A segment with "added" viewers was found to be a montage and forgery.
Verification of timeline and identifiers	Comparing original broadcast with fake video.	The original had the UN logo and Ukrainian audio track, whereas the fake lacked these elements, and the speech was in English.
Comprehensive verification (networked)	StopFake checked stories from other Ukrainian media (including screenshots from TSN YouTube and Suspilne YouTube).	Confirmed that other Ukrainian media also showed the real broadcast of the hall.
Contextual verification (normalisation)	Explaining UN's usual practice.	Emphasised that it is normal for the hall not to be full during speeches, and this does not indicate a lack of interest.

Source: compiled by the authors based on the analysis of the StopFake (2025)

In a crisis situation, the fact-checking practice examined in this case operates along several key directions. It involves multi-faceted verification that goes beyond simple disproving. Fact-checkers perform comprehensive analysis, comparing original elements such as logos and broadcast languages with falsified visual or audio inserts. This process is made possible through institutional cooperation: the involvement of StopFake and the verification of materials from key Ukrainian media outlets (including 1+1, Suspilne, TSN) confirms that the media community has a networked, coordinated system for responding to disinformation. Finally, fact-checking is not limited to technical verification but includes exposing motives. It constantly reminds the public of the strategic goal behind such fakes – undermining trust in Ukrainian media and justifying the aggressor's propaganda. Such a coordinated and multi-layered practice is vital in a crisis situation, as it protects institutional trust in Ukrainian media and the international image of the country from coordinated information attacks.

Suspilne Media (n.d.) is a public broadcaster whose crisis communication was based on the principles of stability, verification, and national unity. Its activities confirm that, in chaos, a crisis creates a demand for institutional reliability. In the early days of the invasion, when speed was a priority, Suspilne consciously focused on reliability, acting as an "anchor" source. Its regional branches became the only source of information on the ground, creating local social capital of trust. While the general telethon "Unified News" was criticised for lack of pluralism, for Suspilne, it became a platform for ensuring continuous, verified information and maintaining national informational cohesion. Suspilne's social communications were aimed at reaching all groups: from news Telegram channels (quick but restrained headlines) to TikTok content (educational content, debunking fakes) and YouTube channels (in-depth reports and documentaries). Regular publication of reports on activities, funding, and fact-checking fakes maintained the image of an independent, taxpayer-funded institution that provides operational countermeasures to

disinformation (fact-checking) and illustrates how state institutions (in this case, the Centre for countering disinformation) use social communication in crisis situations. Case: "Information that children in sumy are being offered to assemble drones for money is fake" (Yukhta, 2025) reflects the work with a highly emotionally charged propaganda narrative that has the potential for international discreditation. Russian Telegram channels circulated an announcement in Sumy, where children were offered summer jobs – assembling drones for money. The goal of this narrative was to discredit the Ukrainian Armed Forces and Ukraine, creating an image of a state that involves children in military activities (violating international humanitarian law). Justifying aggression – legitimising Russian strikes on civilian infrastructure under the guise of fighting "military objects" (even if it's a school or children's club). The Centre for countering disinformation (CCD) applied an operational and direct debunking model (fact-check), which is key in combating rapidly spreading fakes in social media. A quick response was needed before the fake gained mass traction in the Ukrainian Telegram segment. CCD specialists quickly identified the fake in Russian channels and published a debunk that was quickly disseminated by Ukrainian media, including Suspilne. In crisis communication, response time directly correlates with the effectiveness of countermeasures: using evidence and logic. The debunk had two clear lines of evidence: Technical Verification (Physical Evidence) – no such announcements existed in Sumy, the phone number listed in the announcement was invalid; Poor Quality of Execution – characterising the fake as "low-quality" diminishes its credibility in the eyes of the audience and highlights the unprofessionalism of the propagandists. Exposing the true strategic aim of disinformation enhances the media literacy of the public. Citizens learn not just to ignore the fake but to understand why it was created, thus increasing their resilience to further manipulation.

Case: "Russian troops launched more than 50 missiles and about 500 drones against Ukraine – Zelensky" (Svyrydiuk, 2025) is an example of rapid communication

in a critical crisis situation to achieve three key objectives: informing citizens, mobilising international support, and forming a unified national narrative. Volodymyr Zelensky's

communication on the X (Twitter) platform the morning after the enemy's airstrike and its retransmission by Suspilne had several communication goals (Table 3).

