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Use of artificial intelligence and chatbots in public libraries

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Abstract. This study examined the evolution of artificial intelligence and chatbot implementation in the operations of public libraries in Ukraine within the context of contemporary technological advancement. The relevance of the topic was underscored by the growing role of information technologies in society, changing user needs, and the necessity to enhance the efficiency and competitiveness of libraries. This study aimed to analyse the impact of digital technologies, particularly artificial intelligence, on library services, and to explore the stages of innovation adoption. The research employed methods of analysis, synthesis, explanation, and classification. Various approaches to the integration of artificial intelligence into library practices were discussed, with a particular focus on the introduction of chatbots for automating communication, improving information retrieval, and personalising services for users. The study also investigated key areas of artificial intelligence application, including the automation of routine tasks, the development of intelligent search systems, and recommendation platforms, and the use of chatbots to provide timely user feedback. Particular attention was devoted to the development of intelligent systems capable of adapting to individual user needs, thereby providing a personalised experience. An important aspect of the study was the examination of the ethical implications of applying artificial intelligence in library practice. Specifically, it considered issues such as user data privacy, the potential for algorithmic bias, and the influence of artificial intelligence on the freedom of access to information. The introduction of artificial intelligence and chatbots into the operations of public libraries represented a significant step towards the creation of a modern information environment that was accessible, user-friendly, and efficient for all users. The findings of this research will contribute to the development of strategies for the successful implementation of technological innovations in public libraries across Ukraine. They will help libraries not only to improve the quality of user services and adapt to the demands of the digital age, but also to ensure their competitiveness, increase operational efficiency, and promote the intellectual advancement of society

Keywords: information institutions; information technologies; neural networks; electronic resources; library innovations; intelligent assistants

Introduction

The world is changing rapidly, and public libraries in Ukraine are not standing aside. Their traditional role is undergoing transformation in the era of digital technologies. The implementation of innovations, particularly intelligent systems, has become a key factor in the successful development of libraries and their adaptation to the needs of contemporary users. This topic is highly relevant, as the use of AI and chatbots has the potential to significantly enhance library operations. These technologies can optimise user services by providing quick and personalised responses to enquiries via virtual librarians, expand access to digital resources through automated recommendations of books, academic articles and multimedia materials, and increase user engagement by means of interactive platforms and voice assistants. Furthermore, AI can automate

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processes such as archiving and digitisation, which contributed both to the preservation of cultural heritage and to more convenient information retrieval.

The challenges of implementing AI and chatbots in library operations have been the focus of numerous scholarly investigations. The study by L. Demianiuk (2022), for example, examined cases of artificial intelligence adoption in libraries abroad. A key finding of this research was that AI was already helping to improve access to information for users in various countries, demonstrating the practical potential of these technologies in the library sector. In turn, Y. Horban *et al.* (2024) emphasised the importance of artificial intelligence in enhancing the efficiency of library operations. The authors highlighted AI's potential to optimise internal processes, which could lead to increased productivity and free up librarians' time for more critical tasks. The study by O. Kuzmenko (2024) focused on the role of AI-powered chatbots in facilitating user interaction with libraries. The author argued that such chatbots can improve resource navigation, provide rapid responses to enquiries, and generally enhance the user experience. Meanwhile, O. Shevchuk & A. Saltykova (2024) examined issues of inclusivity and ethics in chatbot-generated content. Scientist's research raised important concerns about potential risks associated with data bias and underscored the need for a responsible approach to the development and use of AI in libraries to prevent unethical or discriminatory content. Finally, S. Kabilwa *et al.* (2025) explored, how AI was transforming reference services, becoming a valuable tool for librarians by expanding their capabilities and improving service delivery through quicker and more personalised responses. M.A. Shaheen & A. Khurshid (2023) investigated user perceptions of AI chatbots in academic libraries. Researchers found a generally positive attitude towards their accessibility and speed, though concerns were raised regarding accuracy and the absence of human interaction, highlighting the importance of high-quality design. S. Mishra (2023) focused on the ethical aspects of AI use in cataloguing, pointing to the risks of reproducing biases. The researcher stressed the need for transparent algorithms and maintaining librarian oversight to ensure impartial representation of information. In the context of the digital transformation of libraries, Yu. Kulish (2023) examined the features of the digital environment in university libraries at the modern stage, offering insights into broader trends in the development of digital infrastructure within the library sector.

This study aimed to analyse the impact of AI and chatbots on library services and to assess their influence on user behaviour. The academic novelty lies in exploring the prospects for using artificial intelligence and chatbots in public libraries in Ukraine, alongside a review of successful international practices that may be adapted to the Ukrainian context.

Materials and Methods

To examine the evolution of the development and implementation of artificial intelligence in the operations of public libraries in Ukraine, methods of historical analysis were employed. This included the study of academic articles and materials describing the introduction of digital technologies into the library sector (Innovative activities…, 2022). This approach made it possible to identify the key stages of AI integration into library processes and to assess its impact on library operations.

Content analysis was carried out on a range of online resources. Among them were the official websites of leading Ukrainian libraries, such as the Official website of Vernadsky National Library of Ukraine (2024), which allowed for the identification of AI tools or references to them – for example, in sections related to digital resources or user services. The website of the Scientific and Technical Library of the Igor Sikorsky Kyiv Polytechnic Institute was also analysed (Stefanovych, 2024), with particular attention paid to descriptions of electronic catalogues, recommendation systems, and other intelligent services.

Special attention was given to the social media pages of libraries, in particular the official Facebook page of the Lviv Regional Universal Scientific Library (2025). Posts concerning the use of chatbots for consultations, announcements of online events involving intelligent tools, and reports on the implementation of new digital services were examined as part of the analysis. The Telegram channel of the Good Library (as of 2025) was also examined, where information was recorded regarding the use of chatbots for promptly informing users and providing reference services (A modest dramatic and realistic story of a good library…, n.d.).

In addition, specific sections of library websites dedicated to innovative projects and digital services were analysed in detail. For example, the website of the Odesa National Scientific Library (as of 2024-2025) was reviewed to explore descriptions of beta versions of intelligent catalogue search systems, information on the development of chatbots for user support, and reports on the implementation of artificial intelligence elements in the digitisation of collections (International Federation of Library Associations…, 2021). The analysis of specific cases of AI implementation in the libraries of Kyiv Polytechnic Institute, Good Library, and The Hong Kong Polytechnic University (Meet "LiBot"…, 2024) enabled the identification and examination of successful practices in the integration of machine learning algorithms, chatbots, automated recommendation systems, and other intelligent technologies. A comparative analysis of AI implementation in libraries across Ukraine and other countries made it possible to identify global trends and best practices that may be adapted to the Ukrainian context to improve the efficiency of library services.

Results and Discussion

With the advancement of artificial intelligence (AI) and machine learning (ML) technologies, libraries can gain access to new services and capabilities. For example, AI and ML can assist libraries in improving optical character recognition and discovering new ways to utilise their digitised collections, such as enhanced categorisation and search functions. These improvements can benefit not only libraries, but also users and researchers (Artificial Intelligence in..., 2024).

In addition, AI and ML can enhance information management in libraries, particularly in organising, storing, and integrating data. When combined with automation, AI may open up new possibilities for service delivery. While AI can automate certain existing services – such as chatbots and search tools – it was important to proceed with caution to ensure that service quality and staff wellbeing were not negatively affected (Denysovets & Bosyak, 2024). Libraries and library associations may collaborate with AI researchers and developers to create tailored applications that meet user needs and offer accessible services that were previously unattainable. The use of AI in libraries must adhere to ethical standards, such as the IFLA Statement on Libraries and Artificial Intelligence. For instance, AI-based programmes that collect large amounts of data – such as behavioural analysis software – must not violate users' rights to privacy or social justice (International Federation of Library Associations..., 2021).

In September 2024, Clarivate published the first Pulse of the Library report (Beit-Arie, 2024), dedicated to the role of artificial intelligence in transforming libraries around the world. The study was based on a survey of over 1500 librarians representing academic, national, and public libraries across various countries. The report focused on how libraries were beginning to integrate artificial intelligence into their operations, the benefits they anticipate from this technology, and the challenges they encounter during its implementation (Fig. 1).

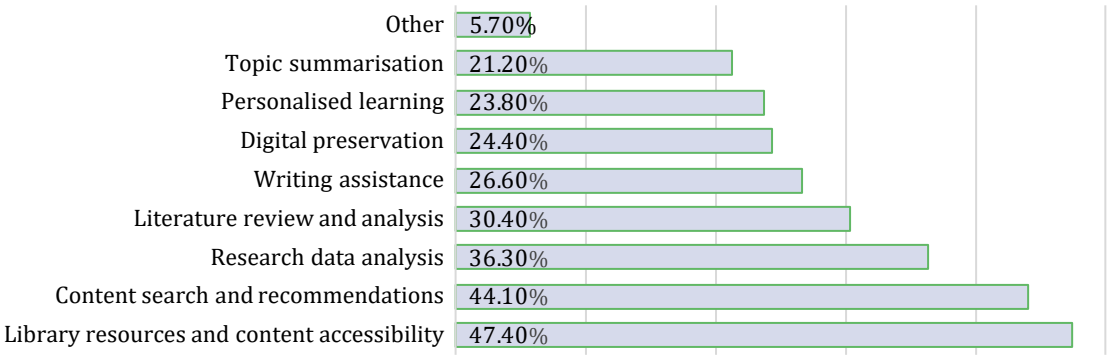

Figure 1. AI applications that are of greatest interest to libraries in supporting research and learning
Source: based on O. Beit-Arie (2024)

One of the key findings of the study was that over 60% of surveyed libraries were already actively planning or implementing initiatives related to the integration of artificial intelligence. For many, this technology was a strategic priority for the coming 12 months. Libraries expressed a strong interest in leveraging AI to enhance research activities, support student learning, and improve content accessibility. At the same time, the report highlighted that despite considerable enthusiasm for AI adoption, libraries face several challenges. The main obstacles included limited funding and a shortage of qualified staff capable of effectively working with AI technologies. Many librarians also raised concerns regarding the ethical implications of AI use, particularly issues surrounding data privacy and the reliability of algorithms.

Furthermore, O. Beit-Arie (2024) noted that the findings of the study could assist libraries and educational institutions in better understanding, how to harness AI to improve their services. The report features interactive visualisations that allowed users to analyse the data by region and library type, helping to identify both global trends and local specificities in AI implementation. These insights provided libraries with essential tools to adapt to the evolving digital landscape.

M. Sokil & A. Zvorskiy (2024) observed that the use of artificial intelligence enables the automation of routine tasks such as book classification and cataloguing, handling user queries, and providing recommendations based on individual interests. Chatbots can respond to frequently asked questions, assist with locating relevant literature, and even organise virtual tours of the library. In addition, artificial intelligence can support the development of digital libraries by offering users instant access to e-books, academic articles, audio materials, and other resources at any time and from anywhere in the world (Korzhylov & Sitsylitsyn, 2024).

The analysis of large data sets using AI also helped librarians to better understand the needs of their users and to enhance library collections in line with modern trends. AI can examine reader behaviour, search queries, and borrowing history to deliver personalised

recommendations. This improved user engagement and helped individuals discover new books, articles, and multimedia content that may be of interest to them (Demianiuk, 2023).

AI-based automated systems can also optimise library collection management by analysing demand for specific titles, forecasting user needs, and even assisting in decision-making regarding the acquisition of new books (Khmelnytska *et al.*, 2024). The introduction of voice assistants enhanced the accessibility of library services for people with disabilities. For instance, visually impaired users can interact with the library through voice commands, listen to audiobooks, or receive text materials in formats suited to their needs. The use of text recognition and automated translation technologies contributed to the development of multilingual library platforms, enabling a wider audience to access literature in various languages. Artificial intelligence also made it possible to generate audio versions of texts, facilitate automated reading, and navigate library resources using voice commands.

An important aspect of implementing emerging technologies is maintaining a balance between digital and traditional library services. Despite rapid digitalisation, the library continues to serve as a space for meetings, discussions, and cultural engagement. Integrating artificial intelligence with conventional practices allows libraries to preserve their social and educational role, while responding to the demands of the modern information society.

The use of artificial intelligence and chatbots in libraries opened new horizons for their development. These technologies not only enhanced user interaction with library resources, but also supported more efficient collection management, process automation, and improved access to information for all users (Innovative activities…, 2022). In the future, further integration of AI into the library sector may lead to even more profound transformations, turning libraries into true innovation hubs for knowledge and culture. In this context, the review of the Official website of Vernadsky National Library of Ukraine (2024) provided insight into the strategic vision and national priorities related to the implementation of emerging technologies in the library sector, including issues of digital literacy and cybersecurity.

In 2024, the library of the Hong Kong Polytechnic University announced the launch of an innovative AI-based chatbot, LiBot, designed to offer users round-the-clock support and information about library services. LiBot was an artificial intelligence system developed to provide users with instant answers to questions about library operations at any time and from any location. It drawn on publicly available library resources, including content from the website and reference guides, and provided links to sources for verification. To begin interacting with LiBot, users simply need to click the chatbot icon on the library's website, agree to the terms of use, and submit a query in English (Meet "LiBot"…, 2024).

The primary purpose of LiBot was to provide information related to library services. For locating books, audio and video materials, academic articles, and other resources, users were advised to use the library's One-Search catalogue. As chatbot's responses were generated using artificial intelligence, occasional inaccuracies may occur. Therefore, it was recommended to verify the information through the official library website or by consulting library staff directly. To help improve LiBot's performance, users can rate the quality of its responses by selecting either the "like" or "dislike" icon following each interaction. This feedback contributed to the ongoing development of the chatbot. If a query exceeded LiBot's capabilities, users were encouraged to contact library staff during service hours, referred to the Frequently Asked Questions section, or used alternative communication channels. The library hoped that LiBot will become an effective tool for providing convenient access to information resources and supporting users (Fig. 2).