Table 3. Social communication goals in the case of "Russian troops launched more than 50 missiles and about 500 drones against Ukraine – Zelensky"

Communication goal	Description
Internal audience (national resilience)	Confirming the fact and scale of the attack (more than 50 missiles and 500 drones), removing panic and speculation. Demonstrating control (reports from leaders, ongoing work) and empathy (number of deaths and injuries).
External audience (international mobilisation)	Arguing for military assistance. Specific figures and a list of affected regions serve as the evidence base for calls to accelerate the supply of air defense systems.
Narrative formation	Emphasising civilian infrastructure. Highlighting that the attacks were aimed at "infrastructure that ensures normal life for people", reinforcing the terrorist nature of Russia's actions and strengthening Ukraine's image as a victim of aggression.

Source: compiled by the authors

The use of the X platform (n.d.) is not coincidental and is characteristic of modern crisis communication. X is both a meso-news space for instant communication with foreign journalists, politicians, and thought leaders. Unlike a long press release, a tweet is a concentrated message. The message contains clear figures and geography, lending documentary credibility to the information. The tone is serious and decisive but without excessive emotionalism. The president publishes the full details of the attack first, seizing the initiative from the enemy and preventing Russian propaganda from creating its own distorted versions of "destroyed military headquarters." The most important element of the social communication is the political conclusion formulated as a strategic presupposition: implicitly establishing a causal link between the unilateral cessation of hostilities in the airspace and the potential initiation of an effective diplomatic process. This phrase serves as a communication counter-narrative in response to calls for negotiations. It clearly articulates the position: diplomacy cannot be discussed while Ukraine is under mass attack. This case demonstrates that, in a crisis situation, the social communication of a state leader is not just information dissemination, but a tool of foreign policy and national mobilisation, using the speed of digital platforms to establish control over the narrative.

Ukrainska Pravda (UP) (n.d.) functions in Ukraine as an online publication whose crisis communication focuses on speed and maintaining the "watchdog" function over the government. Key social communication strategies include: dominance in Telegram as the main channel of communication in Ukraine. Its success is based on the speed of information dissemination, often being the first to publish news about attacks, government decisions, or personnel changes. This made UP a "digital news hub"; the integration of speed and depth (UP successfully combined fast publication in Telegram with subsequent in-depth investigations and analytics on its main website). This dual-channel communication satisfied both the need for instant "meso-news" and the need for verified context; accountability communication (even in wartime,

UP maintained and intensified its focus on anti-corruption investigations and coverage of internal political conflicts). This communication created the impression that civil society and governmental oversight had not ceased, which is crucial for democracy in times of crisis. UP acted as a "digital frontline reporter" and "citizen control tool," ensuring the public received immediate information about what was happening and how the government was fulfilling its promises. Case: "Russians hit apartment building in Sloviansk: six injured" (Petrenko, 2025) is a classic example of how independent Ukrainian media (in line with the "Ukrainska Pravda" model) use convergent journalism for effective social communication in a crisis. Communication is based on a two-step model: instant response in Telegram (speed) and detailed verification on the main website (depth and verification). Communication as meso-news in Telegram (Fig. 1).

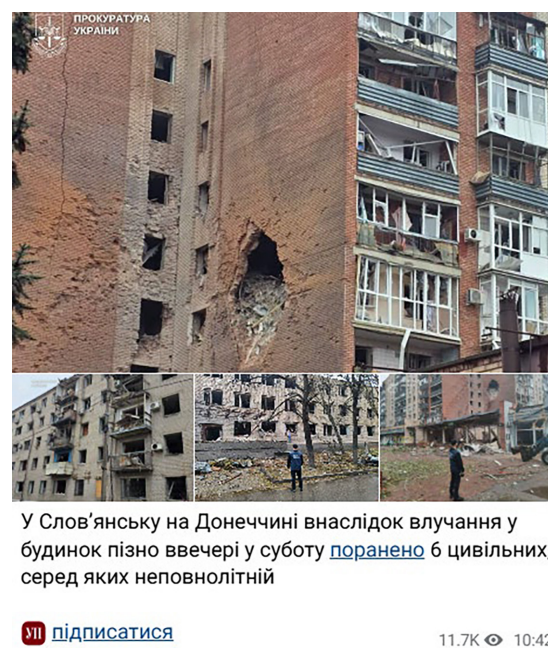


Figure 1. Ukrainska Pravda's news on Telegram
Source: screenshot from the R. Petrenko (2025)

Figure 1 shows the emergency headline: "Russia strikes apartment building in Sloviansk: six injured," which provides immediate information and confirms the fact of the attack. This is crucial for seizing the narrative from the enemy and preventing panic or speculation. The location, time (late Saturday evening), and initial casualty numbers (6 injured, including a minor) meet the audience's urgent need for information about the danger. The source of information is the Donetsk Regional Prosecutor's Office. Even at the speed stage, the media refers to an official source, immediately providing credibility to the information and distinguishing it from anonymous public groups. The main website, where this article appeared, serves the

function of verification, detailing, and documenting the military crime, and includes more detailed information (Table 4).

The Sloviansk strike case illustrates how social communication in a crisis achieves maximum effectiveness through a dual-channel strategy: Telegram (speed) provides immediate awareness, boosts morale, and prevents panic. The main website (depth) ensures verification, documentation (FAB-250, exact injuries), and accountability (prosecutor's office), turning the instant news into an archival evidence of a military crime. This combination is the foundation of convergent journalism during wartime, when media serve not only as reporters but also as documenters and tools for accountability.

Table 4. Case analysis of "Russians hit apartment building in Sloviansk: six injured" on "Ukrainska Pravda" official page

Communication element	Purpose in crisis	Impact on social communication
Crime detail	Exact type of weapon: FAB-250 bombs (high-explosive aerial bombs) with UMPC (unified planning and correction module).	Converts the general "attack" into a specific war crime. This technical detail is important for international investigations and the evidence base.
Humanisation (humane aspect)	Age and gender of the injured (two women aged 60 and 70, three men aged 31, 41, and 57, and a minor boy).	This "humanisation" of the crisis. Communication highlights that civilians in their homes were injured, which amplifies emotional response and international solidarity.
Damage assessment	At least 26 buildings and more than 20 cars were damaged.	Provides a complete picture of the destruction, which is important for documenting the damage and subsequent restoration.
Legal qualification	The announcement from the prosecutor's office means an investigation has begun.	Communication creates a sense of accountability and proves that the state is documenting every crime, which is critical for national resilience.

Source: compiled by the authors based on the analysis of the R. Petrenko (2025)

Case: "Due to massive shelling in the morning, public transport will not operate in Lviv – Sadovy" (Dyakov, 2025) is an example of local government (LGU) crisis communication under direct threat. It demonstrates how the mayor uses

social communication to ensure citizens' safety, demonstrate control, and maintain trust. Andriy Sadovy's communication is a direct response to the threat and adheres to the key principles of crisis management (Table 5).

Table 5. Case analysis of "Due to massive shelling in the morning, public transport will not operate in Lviv – Sadovy"

Communication element	Communication strategy	Purpose in crisis
Urgent channel	Use of social media or instant messaging (like Telegram/X) that directly reaches media.	Ensures immediate speed of response (message at 7:04, explosions at 6:36).
Clear fact	"Lviv public transport will temporarily not operate."	Delivers a clear decision and instruction to citizens, preventing chaos and reducing the number of people on the streets.
Justification	"Due to massive enemy attack" and "while danger persists."	Demonstrates control of the situation by the authorities and justifies the inconvenient decision (no transport) as a priority for safety.
Call to action	"I urge residents to stay safe! It is dangerous to go out on the streets now!"	Performs a mobilisation function (stay sheltered) and reinforces the feeling of care from the authorities.

Source: compiled by the authors based on the analysis of the I. Dyakov (2025)

Journalistic coverage plays a significant role in regulating this information. The media pick up the mayor's direct speech and add official details from the Air Forces (time of explosions, missile types: "Kinzhal", strike UAVs (unmanned aerial vehicles), and time of attack (06:55)).

This transforms the mayor's personal address into an official news item with verified context. The confirmation of scale – the mention of attacks by different missile types and drones – confirms the severity of the threat, justifying the decisive decision to stop transport. Local

government communication in this case directly impacts social resilience: maintaining trust (clarity, speed, and public justification of the transport shutdown decision strengthens trust in local authorities as an institution that prioritises citizens' lives over economic activity); avoiding panic (by providing official information about restrictions, the authorities prevent the spread of unverified rumours about the scale of the destruction or the duration of the danger). LGU communication in a crisis situation is effective when it is timely, empathetic, and contains concrete instructions. The Mayor of Lviv acted as a crisis manager, and the media provided immediate and contextual retransmission of his decision.