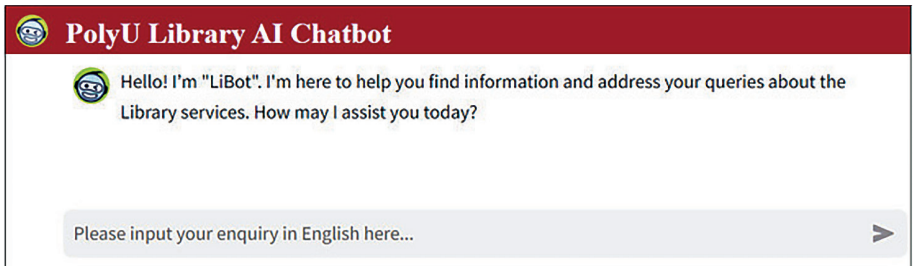

Figure 2. LiBot – chatbot of the Hong Kong Polytechnic University Library
Source: Meet "LiBot" – our 24/7 library AI chatbot! (2024)

The analysis of the Facebook page of the Lviv Regional Universal Scientific Library (2025) also highlighted the practical aspects of implementing chatbots for user communication and disseminating information about digital initiatives at the level of a regional library. Libraries were actively exploring emerging technologies such as artificial intelligence and machine learning to personalise search results, curate content, and

automate repetitive tasks (Onipko & Kozoriz, 2020). Virtual reality programmes were being tested to create immersive learning environments, while opened access initiatives support the wider dissemination of research outcomes. V. Medvedeva (2015) noted that new technologies, particularly artificial intelligence, hold promise for delivering personalised learning experiences and automated content management. The analysis of big data helped identify user needs, enabling libraries to tailor services and anticipate research trends. By employing advanced algorithms and machine learning techniques, libraries can better understand which resources were most in demand and adapt their collections and services accordingly.

Blockchain technology, which ensured secure data storage, has the potential to significantly transform knowledge sharing and collaboration. Due to its decentralised nature, blockchain provided a protected platform for storing and transmitting academic and research data, simplifying access and reducing the risk of unauthorised access or data loss. AI-based assistants offer personalised learning approaches tailored to individual needs. AI algorithms can automatically analyse vast collections, identifying relevant information with high accuracy, thereby saving librarians' time and ensuring that users can locate the knowledge they require (Artificial intelligence in…, 2019). The introduction of AI technologies into the library sector enhances user services, automates routine processes, and improves access to information resources, marking a vital step in the development of modern libraries.

AI technologies were rapidly being integrated into various aspects of public and private life, shaping a new reality. While AI offers solutions to a wide range of challenges, some scholars have warned of the potential risks associated with its use (Long & Magerko, 2020). Nonetheless, its implementation continues to advance, and applications of AI were becoming increasingly widespread. One example of such integration was the adoption of AI technologies by the Scientific and Technical Library of the Igor Sikorsky Kyiv Polytechnic Institute (Stefanovych, 2024).

The introduction of AI in university libraries has become essential due to the advancement of information technologies. The experience of foreign universities has demonstrated that such technologies improve library services and communication with users. In light of these findings, the Scientific and Technical Library of the Kyiv Polytechnic Institute (STL KPI) decided to implement AI to optimise one of its library processes. One promising direction identified was the development of a chatbot capable of providing users with information about the library's operations, its resources, spatial layout, and events. To realise this project, the BotpressGPT platform was selected. The main selection criteria were security, cost-effectiveness, and a user-friendly interface that enables use without requiring in-depth programming knowledge. BotpressGPT, developed by a Canadian company, has already been successfully applied in the library sector. STL KPI became one of the first university libraries in Ukraine to launch a virtual "library navigator" powered by AI (Fig. 3).

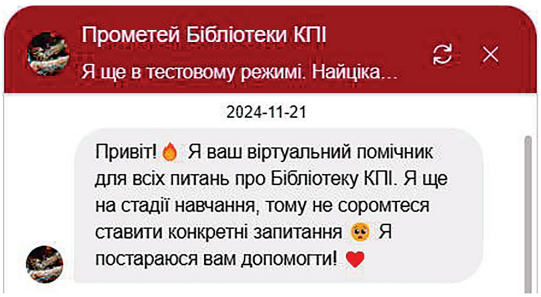

Figure 3. Prometheus – the AI assistant of the Scientific and Technical Library of KPI
Note: screenshot provided in the original language – "Prometheus at the Library of KPI. I'm still being tested. Hello! I'm your virtual assistant for all questions about the KPI Library. I'm still in the learning phase, so feel free to ask specific questions. I'll do my best to help you"
Source: based on D. Stefanovych (2024)

The chatbot was launched in mid-October 2023. During the first week, it was tested in a closed mode by library staff. Following an evaluation of its performance, the service was made available to all users. The chatbot's primary function was to provide prompt consultations on matters related to the library's operations, services, room locations, and ongoing events. In its first two weeks of operation, the chatbot processed over 140 queries and provided more than 250 responses. While it understands English, the chatbot was configured to reply exclusively in Ukrainian.

An analysis of user queries revealed that the most frequent questions concerned library services, such as the classification of academic studies using the UDC, electricity availability in the library building, opening hours, and information about events held on the premises. A significant advantage of the chatbot was its round-the-clock availability. To access the chatbot, users should visit the official website of the STL KPI and use the interactive window located in the bottom right-hand corner of the page. The chatbot was named Prometheus, reflecting its role in providing information within the educational and academic context of the library. The name was linked to the presence of Prometheusthemed art installations within the library, including a sculpture of Prometheus equipped with solar panels that provide Wi-Fi access.

The Luhansk Regional Universal Scientific Library, known as the Good Library, has become an important cultural and educational institution that has undergone two evacuations – first from Luhansk to Starobilsk, and later from Starobilsk to Cherkasy. Despite these challenges, the library has continued to operate actively, im-

plementing a travelling library project and working in a hybrid format in cities such as Dnipro, Kyiv and across the Zakarpattia. The library's main objective has been to unite displaced persons through educational events and to provide reliable access to information. Its activities have included Ukrainian language courses, media literacy and cybersecurity training, children's coding clubs, as well as the provision of trustworthy legal and psychological support resources. The Good Library also served as a methodological centre for libraries across the Luhansk Region, offering guidance on working under evacuation conditions, monitoring pressing issues, and assisting in identifying solutions. To facilitate communication and user support, the library employed modern online platforms such as Telegram, WhatsApp, and Facebook Messenger (Fig. 4).

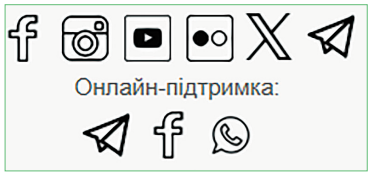

Figure 4. Online communication platforms used by the Good Library
Source: A modest dramatic and realistic story of a Good library. And thoughts/advice/wishes for other libraries on how to become cool (n.d.)

One of the library's key tools for supporting users was its Telegram chatbot (Fig. 5). Unlike traditional forms of library assistance, the chatbot offers round-the-clock availability. This enabled users to access essential information and receive consultations at any time convenient for them, regardless of the library's operating hours. It can provide instant responses to frequently asked questions regarding opening times, user regulations, resource availability, registration procedures, and more – saving time for both users and librarians. Thanks to its ability to analyse previous queries and user preferences, the chatbot can also offer personalised recommendations on literature, new arrivals, curated collections, or the library's online events. In situations, where physical access was limited, the chatbot became a vital tool for informing users about available e-books, audiobooks, databases, online courses, and other digital resources. It provided direct links, access instructions, and navigation support to help users make full use of these services remotely.

The use of AI in libraries offered a wide range of opportunities to enhance automation processes, improve access to information, deliver personalised services, and manage knowledge more efficiently. However, as these technologies continue to evolve, significant ethical issues have emerged that require careful analysis and resolution. One of the most pressing ethical concerns was the issue of copyright. AI can generate or modify texts by processing vast amounts of data, some of which may include works protected by copyright. This raised questions about, who held the rights to AI-generated content, and how to ensure that such content does not infringe upon existing copyright laws.

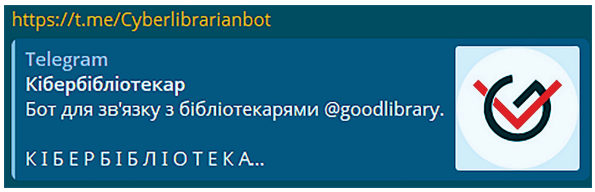

Figure 5. The Good Library chatbot on Telegram
Source: A modest dramatic and realistic story of a Good library. And thoughts/advice/wishes for other libraries on how to become cool (n.d.)

M. Maranchak (2024) noted that this issue becomes even more relevant, when AI was used to create new materials based on existing ones, potentially violating intellectual property rights if the content has not been properly licensed or authorised by the original authors and rights holders. In addition, the imperfection of the algorithms used by AI can lead to the selection or generation of content that fails to meet standards of quality or accuracy.

As noted by A. Cox (2022), another ethical issue concerns the risk of information manipulation and the spread of disinformation. AI can generate texts that appear entirely credible on the surface, but were often incomplete, inaccurate, or even fabricated. When libraries rely on AI for the automatic creation, adaptation, or retrieval of materials, there was a risk that users may receive incorrect or distorted information. This was particularly dangerous in academic and educational institutions, where accuracy and truthfulness were crucial to ensuring a high standard of teaching and research. Furthermore, according to research by M. Komova & D. Drapaliuk (2024), the ability to manipulate content through algorithms can result in the dissemination of biased or even harmful ideas, which undermined the ethical principles of librarianship, traditionally based on neutrality and objectivity.

The replacement of human staff has also raised ethical concerns. While AI can significantly improve the efficiency of library operations – particularly in areas such as cataloguing, search functions, and personalised recommendations – there was a risk that many librarians may lose their jobs as a result of these technological implementations. The changing role of humans in libraries could lead to social consequences, such as unemployment and a decline in service quality, as AI cannot replace all aspects of human work, including emotional intelligence, intuition, and the capacity for critical thinking (Malanchuk & Lishchuk, 2023).

Algorithmic transparency was another critical issue. AI systems used for search, recommendations, or

content generation were often complex and opaque to users. This can lead to situations in which library users were unaware of the criteria by which materials were selected and presented to them. A lack of transparency in algorithms may foster mistrust and even abuse in decision-making processes. For instance, if algorithms were biased, certain topics or sources may be overlooked or deliberately excluded, thereby limiting access to diverse and comprehensive information (Jobin *et al.*, 2019).

Another concern was the excessive proliferation of AI-generated texts within library collections without proper verification of their accuracy or compliance with quality standards. If libraries permit AI to generate large volumes of content without properly evaluating its accuracy or informational value, this may lead to the saturation of information systems with low-quality or superficial materials. Such a situation could significantly affect users' knowledge levels, as AI cannot provide the depth of understanding or critical insight that a qualified expert or academic can offer. This, in turn, diminished the overall quality of the library information environment and may negatively impact scholarly and educational activities (Lee, 2023).

While the use of AI in libraries has the potential to greatly enhance access to knowledge, automate routine processes, and make libraries more inclusive, it also necessitated careful ethical oversight. Libraries must adopt new technologies not only with regard to their technical capabilities, but also in line with ethical standards that ensure impartiality, accuracy, truthfulness, and high-quality content, as well as the protection of intellectual property rights and employment.

Conclusions

Modern technologies, particularly artificial intelligence and chatbots, have significantly influenced approaches to innovation within the library sector, opening up new opportunities for both librarians and users. The diversity of the Ukrainian library system included urban and rural institutions, as well as academic, public, and specialised libraries. Research must take these characteristics into account in order to develop adaptive strategies for the implementation of artificial intelligence and chatbots that meet the varied needs of users.

One of the main objectives has been to ensure equal access to technology for all segments of the population. Libraries were expected to serve as centres of digital literacy, where users can acquire the necessary skills to work with innovative tools. Furthermore, ensuring cybersecurity has become a key aspect, helping to protect users' data and enhance trust in library services. The evolution of artificial intelligence and chatbot implementation in the operations of public libraries in Ukraine has manifested in the automation of routine processes, the provision of personalised services, improved access to information, and the advancement of users' digital literacy. Libraries have become centres of innovation, where artificial intelligence has supported the optimisation of operations, enhanced data security, and enabled adaptation to contemporary technological challenges, making services more accessible and efficient for a broader audience.

Overall, the integration of artificial intelligence and chatbots into public libraries in Ukraine has opened up significant opportunities for the development of the sector, contributing to more effective service delivery, community support, and responsiveness to modern challenges. Artificial intelligence and chatbots have emerged as powerful tools capable of transforming public library services. Their implementation has improved service efficiency, supported adaptation to evolving information needs, and helped to broaden user engagement. For the successful integration of these technologies, Ukrainian libraries must consider both technical and ethical dimensions, ensuring accessibility and the security of services for all users. Further research should focus on examining international experience with the implementation of artificial intelligence in libraries, adopting best practices, and developing strategies to address existing challenges.