Telegram has become a key communication channel during the war. It can be conceptualised as a "meso-news space" – a hybrid environment that combines intimate (personal chats) and collective (large channels) communication. According to D. Weimann-Saks *et al.* (2025), this space fosters sustainable mutual exchange between journalists and their audience, creating a high level of trust and engagement. However, this intimacy also generates complex ethical challenges. Telegram channels show a heightened tendency towards selective information dissemination and self-censorship (Farbman, 2023). Journalists working in these environments often engage in complex ethical negotiations about what information can be published without harming national interests. Given the lack of clear regulatory frameworks, there is a need to develop voluntary self-regulation mechanisms or introduce transparent verified labeling systems for channels adhering to professional ethics (Weimann-Saks *et al.*, 2025). Social media platforms, including X and Telegram, are battlefields for propaganda and anti-systemic communications. To understand public sentiments and adapt communication strategies, monitoring systems (e.g., YouScan) are used to collect and analyse posts (Farbman, 2023).

Despite the high level of social cohesion and success in countering external disinformation, the independent Ukrainian media community has faced internal pressure during 2022-2025. One of the threats is the use of SLAPP

lawsuits against investigative journalists. Examples such as the long legal proceedings against Bihus.Info (Zmina, 2022) demonstrate systemic attempts to silence critical voices. These lawsuits, initiated by influential political or business actors, often demand significant moral damages and lead to temporary freezing of media accounts, exhausting their financial and time resources (Freedom of expression, 2025). This case is an example of legal pressure classified as a SLAPP lawsuit (Strategic Lawsuit Against Public Participation), whose aim is not necessarily to win but to deplete journalists' financial and time resources. Conclusion for journalism: the victory of Bihus.Info in the Supreme Court became an important precedent that strengthened the fundamental conditions for investigative journalism and affirmed its right to cover issues related to the activities of high-ranking officials. Communicative effect: the case confirmed that independent media performing the watchdog function (monitoring power) can successfully resist legal pressure from political elites, which is critically important.

There have also been reports of direct pressure and obstruction, including probable unauthorised surveillance of editorial offices (e.g., Bihus.Info by the SBU (Security Service of Ukraine) in 2024) and campaigns of discreditation by political actors. The lack of significant public response to these incidents by law enforcement or parliamentary committees undermines trust in the structures responsible for ensuring information security. This internal pressure points to a deep conflict that can be called the "Resilience Dialectic". On the one hand, Ukrainian crisis communication has been successful in creating high social resilience and unity (e.g., through a patriotic bias and a positive international image) (Stepanov *et al.*, 2025). On the other hand, the pressure on journalists and SLAPP lawsuits indicate a decline in democratic resilience and accountability. Society's resilience cannot be complete if it does not include the protection of internal freedom of speech and control over power. Key challenges to the activities of independent journalism are outlined in Table 6.

Table 6. Key challenges for independent journalism in Ukraine (2022-2025)

Type of pressure	Manifestations and examples	Systemic impact
Legal pressure (SLAPPs)	Long legal proceedings, demands for moral damages (>500,000 UAH), temporary account freezes (e.g., Bihus.Info cases, Yuriy Nikolov).	Exhaustion of financial and time resources, a systematic attempt to silence critical voices.
Patriotic pressure/self-censorship	Fear of harming the Ukrainian side, leading to a focus on military successes and ignoring internal political problems.	Strengthened self-censorship, distortion of objectivity, one-sided coverage.
State obstacles	Reports of surveillance (SBU), discreditation campaigns by political actors, lack of response to appeals to NACP/parliamentary committees.	Undermines trust in state structures responsible for information security.
Professional challenges	Resource and time constraints for fact-checking, psychological impact from violent content and persecution.	Decreased speed and quality of information verification, professional burnout.

Source: compiled by the authors based on V. Stepanov *et al.* (2025), Freedom of expression (2025)

One of the most successful aspects of crisis communication is the mobilisation of civil society. Volunteer organisations and new social movements play a central role in enhancing community resilience, providing not only material assistance but also psychosocial support, and actively participating in countering disinformation (dos Reis, 2025). At the educational level, the war required an immediate transformation of journalism education. Educational institutions were forced to adapt to new realities, cultivating critical thinking and media literacy among students in response to intensified propaganda (Fialka & Kornieva, 2024). The educational process faced challenges, including physical security threats to participants, large-scale internal and external displacement of students (affecting about ten million people), and critical destruction of educational infrastructure. This necessitated the urgent adaptation of educational strategies and the use of distance learning formats to ensure the continuity of education in the crisis.