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Conflict of Interest

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Використання штучного інтелекту та чат ботів у публічних бібліотеках

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Анотація. Дослідження присвячено еволюції впровадження штучного інтелекту та чат-ботів у діяльність публічних бібліотек України в контексті сучасного технологічного прогресу. Актуальність теми визначається зростанням ролі інформаційних технологій у суспільстві, зміною потреб користувачів та необхідністю підвищення ефективності й конкурентоспроможності бібліотек. Мета роботи – проаналізувати вплив цифрових технологій, зокрема штучного інтелекту, на послуги бібліотек, а також дослідити етапи впровадження інновацій. У дослідженні використано методи аналізу, узагальнення, пояснення та класифікації. Розглянуто підходи до інтеграції штучного інтелекту в бібліотечну діяльність, зокрема впровадження чат-ботів для автоматизації комунікацій, покращення пошуку інформації та персоналізації послуг для користувачів. Також, було досліджено ключові напрямки застосування штучного інтелекту, включаючи автоматизацію рутинних завдань, створення інтелектуальних пошукових систем, рекомендаційних платформ та впровадження чат-ботів для забезпечення оперативного зворотного зв'язку з користувачами. Особливу увагу приділено розробці інтелектуальних систем, які здатні адаптуватися до індивідуальних потреб користувачів, забезпечуючи персоналізований досвід. Важливим аспектом дослідження стало вивчення етичних аспектів застосування штучного інтелекту в бібліотечній діяльності. Зокрема, розглянуто питання конфіденційності даних користувачів, можливості упередженості алгоритмів та впливу штучного інтелекту на свободу доступу до інформації. Впровадження штучного інтелекту та чат-ботів у діяльність публічних бібліотек є важливим кроком на шляху до створення сучасного інформаційного простору, який буде доступним, зручним та ефективним для кожного користувача. Результати даного дослідження сприятимуть формуванню стратегій успішного впровадження технологічних інновацій у публічних бібліотеках України. Вони допоможуть бібліотекам не лише покращити якість обслуговування користувачів та адаптуватися до потреб цифрової епохи, але й забезпечити свою конкурентоспроможність, підвищити ефективність роботи та сприяти інтелектуальному розвитку суспільства

Ключові слова: інформаційні установи; інформаційні технології; нейронні мережі; електронні ресурси; бібліотечні інновації; інтелектуальні помічники

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Methodology for conducting an information and document audit: An integrative approach

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Abstract. In contemporary conditions, the management of information resources within an institution's professional environment is becoming increasingly complex. An information and document audit serves as a tool for assessing the state of information resources, ensuring compliance with regulatory requirements, optimising document processing and storage processes, and enhancing information security. The study aimed to substantiate the methodology for conducting an information and document audit by its implementation stages and to integrate tools for information interaction and information technology solutions into this process. The study employed methods of analysis, synthesis, abstraction, and comparison. As a result, key stages of the information and document audit were characterised, including the systematisation of existing approaches to its implementation. It was established that an information and document audit is a fundamental tool ensuring a transparent and systematic approach to document verification and analysing an organisation's information resources. The study explored forms of document and information interaction within an institution's professional environment, with a focus on the primary means of their implementation. The main forms of such interaction – traditional and electronic – were identified. The study emphasised that the use of automated information systems, cloud services, and electronic document management facilitates a rapid transition to digital technologies, which was a strategic direction for enhancing the transparency, efficiency, responsiveness, and security of an institution's information and management processes. A review was conducted of software solutions that support information and document interaction within the processes of an information and document audit. Particular attention was given to national security considerations, when selecting software, especially in the context of contemporary geopolitical challenges. The practical significance of the study lies in the applicability of the proposed methodology for conducting an information and document audit, which can be recommended for use in the information and

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analytical support of organisations, contributing to a more efficient and structured operation of information and document processes in the context of an institution's digital transformation

Keywords: documentation management; information interaction; electronic document management systems; automated information systems; information resources; information technologies

Introduction

The rapid development of digital technologies, transforming methods of information processing, storage, and analysis, including documentation, is exerting a critical influence on businesses, institutions, and organisations. The swift pace of digitisation of documentation processes, and information processes in general, which is not only a hallmark of the 2010-2024 period, but also a necessary condition for functioning in an information society, demands increased attention to the implementation of these processes per legislative and other regulatory requirements, as well as considering the specific features of the latest information technologies used in these processes. In this context, information and document audit becomes particularly relevant as a tool for increasing the efficiency of managerial activities, ensuring the transparency of information and documentation processes, optimising organisational operations, and implementing modern information technologies.

Conceptual approaches can be considered those highlighted in the scientific publication by the authors W. Abd Kadir *et al.* (2024) regarding the use of information audit in the activities of internal affairs bodies, in particular, the division of the audit strategy for investigative documentation and information into stages of pre-audit (input data), audit (process), and post-audit (output data). The authors R. Joshi *et al.* (2024) analysed the relationship between various factors influencing the information system and the quality of the audit through the prism of information theory.

One of the prominent trends of 2022-2024 was the discovery of the impact of artificial intelligence on the conduct of audits, particularly information audits. This topic was the focus of a publication by F.A. Almaqtari *et al.* (2024), which described the link between external and internal factors, artificial intelligence, and the use of information audits as a component of financial audits. The authors found that the use of artificial intelligence allows for the offloading of routine big data analysis, freeing up time for other more critical components of the audit.

The study of the composition of library document collections as part of the implementation of an information audit is another area of scientific research in 2022-2024, as evidenced by several publications. In particular, in an article by authors M.E. Emerson & L.G. Lehman (2022), a methodology for auditing was documented, its results were presented, and proposals and tools were provided for other libraries that can use it, when conducting their own audits to identify gaps in the library's printed book collection. W.H. Walters (2023) described three methods for conducting diversity audits – the catalogue search method, the checklist method, and the book examination method – and explained, how the results of the analysis can be used to create more diverse library collections. C. Sproles (2022) described the technological transformation of the library science of US government documents, emphasising the change in information carriers for such documents.

Research by Ukrainian scholars has often focused on conducting IT audits. Authors Ya. Mulyk *et al.* (2024) analysed the types of audit evidence, methods, and tools that can be used in conducting IT audits. Researchers S. Greben *et al.* (2020) developed a process for organising internal IT audits, which allowed for the rapid identification of weaknesses in this system. O. Skitsko & A. Vavilenkova (2022) investigated methodologies for conducting information system audits.

Specific developments regarding the theoretical and conceptual foundations of information and document audits in a broad sense for various fields of activity were reflected in the publication Yu. Romanyshyn & Kh. Krupa (2024). At the same time, the methodology for conducting information and document audits remained insufficiently studied, particularly in the context of its role as a basic tool in other types of audits, as well as an independent phenomenon in various fields of activity.

This research aimed to provide a scientific foundation for the methodology of conducting information and document audits according to their stages and to use modern information technologies and software tools in their practical implementation based on an integrated approach. The main objectives of the research were: 1) to clarify the concept of information and document audits; 2) to study scientific and practical approaches to the stages of implementing information and document audits, to substantiate a methodology for conducting such audits, taking into account the stages of the life cycle of documents and other information resources; 3) to use IT tools for information interaction in these processes. The scientific novelty of the research lies in the refinement of the methodology of information and document audits following the stages of the life cycle of information, particularly document resources.

Materials and Methods

The methodological foundation of the research was based on theoretical and empirical methods of scientific cognition, including analysis and synthesis, classification, abstraction, objective study of the features of information and document audits, and identification of the specifics of its application in the activities of an institution using information technologies. The method of comparison was used, which involved studying Ukrainian and foreign experience in conducting information and document audits, means of implementing forms of document and information interaction, and electronic document management systems; monitoring – in identifying software products to meet the institution's information and document needs; information modelling – in developing a methodology for information and document audits in combination with elements of methodologies of various scientists.

The methodology of this research involved studying approaches to conducting information and document audits based on information interaction within an institution, particularly using modern information technologies and electronic document management systems. At a general scientific level, the research was based on the following approaches: a systemic approach, which focused on defining the process of information and document auditing as a holistic system, considering the relationships between the aim, objectives, and content of the concept under study in combination with the components of document and information interaction, which allowed for the identification of qualitative characteristics and general systemic properties; a synergetic approach, carried out based on the constant active interaction of document flows with the external environment, leading to changes and improvements in the functioning of documentation support and information resources in the institution. Specific methodological approaches in this study, which determined the features of the implementation of information and document audits, included: a historical approach, which assumed that each phenomenon was considered in dynamics and forecasts its development prospects; an innovative approach, which involved the application of information technologies, electronic document management systems, cloud services in the processes of information and document interaction in the institution; an information approach, which consisted in identifying the features of information and document audits in various fields, which provided grounds for asserting the direct influence of the industry, in which the information and document audit was carried out on the choice of its methodology.

A study of the outlined methodologies for conducting information and document audits led to an interim conclusion that information and document auditing is a complex phenomenon, with information auditing conditioning the functioning of document auditing. Therefore, the term "information and document audit" was used to comprehensively examine an organisation's information resources and documentation support.

The outlined methodological approaches enabled the identification of common features of information and document auditing that were independent of industry-specific contexts. The regulatory framework for this study included the Order of the Ministry of Justice of Ukraine No. 1886/5 (2014), Order of the Cabinet of Ministers of Ukraine No. 649-r (2017). Also, an analysis of the Standard Instruction on documenting managerial information in electronic form and organising work with electronic documents in record-keeping, and electronic interagency exchange, approved by Resolution of the Cabinet of Ministers of Ukraine No. 55 (2018), was important for the research.

Results and Discussion

Given the justification of the concept of an information and document audit as a combination of two methodologies, the research of scholars, who considered information and document audits in their publications was chosen to characterise the stages of its implementation. A detailed analysis of the researchers' concepts allowed for a comparison of their theories regarding the process of information and document auditing as a comprehensive study of information resources and documentation support for an organisation's activities.

In the research of the authors Yu. Romanyshyn & Kh. Krupa (2024), it was found that information and document audits are interdependent phenomena as "information audit conditions the functioning of document audit as a comprehensive analysis of documentation and verification of its compliance with requirements". Given that documents were the material carrier of information, the authors proved the expediency of conducting an information and document audit, which will allow for a more complete and objective view of the organisation's activities, not only in terms of information resources, the analysis of which was carried out during an information audit, but also in terms of specific policies, practices, and the integrity of documents and the optimisation of document flow in the organisation. Researcher S. Henczel (2001) defined a structured model for conducting an information audit, which was divided into seven main components. Each stage was designed to help comprehensively assess information resources. The approach shown in Figure 1 was known for its adaptability to different organisational contexts and information needs, as well as its comprehensiveness and universality.

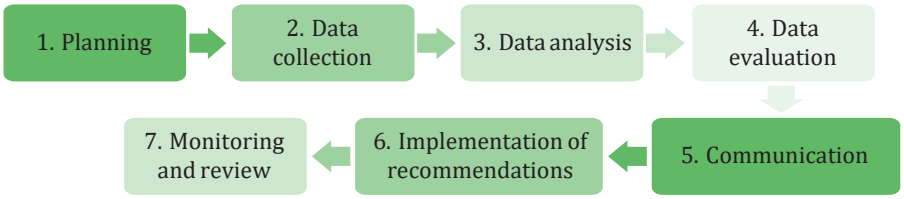

Figure 1. Seven-stage model of information audit
Source: developed by the authors based on S. Henczel (2001)

The outlined model was designed for conducting information audits, but it can also be applied to information and document audits. For example, the audit planning stage involved defining clear objectives, such as verifying compliance with regulatory requirements, improving efficiency, or controlling quality. Additionally, at this stage, it was decided which documents would be audited, the composition of the audit team and their responsibilities were determined, and tools for tracking and verifying documents were prepared, such as checklists or templates. During data collection, originals or copies of documents were processed in paper or electronic form. The data analysis stage involved verifying the information and documents for accuracy, relevance, and compliance with standards. The auditor ensured compliance with legal, regulatory, or organisational requirements, as well as the authenticity and reliability of sources of documentary information. Data evaluation involved a conclusion about whether the documents contained all the necessary information, identifying gaps and the presence of problems, facts of the absence of correct data, and outdated information. The communication stage was used to clarify discrepancies or unclear points with the relevant parties involved in the information and document audit process. Subsequently, the developed recommendations were implemented through implementation and subsequent monitoring. The final stage was designed to track the implementation of the recommendations obtained as a result of the information audit (Henczel, 2001). Each stage was accompanied by corresponding types of documents. A similar approach to interpreting the stages of conducting an information audit was adhered to by researcher E. Orna (2004), whose methodology included pre- and post-audit stages (Fig. 2).

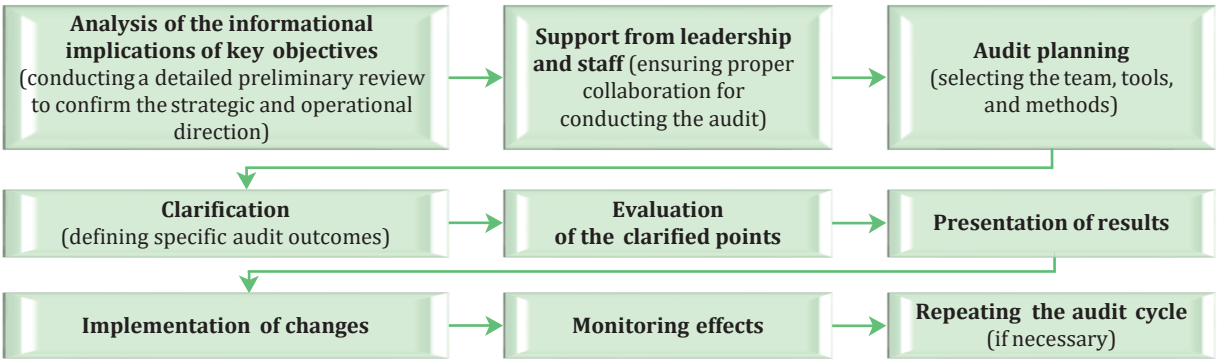

Figure 2. Information audit methodology (stage-based approach)
Source: developed by the authors based on E. Orna (2004)

While researcher E. Orna (2004) emphasised the importance of organisational analysis, their approach was identified as lacking some of the practical tools and methods necessary to perform certain steps of an information audit. In contrast, researchers S. Buchanan & F. Gibb (2008) developed an approach consisting of five main stages:

1. Promote: informing about the benefits of the audit, ensuring commitment and cooperation, and conducting a preliminary study of the organisation.

2. Identify: top-down strategic analysis followed by the identification of information resources and information flows.

3. Analyse: analysis and evaluation of identified information resources and development of action plans.

4. Account: analysis of the cost/value of information resources.

5. Synthesise: reporting on the audit results and developing the organisation's information strategy.

After analysing the presented methodologies, it was clear that they share a common goal – ensuring effective management of information resources. The stages of the information audit involved collecting, studying, evaluating, implementing, and monitoring the results of changes. That is, these stages were consistent with the stages of the information and document

audit, which also involved an analysis of all aspects of the information cycle and the life cycle stages of documents. However, it was appropriate to generalise that the approach proposed by S. Henczel (2001) was best suited for application in the process of information and document auditing, as it provided a structured model that covered all key aspects of the assessment of information and document resources. The results of a comparison of the approaches by which researchers revealed the essence of the stages of the information and document audit process were presented in Table 1.

Table 1. Comparison of approaches to interpreting the stages of the information and document audit process

Criterion	S. Henczel	E. Orna	S. Buchanan & F. Gibb
Comprehensive approach (covering the entire audit cycle)	+	+	-
Practical orientation	+	-	+
Simplicity of implementation	+	-	+
Time efficiency	+/-	+	+
Improvement of information management	+	-	+
Real-world practicality	+	+/-	+/-
Monitoring implementation of changes	+	+	-
Repetition of the audit cycle	+	+	-

Source: developed by the authors based on S. Henczel (2001), E. Orna (2004), S. Buchanan & F. Gibb (2008)

The approach proposed by E. Orna (2004) was efficient for conducting a quick information and document audit due to its fewer stages and simpler structure, but it was less suitable for organisations with high demands for detail. The audit stages according to S. Buchanan & F. Gibb (2008) were simplified and convenient, but less effective in the long term due to limited monitoring and the lack of a cyclical approach. Therefore, the view on the structure of the stages of the information and document audit by S. Henczel (2001) was the most comprehensive and practically oriented. It was suitable for organisations that seek to obtain in-depth analysis and long-term results. However, this model required more time to implement, as the author provided a detailed seven-step process. The complexity and duration of each stage affected the overall duration of the audit (Fig. 3).

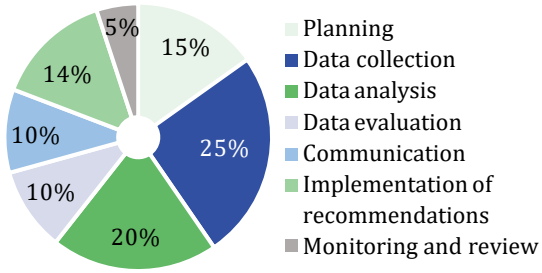

Figure 3. Approximate distribution of time for performing the stages of an information and document audit
Source: developed by the authors based on S. Henczel (2001)

An analysis of the presented scientific approaches to conducting information and document audits had shown that each of the considered authors had proposed an audit model with its own strengths and weaknesses. Despite the differences, all approaches included the basic stages, including planning, data collection, analysis, evaluation, and development of recommendations. This indicated universal principles of conducting audits that were relevant to various situations and goals.

Based on the analysed methodologies, an attempt was made to develop a methodology for conducting an information and document audit as a comprehensive study of information flows, resources, and documentation support for an organisation's activities. Primarily, an information and document audit can be divided into three phases, with specific stages within each (Fig. 4).

In the first stage, the goal of the audit can be defined as either a comprehensive audit of the entire organisation's activities or a specific part of it, such as the personnel component. Working with personnel was not the same as personnel documentation, therefore, there was a difference in approaches to implementing a document audit, which could aim to verify only personnel documentation, and an information and document audit of personnel activities, which would study approaches to personnel selection, the formation of the organisation's personnel policy, as well as personnel documentation.

In the second stage, an analysis of information interaction was conducted, and its relationship with information and document audits was characterised. In their research, G.V. Shtompel (2020) noted that "in a broad sense, information interaction is the process of exchanging any kind of information that has existed in human society for a long time. In a narrow sense, information interaction is often understood as computer information interaction, which is implemented through information systems and information technologies". Information interaction exists in parallel with document interaction. Document and information interactions encompassed a wide range of processes aimed at creating, transmitting, storing, searching, using, and exchanging information resources. They included

both internal processes related to managerial and operational documentation, as well as external communication with other institutions, partners, and clients. Determining the forms of such interaction was the basis for ensuring the systematic and effective operation of the institution (Fig. 5).

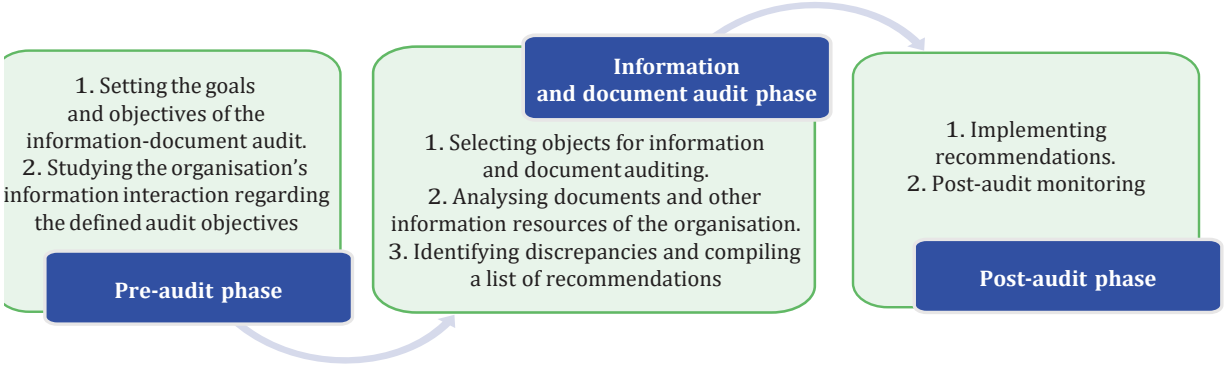

Figure 4. Scheme of information and document audit
Source: developed by the authors

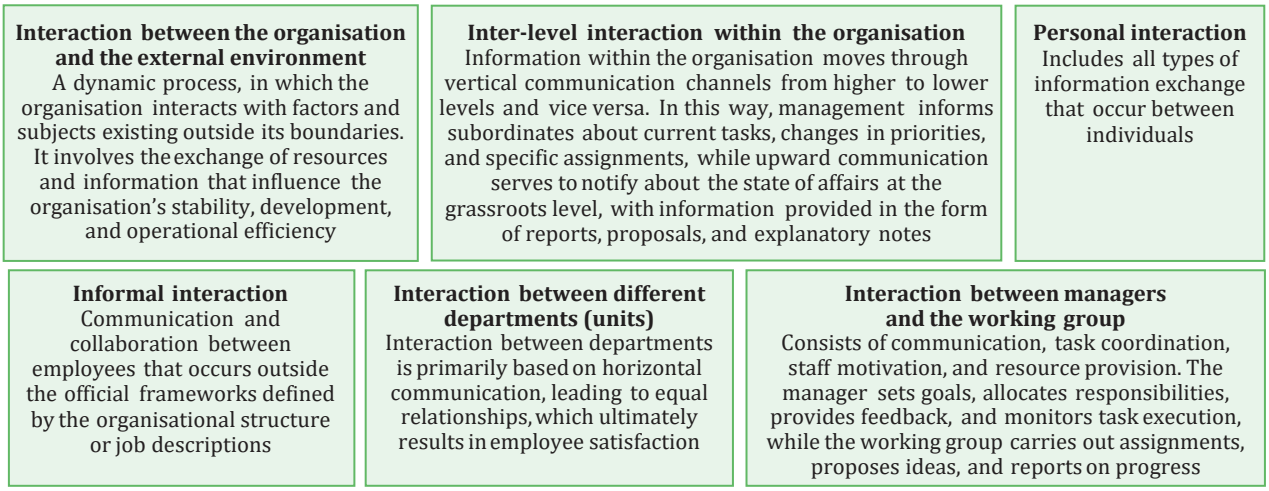

Figure 5. Primary forms of document and information interaction
Source: developed by the authors based on N.I. Parafiynyk (2010)

Therefore, the forms of document and information interaction were determined by organisational needs, technological capabilities, and the regulatory and legal environment. Modern tools for automation, electronic document management, and cloud services have been actively employed for this purpose. Figure 6 showed the main tools that have been widely used for implementing forms of document and information interaction.

The choice of the optimal form of document and information interaction depends on several factors, such as the specifics of the organisation's activities, the level of digitisation, the volume of information flows, and the requirements for confidentiality and speed of data processing. In the context of conducting an information and document audit, it was important to examine all forms of information and document interaction, as this interaction will generate the information and document resources that will be the subject of the audit. It should be noted that electronic interaction was not only a current trend for the period 2010-2024, but also a mandatory requirement for compliance with legislative and regulatory acts, in particular, Order of the Cabinet of Ministers of Ukraine No. 649-r (2017), according to which the electronic form of implementation of "any activity of government bodies (including the provision of public services, ensuring interagency interaction, interaction with individuals and legal entities, information and analytical activities)" was defined as a priority, as well as Resolution of the Cabinet of Ministers of Ukraine No. 55 (2018), which defined the main form of recordkeeping as electronic. Accordingly, the implementation of automated information systems, electronic document management systems, the use of corporate planners, chats, and messengers was a necessary condition for the functioning of the organisation. Therefore, auditing the status of the implementation of electronic interaction tools was a mandatory component of an information and document audit.

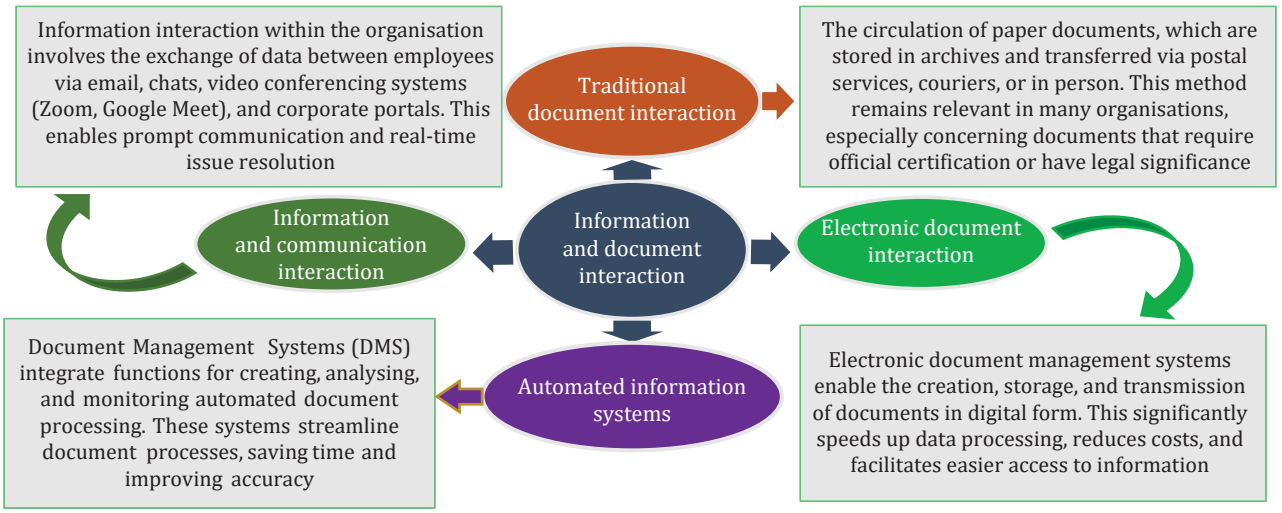

Figure 6. Primary tools for document and information interaction
Source: developed by the authors based on N.I. Parafiynyk (2010), Communications in organizations: Process, types, connections, barriers (2011)

O. Laba (2022) defined automated information systems as an integrative concept that should be used to describe the complex automation of managerial, production, and other processes, including the implementation of electronic document management. This interpretation was supported by the definition of an automated information system declared in the Order of the Ministry of Justice of Ukraine No. 1886/5 (2014), as an organisational and technical system, in which information processing technology was implemented using technical and software tools. According to this approach, the implementation of automated information systems can be universal for most forms of information and document interaction.

The implementation of automated information systems was not only a matter of convenience, but also had a significant impact on national security. This was especially relevant in the context of the Russian aggression against Ukraine. On 8 September 2023, at the Ukrainian software exhibition, Volodymyr Bielov, CEO of GigaCloud Ukraine, shared: "Currently, more than 70% of Ukrainian businesses use Russian software" (Raksha, 2024). This created several critical problems and risks that cannot be ignored. In addition to moral damage, the risks associated with using Russian software for Ukrainian companies can be conditionally divided into two groups: financial-economic risks and data loss. The situation was complicated by the fact that some organisations do not realise the threat posed by using such software or face difficulties in transitioning to alternative products. Therefore, it was advisable to emphasise the research conducted by Opendatabot and Netpeak that created a list of software of Russian origin (2023), which compiled a list of software of Russian origin used in Ukraine as of 2023. According to open data, Ukrainian businesses actively used 44 such products, including Bitrix24, Tilda Publishing, 1C, AmoCRM, iiko, and Jivosite (Pidhayna, 2023). A list of Ukrainian and global software analogues that can be easily and safely replaced with Russian ones was presented in Table 2.