International cooperation is essential for supporting the media sector. Research emphasised by L. Dierickx & C.-G. Lindén (2024) shows that international support networks and collaboration help fact-checkers overcome resource limitations, time constraints, and language barriers in combating Russian propaganda. For example, Ukrainian fact-checking organisations such as VoxCheck (n.d.) and StopFake (n.d.) regularly receive funding from international donors, such as USAID (Agency for International Development) and the National Endowment for Democracy (NED). At the legislative level, Ukraine continues to demonstrate a reformist impulse, supported by international partners, particularly the Council of Europe. This includes the practical implementation of the Law of Ukraine No. 2849-IX (2022), the Law of Ukraine No. 540/97-VR (1997), and expanding efforts on media literacy and countering disinformation. The Ukrainian Law of Ukraine No. 2849-IX (2022) is part of the Eurointegration reforms, harmonising Ukrainian legislation with the Directive of the European Parliament and of the Council 2010/13/EU (2010). The law establishes a clear regulatory system for all types of media (print, online, audiovisual), ensures ownership transparency, improves registration procedures, and grants the National Council of Ukraine for Television and Radio Broadcasting broad powers for oversight and monitoring, which is critical for countering the spread of hostile propaganda. The Law of Ukraine No. 540/97-VR (1997), adopted during full-scale aggression, focuses on ensuring the resilience of the media sector. It provides mechanisms for state financial support to media outlets that have suffered damage due to the war and strengthens the social and legal protection of journalists, recognising their role as critically important workers in a conflict. An important element is also the activation of efforts to address SLAPP lawsuits through legislative proposals and alignment with international standards, according to Directive (EU) 2024/1069 of the European Parliament

and of the Council (2024). The European Parliament and Council Directive aims to protect journalists and human rights defenders from obviously unfounded or malicious legal proceedings (SLAPPs) used to intimidate and obstruct their professional activities. The implementation of the provisions of this Directive in Ukraine is significant for guaranteeing professional media freedom and preventing censorship through economic and legal pressure, which is a necessary condition for strengthening the resilience of the democratic media space.

Research on the functioning of social communications in the Ukrainian media landscape during the full-scale war (2022-2025) reveals the paradox of crisis communication. On the one hand, Ukrainian media and state institutions have achieved high efficiency in creating social cohesion (through a patriotic bias) and mobilising international support. On the other hand, this effectiveness is accompanied by a decline in democratic resilience at the internal level, manifested by increased pressure on investigative journalism through SLAPP lawsuits and other forms of obstruction (Galchenko, 2024; Stepanov *et al.*, 2025). Furthermore, a significant information gap has been identified: despite the recognised contribution of state institutions, such as the Centre for countering disinformation, public awareness of their initiatives remains low. This indicates that state communication strategies are insufficiently adapted to the dynamics of fast and hybrid digital platforms (Telegram, X), which are the main sources of information for the population.

According to the results of the current study, crises exacerbate existing societal problems, prompting a reevaluation of social structures and relationships. Accordingly, social cohesion may either weaken or strengthen in response to crises, influenced by various factors such as emotions, institutional rules, and collective behaviour. A related position is expressed in the study by X. Ge & Y. Hou (2025). The researchers noted that public crises, such as the COVID-19 pandemic, enhance alignment with collective behaviour, as reflected in the higher number of purchases of the most popular and highly-rated items, which mirrors the adaptive social dynamics during survival challenges. D. Dijkzeul & I. Franzke (2022) state that the nature of social cohesion as an abstract umbrella concept, which allows for many different types of activities, is different. On the one hand, social cohesion, as a flexible concept, can create direction and synergy between very different types of activities, thus providing a useful impetus for approaches to peacebuilding and resilience in humanitarian work and cooperative development. On the other hand, international organisations are limited by their mandates and are unlikely to establish security, strengthen statehood, etc. Based on the research conducted, Table 7 presents recommendations for enhancing social communication during a crisis in Ukraine and globally.

Table 7. Recommendations for state institutions on improving crisis communication effectiveness

Category of recommendation	Target audience	Specific measures and tools	Expected outcome
I. State institutions (CPD, Stratcom)	Internal communication, increasing public awareness.	1. Enhance integration with "meso-news spaces": Develop collaboration tools and use verified channels in Telegram and other messengers for rapid counter-narrative dissemination.	Overcome the gap between macro- and micro-level communication; match the speed of counter-narrative dissemination with that of propaganda.
	Maintaining government accountability and protecting critical journalism.	2. Legislative Protection of Freedom of Speech: Accelerate the adoption of comprehensive anti-SLAPP legislation. Ensure transparent investigations of pressures on journalists (Bihus.Info, Yuriy Nikolov).	Ensure accountability during wartime; guarantee fundamental conditions for investigative journalism.
II. Media community and professional standards	Journalists, fact-checkers, independent researchers.	3. Institutionalisation of OSINT and Fact-Checking: Implement advanced open-source intelligence methods (e.g., as in InformNapalm, DeepState). Establish standards for verifying the temporal and spatial compatibility of social media content.	Improve information reliability; ensure professional verification in a hybrid war environment.
	Journalism education and the general public.	4. Media Literacy and Education: Scale up educational programmes, transform journalism education with a focus on critical thinking.	Enhance society's resilience to informational manipulation; create a long-term strategic tool against adaptive propaganda.
	Digital platforms, telegram channels.	5. Create Ethical Frameworks for Digital Platforms: Develop voluntary self-regulation frameworks and ethical guidelines tailored to "meso-news spaces" (especially Telegram).	Minimise self-censorship and increase trust in verified media channels in informal environments.

Source: compiled by the authors based on A. Galchenko (2024), L. Derviş (2024), V. Stepanov *et al.* (2025)

The analysis of the presented recommendations confirms a systematic approach to strengthening Ukraine's information resilience, requiring convergence of efforts between the state and the media community. The recommendations focus on overcoming two key challenges: the technological gap and the democratic deficit. Overcoming the technological gap involves integration into Telegram to match the speed of countering propaganda, as well as institutionalising OSINT and fact-checking to improve information reliability. At the same time, to maintain democratic resilience, critical actions include legislative protection of journalism through anti-SLAPP mechanisms (to ensure accountability) and scaling up media literacy (to form critical thinking in society as long-term protection). Thus, the proposed measures create a model where state institutions are responsible for operational efficiency and security, while the media community is responsible for accuracy and self-regulation in the context of hybrid warfare.

The analysis of the research materials shows that Russia's full-scale aggression transformed Ukraine's social communications, turning them into a key element of national resilience, where crisis communication serves a dual purpose: providing operational survival information and forming psychosocial unity for the nation. While state institutions (CPD, StratCom) have succeeded in shaping a positive international image and countering external disinformation, their effectiveness at the internal level is limited by a significant information gap and low adaptability to fast "meso-news spaces" (Telegram, X). This technological challenge is accompanied by

the dialectic of resilience: high social cohesion through patriotic bias contradicts the internal decline in democratic resilience, manifested by pressure on investigative journalism (SLAPP lawsuits, obstruction). To overcome these challenges, a transition from a centralised to a networked communication hub is needed, which integrates OSINT and fact-checking to improve information reliability and implements anti-SLAPP legislation to ensure accountability, thereby strengthening both information and democratic resilience.

Conclusions

The results of the empirical study revealed the dialectical tension in the functioning of social communications in Ukraine during the period 2022-2025, articulated as a paradox of crisis communication. On the one hand, it was determined that Ukrainian media and state institutions (Centre for countering disinformation, strategic communications, leader communication) have achieved high efficiency in providing operational information for survival (air alarms, actions during shelling) and forming social and psychological resilience of the nation. In this context, it was found that this is achieved through the patriotic bias of the media, which acts as a mobilising factor, and through the success of external communication by state institutions, which have formed a positive metaphorical image of Ukraine in the world and effectively counter external disinformation. Cases of convergent journalism ("Ukrainska Pravda") and institutional reliability ("Suspilne") demonstrated adaptation to the dynamics of "meso-news spaces"

(Telegram, X) for rapid information dissemination and documentation of war crimes.

At the same time, the research revealed a decline in democratic resilience at the internal level. This tension is expressed in internal pressure on independent journalism, particularly through the use of SLAPP lawsuits against investigative journalists and cases of covert surveillance. It was concluded that such narrative monolithism, reinforced by self-censorship and legal pressure, undermines a key function of democratic media – control over power and ensuring accountability. Furthermore, a significant information gap was identified: the effectiveness of the Centre for countering disinformation and strategic communications at the macro-level (international narratives) contrasts with their low public awareness and insufficient adaptability to the speed of information dissemination in digital environments (Telegram, X), limiting their impact at the micro-level. This became the basis for the conclusion that a shift from a centralised model to a networked communications hub is necessary.