Table 2. Alternatives for replacing Russian-origin software

Name	Alternatives
CRM (Customer Relationship Management)	
AmoCRM, KommoCRM	**Ukrainian –** Onebox, NetHunt CRM, Creatio, IT-Enterprise, SalesDrive, KeepinCRM, Asteril CRM, Corezoid, Perfectum, EspoCRM, KeyCRM, Sitniks, EstOffice, Uspacy, RemOnline
	American – HubSpot, Zoho
	Estonian – PipeDrive
	Lithuanian – WiseTeam
Bitrix24	**Ukrainian –** Onebox, NetHunt CRM, Creatio, IT-Enterprise, SalesDrive, KeepinCRM, Asteril CRM, Corezoid, Perfectum, EspoCRM, UGLA, KeyCRM, Sitniks, EstOffice, Uspacy, RemOnline, RenovateHub
	Ukrainian – Salesforce, HubSpot, Zoho, Microsoft Dynamics 365 Sales
	Belgian – ODOO
	Lithuanian – WiseTeam

Table 2. Continued

Name	Alternatives
Accounting systems	
1C, BAS, UA-Biudzhet, Complex budgetary systems	**Ukrainian –** Bimp, Quincefin, Finmap, Pipeliner, Bookkeeper, IT-Enterprise, A2v10, Fintellect, Torgsoft, Ukrsklad, Dilovod, MASTER:Bukhhalteriia, Fit-biudzhet, IS-Pro, AB OFIS, Control. Events, Debet Plius, SMARTFIN, UGLA, GMS Office Tools, Masterbuh, Khepi Bukh, Limpid Pro, BJet ERP, KomIntekh.Upravlinnia personalom, Universal ERP, H-profit, UIS.WMS, Sivers Torhivlia, A5, RemOnline, RenovateHub
	American – Microsoft Dynamics 365 Business Central, SAP
Elba	**Ukrainian –** Bimp, Quincefin, Finmap, Pipeliner, Bookkeeper, IT-Enterprise, A2v10, Fintellect, Torgsoft, Ukrsklad, Dilovod, MASTER:Bukhhalteriia, Fit-biudzhet, IS-Pro, AB OFIS, Control. Events, Debet Plius, GMS, BJet ERP, Universal ERP, H-profit, Sivers Torhivlia, RemOnline
	American – QuickBooks, Sage 50cloud Accounting
End-to-end analytics	
Calltouch, Roistat, Utmstat	**Ukrainian –** Ringostat, OWOX, Binotel Calltracking
	American – CallRail, CallTrackingMetrics
Antivirus	
DrWeb, Kaspersky Security	**Ukrainian –** Zillya
	American – Microsoft Security Essentials
	Czech – Avast
Chatbots	
Cleversite, JivoSite	**Ukrainian –** Pipe.bot, Corezoid, Activechat.ai, KwizBot, Skibble, Leeloo.ai, Monster Webby Messenger, Binotel Online chat, Goodpromo
	American – Tawk.to, Tidio, Intercom
	Polish – Livechat
LMS (Learning Management System)	
GetCourse, iSpring, ServiceGuru	**Ukrainian –** AcademyOcean, LMS Collaborator, MOCO, eTutorium LMS, Quickskills, Clevio, Zenedu, WizzyLab
	American – Goskills, Udemy

Source: developed by the authors based on Opendatabot and Netpeak created a list of software of Russian origin (2023)

It was worth noting that checking automated information systems for compliance with legal and ethical requirements was a mandatory component of an information and document audit as a whole. A significant portion of automated information systems, particularly those related to document management processes, consisted of electronic document management systems (EDMS). In each country, the development of EDMS was based on specific legislative, technical, economic, and cultural aspects, which affected the functionality and architecture of these systems. Ukrainian EDMS were developed with a focus on the specifics of the work of government agencies and businesses in the local market. Therefore, they may include functionality related to electronic filing, integration with state registers, and Ukrainian accounting systems. Ukrainian solutions were created taking into account the limitations of IT infrastructure, which simplified their integration even in small organisations. Foreign EDMS may have a wider range of functions, as they were developed for the global market. They often include tools for project management, collaboration, and data analysis, such as integration with other global services (CRM systems or analytics platforms). A brief overview of the most popular Ukrainian EDMS was presented in Table 3.

Table 3. Characteristics of popular Ukrainian EDMS

EDMS name	Brief description
FossDoc	An electronic document management system developed by FOSS-ON-LINE, designed to automate document processing for organisations of various sizes and profiles
DOCS.UA	An Enterprise Content Management (ECM) class electronic document management system. Provides comprehensive document management and business process modelling mechanisms
M.E.Doc. (My Electronic Document, also Medoc, Medok)	Focuses on electronic document exchange and reporting with regulatory authorities (including the State Fiscal Service of Ukraine, the State Statistics Service, the Pension Fund of Ukraine, and the Treasury). It includes built-in functionality for tax reporting and supports the exchange of invoices, delivery notes, and work completion acts
Vchasno	One of the most widely used platforms for exchanging electronic documents between counterparties. Offers a simple interface and integration with accounting software

Table 3. Continued

EDMS name	Brief description
ASKOD	The ASKOD electronic document management system ensures the creation of a unified information space and a common structured corporate document repository, automates document processing and executive discipline control, reduces document processing time, and improves staff efficiency
Megapolis	A comprehensive software solution from Softline for creating document management systems and automating business processes in public sector institutions. The system covers all stages of the document life cycle: from drafting documents to organising archival storage
Document.Online	A cloud-based electronic document management system. It supports mobile device compatibility and is aimed at small businesses and startups

Source: developed by the authors based on A.S. Ovsiienko (2022), Overview of modern electronic office management systems (2024), Top 10 EDS (Electronic Document Management Systems) for Ukraine (2024)

The third stage of the information and document audit involved selecting the objects of study. It should be noted that the audit should not involve an analysis of the entire mass of documents and information resources, but the audit objects should represent a representative sample. The fourth stage was the analysis of documents and other information resources of the organisation, including a study of compliance with legal requirements and modern trends in the information society. Tools such as developed audit checklists can be used here, for example, a checklist of legal acts, a checklist of the life cycle of a document or information resource.

To develop a checklist of legal acts, it was necessary to consider the legislative framework of the information sphere, its documentary component, and the industry, in which the organisation operates. To develop a checklist for the life cycle of documents, it should be considered that there will be certain differences between the life cycles of paper and electronic documents, which was due to the technological features of implementing electronic document management, for example, the precedence of the document registration process over the signing process was characteristic of electronic document management and was not typical for working with paper documents. In addition, the life cycle of an electronic document will include its technical verification, which was absent for a paper document. The fifth, sixth, and seventh stages of the information and document audit, according to the proposed methodology, were the result of comparing the actual state of the objects of verification with the desired (or reference) state. Therefore, the implementation of these stages will depend on specific practical cases.

The issue of information auditing, extending beyond the financial sector, had gained popularity in the research of Ukrainian scientists relatively recently. In contrast, foreign researchers have been studying the concept and content of information auditing for a much longer time. For example, researchers S. Buchanan & F. Gibb (1998) demonstrated a fairly thorough elaboration in the context of recognising information as a strategic organisational resource, arguing that an important function of an information audit was to implement a method of identifying, evaluating, and managing information resources to fully utilise the strategic potential of information. Continuing to study this topic, S. Buchanan & F. Gibb (2008) explored the issue of choosing an information audit methodology, considering four of the most common information audit methodologies and their complexity and ease of use. These studies laid the groundwork and were highly regarded in analytical reviews of the 2010-2020 period. Similar concepts were observed in the approaches of authors A. Lateef & F.O. Omotayo (2019), who considered information as a strategic organisational resource that was as important as labour, financial, and other resources, and information auditing as an effective tool that can be used to manage information assets and information risks of the institution.

The practical aspects of implementing an information audit, according to the stages and methodologies outlined in early 21st century research, offer valuable insights. Researcher S. Henczel (2001) developed a seven-step model for information auditing, which remained relevant due to its adaptability to various organisational contexts and information needs. Researcher E. Orna (2004) in scientific research proposed a step-by-step approach to developing and implementing successful information strategies in organisations, while emphasising that information management and knowledge management complement each other. Within the context of a dynamically evolving knowledge society, the management, exchange, and dissemination of knowledge in professional environments, both organisational and other social institutions, was a relevant research topic, as explored by authors Yu. Romanyshyn *et al.* (2023).

Therefore, researchers had developed various approaches to information auditing, encompassing its stages and implementation methodologies. Researchers had proposed adaptive models and step-by-step strategies for managing information resources, which have contributed to the effective implementation of audits in organisations. This had underscored the importance of information and knowledge management in contemporary society.

Conclusions

This article had provided a rationale for an integrated methodology of information and document auditing, aligned with its stages based on the life cycles of documents and other information resources within an organisation. The study of the information and document audit methodologies developed by both global and Ukrainian scholars across various fields provided a foundation for refining the methodology of information and document audit as a comprehensive phenomenon in the study of organisational management. The implementation of an information and document audit will enable a more detailed and unbiased understanding of an organisation's information activities, encompassing information resources, document interaction practices, document integrity, and the optimisation of document flow, considering the life cycles of documents and information provision.

As a result of the research, the interconnectedness of information and document auditing with information and document interaction had been substantiated, as these interactions gave rise to the objects of study: an organisation's document and other information resources. It has been determined that not only was the electronic form of organisational interaction a current trend, but also a requirement of legislative acts. Given the ban on the use of Russian software in Ukraine during the war, and the fact that many organisations had not fully complied with this ban, the methodology for conducting information and document audits had been expanded to include verification of the software used within the organisation. Alternative automated information systems had been suggested as replacements for those that are unethical to use in Ukraine.

A key component of automated information systems within the context of document management had became electronic document management systems. A brief description of the most popular Ukrainian electronic document management systems will enable the assessment of whether the system used by the organisation aligns with its goals and operational tasks. It was proposed to implement an analysis of documents and other information resources based on audit checklists developed by auditors. Within a universal methodology, it was most appropriate to develop a checklist of legislative and other regulatory provisions governing the organisation's activities, as well as a checklist of the life cycle of documents and other information resources.

The prospects for research can be considered the implementation of the proposed methodology for specific sectors of the economy, as an intermediate conclusion has been drawn about the interdependence of the methodology of conducting an information and document audit and the organisation's field of activity.

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Conflict of Interest

None.

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Методика проведення інформаційно-документного аудиту: інтегративний підхід

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Анотація. У сучасних умовах зростає складність управління інформаційними ресурсами в професійному середовищі установи. Інформаційно-документний аудит виступає інструментом, що дозволяє оцінити стан інформаційних ресурсів, забезпечити їх відповідність нормативним вимогам, оптимізувати процеси опрацювання та зберігання документів, а також підвищити інформаційну безпеку. Метою дослідження було обґрунтування методики інформаційно-документного аудиту відповідно до етапів його проведення та інтеграція, використання інструментів інформаційної взаємодії та засобів інформаційних технологій у цьому процесі. У дослідженні було використано методи аналізу, синтезу, абстрагування та порівняння. У результаті проведеного дослідження охарактеризовано ключові етапи інформаційно-документного аудиту, зокрема здійснено систематизацію наявних підходів до його виконання. Встановлено, що інформаційно-документний аудит є фундаментальним інструментом, що забезпечує прозорий та системний підхід до перевірки документації та аналізу інформаційних ресурсів в організації. Досліджено форми документної та інформаційної взаємодії в професійному середовищі установи, зосереджуючи увагу на основних засобах їх реалізації. Виокремлено основні форми такої взаємодії – традиційну та електронну. У дослідженні було акцентовано увагу на тому, що використання інформаційних автоматизованих систем, хмарних сервісів та електронного документообігу сприяє швидкому переходу до цифрових технологій, що є стратегічним напрямком для підвищення прозорості, ефективності, оперативності та безпеки інформаційно-управлінських процесів установи. Проведено моніторинг програмних продуктів, що забезпечують інформаційно-документну взаємодію в процесах інформаційно-документного аудиту. Особливу увагу було приділено питанням національної безпеки при виборі програмних продуктів, особливо в умовах сучасних геополітичних викликів. Практична цінність роботи полягає в тому, що запропоновану методику проведення інформаційно-документного аудиту можна рекомендувати для використання у процесах інформаційного-аналітичного забезпечення організації, сприяючи більш ефективному та структурованому функціонуванню інформаційно-документних процесів в умовах цифрової трансформації установи

Ключові слова: документаційне забезпечення; інформаційна взаємодія; системи електронного документообігу; інформаційні автоматизовані системи; інформаційні ресурси; інформаційні технології

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The role of the book as the main type of document in information activities

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Abstract. In current conditions, as information technologies rapidly develop, the question arises: does the book remain a key element of learning, or is it giving way to digital technologies? The purpose of the study was to analyse the role of the book as the main type of document in information activities in general, and to consider the meaning and functions of both printed and electronic books in the educational process of students of the speciality B13 "Library, Information and Archival Affairs" at the Ukrainian National Forestry University. The analytical method was used to investigate scientific literature, while the systemic method was applied to examine the significance of the book as the main type of document in information activities, along with systematisation and generalisation, historical-comparative, statistical, and sociological methods. Since ancient times, books have been the main source of knowledge in higher education institutions and an integral part of the educational process of students of any fields of knowledge. During the study it was determined that books served not only as educational material, but also as a tool for the development of critical thinking, the ability to analyse and systematise information. It had been investigated that due to the digitalisation of education, new approaches to the use of traditional and electronic book resources were emerging. The practical significance of this study lies in the use of the analysis results regarding the overall role of books and students' attitudes toward books as the main type of documents, which are applied in identifying the types of books preferred by students

Keywords: book history; printed book; electronic book; higher education institution; educational process; digital technologies; information society

Introduction

The book for students of speciality B13 "Library, Information and Archival Affairs" was not only a source of knowledge, but also a tool for developing professional skills. Since information activities involved working with large amounts of information, students should learn to effectively use various types of documents, in particular, books. With the development of digital technologies, the library of the UNFU (Ukrainian National

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Forestry University) was actively replenished with electronic books, providing students with access to a wide range of educational materials. However, despite the numerous advantages of electronic resources, the book in traditional printed format does not lose its relevance and retains its great importance in the educational process. The students at the UNFU often noted that e-books cannot replace the feeling of interaction with a physical medium of information, which helped to better remember the material.