As part of the current research, the effectiveness of using digital platforms (Telegram, X) for operational leadership, mobilising international support, and providing specific instructions to citizens was identified. The analysis of materials from "Ukrainska Pravda" and "Suspilne" confirmed convergent journalism as the dominant model, where speed in Telegram and X is combined with depth and verification on main websites, ensuring both timeliness and documentation of war crimes. The study of the "StopFake" and "Reuters Fact Check" cases enabled the justification of the role of methodological hybridisation (combining journalistic methods with OSINT) in countering coordinated information campaigns, where the key debunking tool is the verification of the temporal

and spatial compatibility of content. These cases clearly demonstrated that media serve not only as reporters but also as documenters and tools for accountability. To address the identified paradox and strengthen Ukraine's information resilience, the research developed systemic recommendations focusing on overcoming two key challenges: technological gaps and democratic deficits. The proposed measures create a model where state institutions are responsible for operational efficiency and security, while the media community is responsible for accuracy and self-regulation, ensuring accountability of power.

Limitations of this study arose from its qualitative nature due to the lack of quantitative sociological data on trust in media or public awareness of the Centre for countering disinformation, as well as the limited list of social networks used for social communication. Future research should focus on quantitative studies of the effectiveness of the Centre for countering disinformation/strategic communications at the micro-level (trust and public awareness), comparative analysis of the impact of anti-SLAPP legislation on journalistic activity in Ukraine and EU countries, and studies on the integration mechanisms of OSINT groups into state communication processes to create a "networked communications hub".

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Соціальні комунікації в кризових ситуаціях на прикладі українських медіа 2022-2025 років

Василь Дудар

Кандидат історичних наук, професор
Університет Григорія Сковороди в Переяславі
08401, вул. Сухомлинського, 30, м. Переяслав, Україна
<https://orcid.org/0000-0001-6064-9408>

Юлія Молоткіна

Доктор філософії в галузі філології
Університет Григорія Сковороди в Переяславі
08401, вул. Сухомлинського, 30, м. Переяслав, Україна
<https://orcid.org/0000-0002-5245-726X>

Анотація. Метою цього дослідження було оцінити механізми комунікації в медіапросторі під час повномасштабної російської агресії (2022-2025 рр.). Було застосовано комплексну методологію, що поєднує інституційний і наративний аналіз, а також детальний кейс-стаді підхід, зосереджений на матеріалах провідних медіа, державних інституцій і фактчекінгових організацій, а також на аналізі регуляторних документів. Основним результатом дослідження стало виявлення діалектичної напруги між високою соціальною стійкістю та зниженням демократичної підзвітності в практиках кризової комунікації. Дослідження показало, що українські медіа забезпечують оперативне оновлення інформації та посилюють соціальну згуртованість завдяки патріотичному фреймінгу й конвергентній журналістиці (поєднання швидкості Telegram і X із верифікацією інформації). Водночас було виявлено внутрішній тиск на незалежну журналістику через SLAPP-позови та самоцензуру, що підриває її наглядову функцію. Встановлено суттєвий інформаційний розрив: попри досягнення Центру протидії дезінформації та Центру стратегічних комунікацій на макрорівні (міжнародні наративи), їхня ефективність на внутрішньому мікрорівні залишається обмеженою через низьку адаптивність до «мезо-новинних просторів». Дослідження також обґрунтувало роль методологічної гібридизації у практиках фактчекінгу. Отримані результати свідчать, що подолання цього парадоксу потребує переходу від централізованої до мережевої моделі комунікації та усунення технологічних розривів і демократичних дефіцитів. Практична значущість дослідження полягає в тому, що його результати можуть бути використані стейкхолдерами для посилення інформаційної та демократичної стійкості України в умовах війни

Ключові слова: соціальна стійкість; дезінформація; мезо-новинний простір; фактчекінг; конвергентна журналістика; фейк

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08401, вул. Сухомлинського, 30, м. Переяслав, Україна
Тел.: +38 (044) 293 11 22
E-mail: mail@sdс-journal.com.ua
<https://sdс-journal.com.ua/uk>