Notably, there was no separate study on the role of the book as the main type of document in information activities in the contemporary scientific discourse. Contemporary scientific research often focused on the adaptation of libraries to digital changes. For example, S. Buryak (2020) analysed the dynamics of the development of the contemporary book publishing industry in the context of the digital transformation of society, drawing attention to changes in the forms of content presentation and the growing role of electronic publications. This study was important for understanding the modern context of the functioning of books as an information resource. I. Dovzhuk & N. Sichkarenko (2022) focused on transformations in the publishing sphere related to the transition to digital formats, and changes in the consumption of printed and electronic content. Their analysis emphasised the relevance of rethinking the role of books in the contemporary information environment. The researchers' interdisciplinary approach, which combined documentary, communicative, and sociocultural aspects, was particularly valuable. T. Kraynikova (2021) analysed the principles of contemporary editing culture and text preparation for publication. The researcher emphasised the need to adapt editorial approaches to the requirements of the digital space and new media. This helped to understand the changes that were taking place in the creation and perception of books as documents. O. Lesyuk (2021) investigated the functional and structural features of editorial activity in the context of forming the content and visual part of a book, emphasising the importance of the editor as an intermediary between the author and the reader in the process of transforming a manuscript into a finished document. These aspects were important for understanding a book as an information and communication object. Yu. Paleha (2022) proposed an updated classification of documents in the context of contemporary document science, considering the emergence of new forms (digital, interactive documents). The researcher considered the book as one of the basic types of documents, along with new formats. The authors' study helped to build a theoretical field for considering books in a broader document science context. The scientific studies described above were extremely valuable, but they did not cover all potential areas of research into books as documents, in particular, they did not directly address the understanding and rethinking of the role of books as traditional carriers of information in the advanced information space.

Therefore, the purpose of the study was to analyse the significance of the book as the main type of document in information activities. In accordance with the defined goal, the tasks were: 1) to consider the history of Ukrainian book publishing and the etymology of the word "book" (*in Ukrainian* "knyha"), and also to determine the functions that books performed in the life of contemporary youth; 2) to investigate how the traditional printed book has changed under the influence of digital technologies, and to clarify the meaning of the notions of "electronic book" and "digital book"; 3) to analyse changes in the ways of perception and use of books in the conditions of the digital age, and to find out whether students know, what type of books (printed, electronic, audiobook/educational, scientific, reference, literary fiction) were preferred by contemporary students, what motivated their opinion.

The methodology of investigating the role of the book as the main type of document was to determine the theoretical foundations, approaches, and methods that helped to study the book as the main type of document in the information society. The study used the features of theoretical analysis – to investigate scientific approaches to the concept of the book, its structure, functions and evolutions; historical and genetic method – to investigate the development of the book in the context of historical stages and changes in society; systematic approach – to consider the book as an element of the information and documentary system; sociological method – to conduct a survey of students of speciality B13 "Library, Information and Archival Affairs" at the UNFU (students of groups ID-11, 21, 31 took part in the survey, the total number of participants was 52) to investigate readers' preferences. Research consisted of two parts: in the first part, the book history and book publishing in Ukraine from ancient times to 2025 was reviewed; in the second part the importance of the book as the main type of document in the contemporary information society was analysed. The study was conducted in accordance with the requirements of The Declaration of Helsinki (2013).

From the book birth history and book publishing in Ukraine

The studies by many scholars were concerned with the investigation of the history of book publishing in Ukraine, in particular, the papers by Ya. Isayevych (2002) and M. Tymoshyk (2007). In addition, thepaper by I. Dovzhuk (2009) was important for the study of this topic. The Ukrainian book, which was an integral part of world culture, had its own extremely complex history. According to M. Tymoshyk (2007), the distinctiveness of this history lied in the fact that the ancient Ukrainian chronicle, on the one hand,

enjoyed unquestionable authority and renown in the global cultural sphere, was distinguished by its powerful educational and patriotic influence on readers, and by the talent and wisdom of its creators. However, its development and preservation were hindered by adverse conditions, the impact of destructive forces, and a system of restrictive measures that, for centuries, were deliberately directed against it. They were directed with a single goal – to reduce, neutralise its essence, preventing it from fulfilling the function assigned by its creators – to encourage people to think, to elevate them. The researcher identified the following three main periods of publishing development in the ancient Ukrainian lands: 1) the pre-Christian era; 2) the era of princely Kyiv; 3) the Galician-Volyn era.

As noted by Ya. Isayevych (2002), the term "printing in Ukraine" had a narrower meaning than "Ukrainian book printing", as the origins of Ukrainian book printing can be traced to the activities of the first Krakow Cyrillic printing house of the late 15th century. It was established primarily to serve the needs of Ukraine and Belarus and maintained close ties with Ukrainian cultural centres. The works of the Belarusian first printer Francisk Skaryna, Symon Budny, Vasyl Tyapynsky (of Ukrainian origin), and the publications of the Zabludiv printing house founded by Hryhoriy Khodkevych, Hetman of the Grand Duchy of Lithuania and a descendant of the Kyivan boyars, were intended not only for Belarusian, but also for Ukrainian readers.

The first printing houses on Ukrainian lands were those of Lviv and Ostroh. This was connected with the needs of both the socio-political and cultural movements of the whole of Ukraine. For example, for the emergence of book printing exactly in Lviv, it was a circumstance that the interests and plans of Lviv's Ukrainian burghers, on the one hand, and, on the other hand, the traveling printer Ivan Fedorov, who had previously worked in Moscow and the Belarusian town of Zabludiv, came together there (Isayevych, 2002). While in Moscow Ivan Fedorov worked at the state printing house, and in Zabludiv – at the printing house of Hryhoriy Khodkevych, he later decided to launch his own enterprise, aspiring to become not only a printer, but also a publisher. When choosing a location for printing house, Ivan Fedorov, known in Ukraine as Fedorovych, deliberately selected Lviv – a major commercial, industrial, and cultural centre.

It was in the Lviv printing house in 1574 that I. Fedorov printed the first books in Ukraine – "Apostle" and "Primer" (Fedorovych, 1574a; 1574b) – the first printed textbook in Eastern Europe. As Ya. Isayevych (2002) noted, the creation and publication of the "Primer" was closely linked to the educational initiatives of the burghers, who were gradually improving the quality of education in their schools. In 1572, "representatives of the entire Ukrainian community and residents of the suburbs" of Lviv secured from the royal authorities official recognition of the Ukrainian population's right to send their sons to gymnasiums and schools to study the "liberal arts". By April 1575, the release of the "Primer" became a contribution to the implementation of an extensive cultural and educational programme planned by the burghers of Lviv and other cities.

The pinnacle of typographic mastery was the Ostroh Bible (1581), the text of which was prepared for publication by Ivan Fedorov, and together with him were Ukrainian writers Gerasym Smotrytsky, Tymofiy Mykhailovych, as well as Greek scholars Dionysius Ralli-Paleologus and Eustathius Nafanail. Notably, Ostroh subsequently became the centre of publishing Ukrainian polemical literature: "The key to the kingdom of the heavens" by H. Smotrytskyi (1587), the work "Response to a letter in God from the venerable father Hypatius of Vladimir and bishop of Brest" to his honourable prince K. Ostrozky (1598). In addition, it published the collection "Knyzhytsia" (Surazhsky-Malyushytsky, 1598), the Ukrainian edition of "Apocrisis" (2003) by Christopher Philalethes, and "Cure for sleepy human mind" (Nalyvaiko, 1607).

The next important stage in the development of Ukrainian book printing was associated with the activities of the Lviv Brotherhood (1591-1788) and the Kyiv-Pechersk Lavra (1617-1941). By 1648, the Lviv Brotherhood printing house had printed no less than 36 books with a volume of 2,842 sheets, and the Lavra printing house had printed no less than 72 books with a volume of 3,765 sheets. According to Ya. Isayevych (2002), the indicated numbers were minimal, because a number of books, especially of small format and volume, have not reached modernity.

The famous printed works of the printing house of the Kyiv-Pechersk Lavra were the school "Chasoslov" (Book of Hours, Prayer Book), "Discourses" (Homilies/Commentary) by source "Selected conversations. St. Ioann Zlatoust" (2021) on the 14 epistles of the Apostle Paul, "Anthologion, a collection of texts of festive services of the Orthodox church" (2003), "Word to the Latins" by M. Grek (1620). A number of literary works, mostly panegyric, in the Ukrainian standard language – poems by O. Mytura (1618) "The pattern of virtues of Elisey Pletenetsky", "A book on the faith of the one, holy apostolic church" by Z. Kopystensky (1620), "Laments for the Lamentable Grave of the Noble Knight Petro Konashevych Sahaidachny…", composed by K. Sakovych (1622), Pamvo Berinda's "Slovenoroski Lexicon" (Nimchuk, 1961).

A new stage in the history of Ukrainian book printing began from the 17th century, when the printing house of the Kyiv-Pechersk Lavra came in 1633 under the control of the Metropolitan and simultaneously the Archimandrite of the Kyiv-Pechersk Lavra, Petro Mohyla. Notably, the activities and publications of the Kyiv-Pechersk Lavra during the "Mohyla" period were not uniform: the "Orthodox confession of faith"

(Mohyla, 1696), four editions of a short catechism "A collection of brief science…" (Mohyla & Trofimovich-Kozlovsky, 1645), the fundamental "Mohyla", "Trebnyk" of 1646 (Mohyla, 1646) were published. At that time, two private printing houses emerged in Kyiv, which were strong competitors to the Lavra printing house: around 1624-1628 – the private printing house of T. Verbytsky, and around 1627-1631 – the printing house of S. Sobol appeared. T. Verbytsky printed two editions of "Chasoslov" (1625), "Psalter" (1628), "Primer" (1627). While S. Sobol published "Minea general" (1628), "Apostle" (1630), "Leimonarion" (Moschus, 1628).

Notably, the publication of the first three parts of I. Kotlyarevsky's "The Aeneid" in 1798 in the new Ukrainian literary language gave impetus to the development of the modern period of Ukrainian book publishing. According to the materials of the Encyclopaedia of Ukrainian studies, from 1798 to 1840 in the then Russian Empire, 44 Ukrainian books were published, of which 7 were published in Kharkiv, the rest – outside Ukraine (Doroshenko & Zlenko, 1949). According to I. Dovzhuk & G. Sichkarenko (2022), the largest printing house in Ukraine, that of the Kyiv-Pechersk Lavra, continued to produce religious texts in the Russified version of the Church Slavonic language. The printing house of the Kyiv Academy, which operated under its authority, published both religious and secular works in Russian, using the civil script. The growth of secular book printing in Kyiv was largely associated with the activities of Metropolitan of Kyiv and Galicia Ye. Bolkhovitinov (1767-1837). Author granted the Lavra the right to publish his descriptions of St. Sophia Cathedral (1825, reprinted in 1831, 1847 and onwards) and the Kyiv-Pechersk Lavra (1826, reprinted in 1831, 1847 and onwards) (Isayevych, 2002; Bolkhovitinov Yevgen, 2003). Textbooks for primary education, calendars, and later periodicals were published in the civil alphabet in Kyiv. "Civil" books were published in printing houses attached to provincial governments in Kyiv, Kharkiv, Chernihiv, Kamianets-Podilskyi, and Zhytomyr. However, most peasants were illiterate (Isayevych, 2002).

University publishing houses were of great importance in terms of saturating the information space and scientific and educational communication. Along with educational and scientific books, periodicals were also published there. An important stage in the development of book publishing was marked by the activity of the Kharkiv University Printing House. Even before the official establishment of the institution, V. Karazin equipped it by purchasing four printing presses and sets of matrices for 12 Cyrillic and 3 Latin typefaces (Isayevych, 2002). In 1831, the first books within Ukrainian lands were printed there, including the "Ukrainian almanac". The peak year for publishing was 1834, when five editions were released: works by H. Kvitka-Osnovianenko, "Ukrainian folk songs" compiled by M. Maksymovych, the folklore and historical collection "Zaporizhian antiquities" by I. Sreznevsky (1812-1880), a compilation of Ukrainian proverbs and sayings, and the fairy tale "Marusia" by an unknown author (Tymoshyk, 2007). Most of the printed works were scientific and educational, such as a rhetoric textbook by I. Ryzhsky (1759-1811), a five-part chemistry textbook by F. Giese (1781-1821), and studies on mathematics, philology, history, and music. Notable among the Ukrainian-language publications were I. Kotliarevsky's plays "Natalka Poltavka" (1838) and "Moskal the magician" (1841), along with the complete six-part edition of "The Aeneid" (1842) (Ablitsov *et al*., 1995).

In 1835, the printing house of the Main Headquarters of the First Army was handed over to Kyiv University. Nearly all educational literature intended not only for the University, but also for other educational institutions in the Kyiv district began to be produced there. This became one of the key advantages of university printing houses compared to other presses that often operated in the vicinity. One of the first important publications there was the study by M. Maksymovych (1837) "Where the Old Rus land comes from. According to the retelling of Nestor's story and other old Ruthenian writings", and M. Maksymovych's (1839) "History of old Ruthenian literature". As M. Tymoshyk (2007) believed, it was a daring effort to break away from the official narrative of Russian history and to affirm that Ukrainians were entitled to their own historical legacy. The rector personally had to secure funding for the publication at the University's printing house. From the very first releases, the books stood out for their distinctly Ukrainian focus, which appeared before Valuev's anti-Ukrainian circular of 1863, setting this press apart from other university printing houses in the Russian Empire. One of the most prominent works was a Ukrainian-language collection of reflections titled "Ukraine", compiled by P. Kulish.

It should be noted that the first Western Ukrainian almanac in the vernacular language "Rusalka Dnistrova" (1837), which was prepared by students of the Greek-Catholic theological seminary, M. Shashkevych, I. Vagylevych and Ya. Holovatsky, had a similar significance for Galicia as "The Aeneid" by I. Kotlyarevsky for the Eastern Ukraine. This collection of original works, folklore recordings, and historical materials was an expression of the desire to create a new Ukrainian culture as a national one. Due to the ban on publishing the book in Lviv, it was printed in Buda, at the printing house of the University of Pest, using the "civil" alphabet, with phonetic spelling (Stebliy *et al.*, 1989). In addition, the almanac "Lastivka" ("The Swallow") by Ye. Hrebinka (1841), "Little-Russian songs" by M. Maksymovych (1827, 1834), the collection "Kobzar" by T. Shevchenko (1840), in particular, the poems "Haydamaks" (1841) and "Hamaliya" (1844) also had

important cultural and informational significance (Tymoshyk, 2007).

In the first half of the 19th century, conditions were generally favourable for the growth of Ukrainian book publishing, which was dominated by religious and spiritual works, literary creations, and studies in the humanities that met the informational needs of Ukrainians. Through books, a shared social consciousness was shaped, and the idea of national unity was fostered. However, censorship in the Russian Empire caused Ukrainian publishing activity to become concentrated in Galicia, where the environment was more conducive to its development. As Ya. Isayevych (2002) noted, censorship at the time targeted primarily the content of publications rather than their language. In Lviv, Ukrainian scholarly societies, schools, and newspapers operated, with Eastern Ukrainians actively contributing as correspondents and subscribing to the Galician press. Governance in Galicia was effectively handed over to the Polish minority, which received state funding for its cultural and educational institutions. National educational organisations, other civic associations, and the press played an important role in Ukrainian cultural life, firmly establishing the unifying orientation of most Galician publications. Owing to this, and to the active involvement in Galician publishing of cultural figures from other Ukrainian regions – the Dnipro area, Bukovyna, and Zakarpattia – the works printed in Lviv, Kolomyia, and other cities acquired nationwide importance, turning Galicia into a kind of "Ukrainian piedmont", a hub of cultural and national initiatives for the whole of Ukraine.

The book publishing business of the late 19th century was directly related to the "Prosvita" society founded in Lviv (1868); in addition, the Shevchenko Society became an extremely powerful publishing centre in 1873, which became a scientific society in 1892. There, a serial publication "Notes of the Shevchenko Scientific Society" was published; in 1892, M. Hrushevsky became the head of the society. Under his leadership, historical documents and monographs were published. The publications were distributed by the bookshops of the Shevchenko Scientific Society and the "Prosvita" in Lviv, and Ukrainian bookshops were also established in the towns of various districts (Dovzhuk, 2009). Notably, the ban on the distribution and publication of books in Russia, on the one hand, slowed down Ukrainian progress, but on the other hand, it contributed to the activation of book publishing in Western Ukraine and abroad. Publishing activities moved to such large cultural and educational centres as Galicia and Geneva, where Ukrainian community funds were directed. The book industry shaped an information space that contributed to strengthening Ukraine's independence and unity, transforming Ukrainians into a European nation, and accelerating important socio-political processes.

The book as an educational and cultural phenomenon in the contemporary student and information environment

Notably, the precise and complete definition of the notion of "book" still remained a problem for discussions in the world and Ukrainian book studies. In the Ukrainian scientific world, by the scholars such as H. Shvetsova-Vodka (2004; 2014), O. Karakoz (2017). Such researchers as Yu. Palekha *et al*. (2023) actively used the concept of "e-book" as the future of the traditional printed book. It should be noted that dozens of interpretations of the concept of "book" as a term were not yet generally accepted, since they have not been able to outline in a brief and convincing form either its essence or the boundaries that distinguished it from other means of storing and transmitting information. According to M. Tymoshyk (2002), this was explained, on the one hand, by the evolution of the material form of the book in a historical context, and on the other hand, by its universal features and multifunctional purpose.

The origin of the word "book" in different languages was complex and multifaceted. Among the Slavs, it was traced back to the root "kna- (kien)", which originally meant a tree stump or a piece of wood cut from a trunk. This theory was supported by the linguistic connection of the word with the beech tree in many Romance and Germanic languages, including English "book", German "buch", and Dutch "boek". It was on wood pieces cut out from this tree that the first books in Europe were written. In the oldest Ukrainian manuscript, the "Ostromyriv Evangelie" ("Ostromyr Gospel") the word "knyga" ("book") was used in the sense of "writing, a letter". There were suggestions that this word could have come to Slavic languages through the Turkic peoples from the Chinese "ku en", which was literally translated as "roll of paper, silk". The Old Mongolian name for the book "bicig" meant a pointed object for writing, while the Gothic "boka" referred to a specific letter of the alphabet (Tymoshyk, 2002). Thus, for many peoples, the original meaning of the notion of "book" was either the material for writing on, or some written element, or the tool with the help of which this element was applied.

A book has long served its primary function – to preserve and disseminate information of a certain content across space and time. It was important to recognise its dual nature: it was both a complete material object with its own form and design, and a carrier of written or graphic information that reflected the knowledge, views, and ideas of its creators. It should be noted that there were two official definitions of the term "book". The first one derived from UNESCO recommendations, distributed to the book publishing world: in the field of culture, a book was a non-periodical printed publication that contained of at least 49 pages, exclusive the cover pages, and was intended for a reading audience. Accordingly, a printed text of up to 5 pages was called

a leaflet, and from 5 to 48 pages was called a brochure (Tymoshyk, 2002).

The concept of "book" was clearly defined in the DSTU 3017-95 (1996) – "a book is a publication in the form of a block of sheets of printed material of any format, bound together at the spine, in a cover, with a volume of more than 48 pages"; and in DSTU 3017:2015 (2016) – "a book is a book publication with a volume of more than 48 pages". Thus, a book was a printed publication intended for a diverse reading audience, with a volume of more than 48 pages. As a material object and a cultural value, it possessed both spatial and semantic organisation: an internal and external structure, hierarchically subordinated major and minor elements, numerous artistic and typographic components, and its own principles of creation, which have been refined by book creators over the centuries.

In the current conditions of digitalisation of education at higher education institutions, the concepts of "electronic book" (e-book), as the future of traditional books, and "digital book" were actively used. According to Yu. Palekha *et al*. (2023), the term "electronic book" was broader than the term "digital book", since the former had the ability to provide information in both analogue and digital form. An electronic book was a type of book stored in electronic form on any machine-readable medium; it was a collection of data (text, sound, static and moving images) in computer memory, intended for human perception using appropriate software and hardware. Usually, the electronic book was dynamic and interactive, contained various "hyper-tools" (hyperlinks), combined a text, with audio and video materials, with stereo sound and stereoscopic effects. An electronic book must meet the following requirements: perform a quick search for the specified information using selected keywords; provide the user with reference information on a specific topic on request; to provide an interactive mode of work for the user with an electronic book; to implement various modes of work with the system (reading, viewing, selective reading, fragment search); to provide user-friendly interaction with the system using an intelligent interface.

Printed and electronic books were the main carriers of information in the field of information activities, and at each stage of their training, students actively used book resources for in-depth study of the theoretical foundations of information activities, to develop skills in information retrieval and data processing, and became familiar with international standards and methods of working with information. Notably, contemporary students actively used both printed and electronic books. Both formats had their advantages and disadvantages. For example, the advantages of a printed book were the absence of strain on the eyes, better memorisation of the material, and tactile pleasure, while the disadvantages were high cost, bulkiness, and limited access. The advantages of an e-book were accessibility, mobility, interactivity, and the ability to quickly search for information, but there were also disadvantages: eye fatigue, dependence on electronic devices, and less memorisation of text.

Despite the fact that digital technologies were increasingly occupying their niche in the educational space, the traditional book leaves an irreplaceable mark in the learning process. This was confirmed by the results of a sociological survey, which conducted among students of the speciality B13 "Library, Information and Archival Affairs" at the UNFU (Fig. 1). The students of this speciality used printed books for: 1) in-depth study of specialised literature on information activities, which was often not presented in electronic sources; 2) writing research papers, where detailed references to sources were required; 3) studying for exams and passing tests, where it was necessary to have access to verified and accurate information.

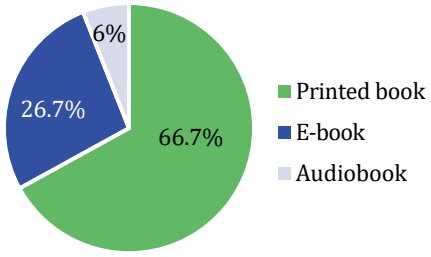

Figure 1. Book formats chosen by modern students
Source: developed by the authors

Specialised reference books, textbooks, and research works that allowed for a deeper understanding of the specifics of information activities were necessary books for students. They helped to form the correct methods of collecting, analysing, and organising information, and provided examples of the practice of future professional activity. There were interesting statistics on the question of what type of book students of the B13 speciality "Library, Information and Archival Affairs" have to work with most often in 2025. The results of the sociological survey on this issue were presented in Figure 2.

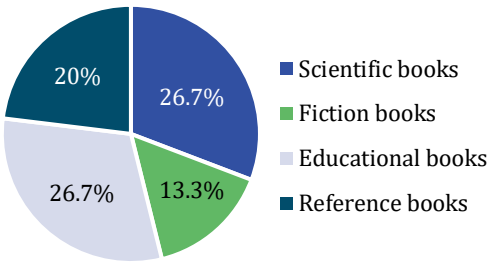

Figure 2. Types of books,
which students work with most often
Source: developed by the authors

As for the needs, number, and variety of reading preferences during the year, according to the results of sociological survey, the following conclusions can be drawn: at times of global digitalisation, out of 100% of surveyed students, 26.7% read mostly 2 scientific books during the year, 13.3% – 2 fiction books, 26.7% – 1 educational book, and 20% – 1 reference book.

Conclusions

The book as the main type of document remained an integral part of the educational process of students majoring in B13 "Library, Information and Archival Affairs" at the Ukrainian National Forestry University. Books as documents have gone through a complex history of development, but they still were the main carrier of knowledge, and their development from handwritten codices to printed editions reflected changes in society, religion, science, and education. By studying the traditional book, one can better understand how the formats of knowledge transmission have changed from oral to digital culture. Despite the proliferation of digital technologies and electronic resources, the traditional book occupied an important place in the professional development of future specialists – out of 100% of respondents, 66.7% preferred a traditional printed book, 26.7% – an e-book, 6% – an audiobook, as the printed book helped to develop critical thinking – reading books helped students not only to gain knowledge, but also formed their own opinion and critically reflected on the material. Books often contributed to a deeper understanding of a topic, unlike quick online articles or video tutorials; improving concentration and memory – studying texts from the pages of books helped to retain information better. In contrast to digital sources, which often offered a large amount of rapidly changing information, printed books allowed to delve into the material without distractions; development of language competencies – reading books helped to expand vocabulary, improved grammar and writing style. This was also important for students, who had to write essays, term papers or research articles, because out of 100% of the surveyed students, 20% used scientific, educational, reference, and fiction books for their needs, 13.3% used only fiction books, 26.7% used only educational and scientific books. Cultural and emotional development – books were often not only a source of knowledge, but also a reflection of cultural and moral values. Reading classical literature or contemporary fiction helped students to better understand the world and people.

Advanced digital technologies affected the reading of printed books, which had both advantages and disadvantages. The advantages were: convenience and accessibility – e-books and resources have become extremely convenient for students due to the ability to access them at any time from any device. This allowed saving space and transferring large libraries of materials to different platforms; interactivity – e-books can be equipped with interactive elements, such as hyperlinks, multimedia applications, which can make learning more interesting and effective. However, digital reading also had its drawbacks, such as distractions from other applications or social media, which reduced learning efficiency. It was important to ensure an effective combination of traditional and electronic sources of knowledge to achieve high results in students' learning and professional activities. In addition, for the development of quality education, it was important not only to preserve the culture of reading, but also to adapt it to current realities and future challenges, which may be the subject of further research.

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Роль книги як основного виду документа в інформаційній діяльності

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Анотація. В сучасних умовах стрімкого розвитку інформаційних технологій постає питання: чи залишається книга ключовим елементом навчання, чи поступається вона місцем цифровим технологіям? Метою дослідження було проаналізувати роль книги як основного виду документа в інформаційній діяльності загалом та розглянути значення і функції як друкованих, так і електронних книг у навчальному процесі студентів спеціальності В13 «Бібліотечна, інформаційна та архівна справа» Українського національного лісотехнічного університету. Для дослідження наукової літератури було застосовано аналітичний метод, а для вивчення значення книги як основного виду документа в інформаційній діяльності – системний метод разом із систематизацією та узагальненням, історико-порівняльним, статистичним і соціологічним методами. З давніх часів книга була головним джерелом знань у закладах вищої освіти та невід'ємною складовою навчального процесу студентів будь-яких галузей знань. У ході дослідження було з'ясовано, що книги слугують не лише навчальним матеріалом, але й інструментом розвитку критичного мислення, здатності аналізувати та систематизувати інформацію. Встановлено, що в умовах цифровізації освіти з'являються нові підходи до використання традиційних та електронних книжкових ресурсів. Практичне значення дослідження полягає у використанні результатів аналізу щодо загальної ролі книг та ставлення студентів до них як до основного виду документів, що застосовується при визначенні типів книг, яким надають перевагу студенти

Ключові слова: історія книги; друкована книга; електронна книга; заклад вищої освіти; навчальний процес; цифрові технології; інформаційне суспільство

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Motivation of consulting activities: Library aspect

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Abstract. In the second half of the 2000s and the first half of the 2010s, Ukrainian libraries faced problems related to globalisation and digitisation, which influenced the increasing role of consulting in the library sector. The purpose of the study was to disclose the essential signs of motivation of consulting in attracting information consultants to library activities. Consulting activities in the library sector covered a wide range of tasks: from strategic planning to optimisation of library business processes and work with library users. The main reasons for attracting information consultants to the library sphere related to various areas of the library's work were analysed. During the study of information consulting in the library sphere, the reasons for attracting information consultants to libraries were comprehensively highlighted. The analysis of publications revealed the content of the main reasons for attracting consultants, who were actively used in the theory and practice of library science. It was revealed that consultants were involved to help libraries identify, design, and implement solutions for a variety of strategic, managerial, operational, and human resources. They were designed to identify problems that were in the library in advance; if they were not fixed in time, this could negatively affect the work of the library. It was indicated that the consultants functioned as agents of change, played an important role in supporting the strategic development of the library, librarians, and users, providing them with the opportunity to get an objective assessment of the situation and determine the best ways to improve their work. It was found out that they were involved for a certain period of time to evaluate and solve a specific problem in the library, and to develop a set of recommendations for improving the library's performance. The motivation of consulting activities and their functional direction have been the driving force for positive changes in the management, strategic development of libraries and library science activities. The need to attract trained consultants was manifested in the desire to constantly improve processes, find the best solutions, and ensure efficient use of resources, which contributed to the development of individual libraries and the industry as a whole. The practical significance of this research lies in the possibility of improving information consulting in the library sector of Ukraine by using foreign experience at the level of a separate business process and at the general library level

Keywords: information consulting; library consulting; library consultants; consulting services; reasons for attracting consultants

Introduction

The development of librarianship contributed to the expansion of the scope of functioning of libraries, and the activities of library specialists, which led to the need to develop new mechanisms for managing libraries and information institutions that reflect the existing phenomena of contemporary library practice. Libraries in Ukraine have faced globalisation and digitisation, which have contributed to increasing the role of consulting in the library sector. In such conditions, the task of libraries was to increase the level of management, improve library business processes to meet the needs of users, using the services of professional

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consultants. The efficiency of libraries, the quality of management decisions depends on the flexibility and speed of orientation in the new digital environment and effective information and consulting support for the library sector.

Publications in 2021-2024 devoted to the study of consulting in libraries mainly focused on the application of information technologies to improve the work and provide the necessary skills for librarians to apply them. For example, the study by C.K. Kreutz *et al*. (2023) presented a formal modelling approach for evaluating the functionality of digital library search engines, comparing the needs of users with the technical capabilities of the system. In turn, P. Kokol *et al*. (2020) called for more active participation of librarians in the preparation of scoping reviews, emphasising the benefits of bibliometric analysis and visualisation of literature. This approach facilitated decision-making and highlighted the new functions of information consultants in the research process. R.K. Das & M.S.U. Islam (2021) summarised the work of its predecessors on the use of artificial intelligence and machine learning in libraries. The researchers emphasised that the ability of these technologies to self-learn and perform tasks independently can help libraries to ensure more effective interaction between intelligent automated technologies, contribute to improving the quality of all library services. However, to adapt to the new environment, librarians must change their roles and contribute to the transformation of library processes and services with the support of machine learning and artificial intelligence. Thus, it was necessary to attract consultants, who already have experience in the library field to implement the solution and train library specialists. The need to use artificial intelligence and machine learning was conditioned by the constant growth of data volumes (so-called "Big Data"), the need for real-time information processing and generating results, and the diverse needs of users, who were constantly challenging the library and information sphere.

The study of artificial intelligence in the work of libraries was carried out by I. Khamis (2024) – the paper contained practical examples, research, and real-world cases that demonstrated changing approaches to cataloguing, resource retrieval, user interaction, and data management. The results of this study provided strategies for evaluating the effectiveness of artificial intelligence, developing policies for training librarians. The publication was intended for consultants, who want to effectively implement artificial intelligence in library services. C.M. Copper (2023) introduced the IDEEA model (Idea, Design, Experiment, Engagement, Assessment), encouraging libraries to create a culture of experimentation. The publication contained practical recommendations for implementing design thinking and human-centred approaches to adapting libraries to changing user needs. The researcher summarised the experience of successful companies that have transformed, and suggested that libraries should follow the same path. The main idea of the book is to move away from the fear of risks and move on to exploring new procedures and programmes. Experiments do not require much money – careful planning is enough. S. Polkinghorne & L.M. Given (2021) advocated a holistic approach to information research that combined diverse methodologies to meet complex information needs. This approach has supported information consultants in prowviding comprehensive services. S. Acadia (2022) investigated internal problems in libraries, particularly organisational dysfunction and workplace issues. The researcher considered four forms of dysfunction that can affect an organisation: low morale/burnout, difficulties in hiring and retaining personnel, discrimination, and bullying.

The purpose of the study was to find out the key motivational foundations of consulting activities in the context of integrating information consultants into the library sphere. The scientific originality of the study consisted in the theoretical substantiation of motivational factors that determine the involvement of information consultants in consulting activities in the field of library practice.

Materials and Methods

The analysis of scientific publications showed that information consulting in the Ukrainian library sector was almost not in the centre of attention of researchers and practitioners, unlike foreign researchers who actively discussed issues of information consulting. In particular, their theoretical concepts formed the historiographic basis of the study. During the research, the Electronic catalogue of the Yaroslav the Wise National Library of Ukraine (n.d.) and the Electronic catalogue of the Vernadsky National Library of Ukraine (n.d.) were used. Using the information resources found in them, recommendations were obtained from M. Kubr (2002) on changes to working methods, the functions of a consultant were identified in the studies by N. Popova & K. Hurova (2016), and, to clarify the features of the development of consulting in Ukraine, the works of V. Aftandilyants (2014) and S. Bai *et al.* (2018) were used. During the study, queries were made to such international databases as Core, ScienceOpen, DOAJ, Social Science Research Network, Public Library of Science, BASE, Scirus. The research was based on the application of a system and structural approach, which allowed considering consulting activities as a system of interrelated structural components: library, consultant, librarian and consultant, user. During the consulting activity, these components interacted with each other, implementing consulting services. Consulting services were

also considered as a system object associated with consultants and consulting activities. The functional approach was used to identify and characterise the functions performed by library consultants. The study also applied methods of scientific analysis, synthesis, classification, generalisation, and historiography. For example, with the help of scientific analysis, the main concepts in publications were identified, namely: motivation that contributed to the emergence of the need for consulting services, the reasons for attracting information consultants and clarifying their functions in library activities. In addition, with the help of scientific synthesis, all the studied data were presented in the form of historiographic fragments. The classification method was used to group the reasons for the need for consulting services and attract consultants to the library sphere, and internal and external consulting was also highlighted. Terminology analysis was used to define the term "consulting". As a result of determining the structural components of consulting activities and summing up the results of the study, the generalisation method was used.

Results and Discussion

Globalisation trends in the world market have led to the clarification and emergence of new concepts in the labour market. Globalisation trends have influenced institutions and businesses, creating a need for consultants in various areas of society and motivating consulting activities. Due to the use of the Electronic catalogue of the Yaroslav the Wise National Library of Ukraine (n.d.), Electronic catalogue of Vernadsky National Library of Ukraine (n.d.), the paper clarified the state of scientific development of the topic of consulting activities and the reasons for attracting consultants to information institutions. S. Bai *et al*. (2018) noted that the need for the help of consultants was caused not only by their new knowledge, analytical skills, measures and methodological approaches that a consultant can bring to a client organisation, but also by the fact that third-party consultants are designed to help managers navigate in difficult conditions of accelerating technological changes, rapid growth of business activity, which affects the future of the organisation. The reasons for the need for consulting services were shown in Table 1.

Table 1. Reasons for the need for consulting services

1	Uncertainty of the situation in which the organisation, institution, or enterprise is located
2	Situation in the company is regarded as negative and it is necessary to improve it
3	Situation in the company is regarded as positive and it is necessary to strengthen or improve it
4	Need for qualified advice at the beginning of the institution's development
5	Problem that is complex and systemic in nature has been identified
6	Problem that is a one-time situational problem has been identified
7	Solving a problem can have serious consequences, including strategic, financial, or social ones
8	It is necessary to get an objective assessment of the problems or tasks facing the company's management
9	Need a fresh or broader view of the problem or company
10	There is a need to use the knowledge and experience of the consultant in addition to their own capabilities
11	Need to attract additional intellectual and human resources to solve specific tasks
12	Need to obtain prompt and qualified assistance in critical or vital situations, when it is necessary to rethink the development strategy, management, develop or change the corporate culture, carry out restructuring
13	Ability to use the experience of consultants working with similar businesses or problems
14	Consultants have special methodological and technological knowledge and tools
15	Need for training in the consulting process
16	Need to automate activities that require a certain reorganisation
17	Need to eliminate undesirable trends in the team and substantiate difficult but necessary administrative decisions
18	Search for new ways to compete

Source: based on R. Wüst & A. Osswald (1994)

It was worth noting that the list of reasons for attracting consultants to the organisation was quite extensive and depends on the specifics of the institution's activities. These may include both the need for external expert opinion and the desire to improve the efficiency of the institution's activities. Consultants were attracted to solve strategic, organisational, financial, personnel, and other issues. External specialists help implement contemporary management methods, assess risks, optimise work processes, and promote innovation. In the library sector, as in other industries, similar challenges may arise that require professional support, as libraries, like other organisations, face modernisation, resource management, and the introduction of new technologies. In particular, libraries were increasingly in need of assistance in digital transformation, developing new services for users, and planning strategic development. The most relevant reasons for attracting consultants to the library sphere were summarised and presented in Table 2.

Table 2. Reasons for attracting consultants to the library sector

1	Need to solve a problem that the library has not yet dealt with
2	Need to improve the management and work of the library's structural divisions
3	Library diagnostics and performance audits
4	Inability to use your own staff to fully and objectively assess the situation
5	Need for high qualifications and special experience for special one-time events (search for market opportunities, strategy development, reconstruction of the institution, expertise of business projects, database management)
6	It is inappropriate to retain a highly paid specialist for special events that are constantly periodic in nature (development of advertising campaigns, development of the library's website)
7	Development of recommendations on the work of the institution
8	Innovation in customer service and management
9	Introduction of new technologies to improve service and time management
10	Training of library specialists in new technologies, acquisition of digital skills by them
11	Need to attract new users
12	Popularisation of libraries among young people and other audiences
13	Need to introduce automated library and information technologies with a focus on a specific communicative format
14	Assistance in digitising rare books, archives, and historical documents
15	Need to optimise processes and improve the usability of services
16	Implementation and maintenance of electronic databases, such as electronic catalogues, libraries, or digital archives
17	Maintenance of financial stability. Consulting projects are aimed at raising funds for libraries through grants, partnerships, or other sources of funding
18	Need for integration into the global economic society, internationalisation of requirements and standards

Source: based on the Electronic catalogue of the Yaroslav the Wise National Library of Ukraine (n.d.), Electronic catalogue of Vernadsky National Library of Ukraine (n.d.)

The motivation to attract information consultants was directly related to the functional orientation of their activities. Among the functions that library consultants perform were: providing information to the client; solving the client's problems; diagnostics that may require re-identifying the problem; developing recommendations based on diagnostics; helping to implement recommended solutions; building consensus and commitment to corrective actions; promoting customer training, i.e., teaching clients to solve similar problems in the future; continuously improving the efficiency of the organisation (Turner, 1982). The first function that consultants perform was the provision of information services. The information service can be provided in the form of a consultation (Kaluzhynska & Miroshnichenko, 2024). The consultation itself can be internal or external. The consultant can carry out his activities in the library, providing services to users in the internal departments of the library and advice users externally, in particular, when the library specialist was involved in cooperation with other institutions, organisations and libraries. Most often, consultants were hired as providers of knowledge that the client does not own (Jespersen, 2009). Advantages of internal consulting:

- advising users is an effective means of improving the level of their information culture and orientation in total resources;
- provision of such services increases the efficiency of using the resources of the institution's information service;
- very often, such services replace other, more complex and expensive ones, which, due to various circumstances, cannot be provided to the user (for example, if the service is not included in the range of products offered; information service employees do not have the ability to perform factual requests or conduct press clipping).

In this case, instead of always unwelcome refusal, it became possible to offer the user assistance in independently searching for the necessary information using the shortest and most rational way. Usually, such services were carried out in several stages: accepting the request; clarifying it; specifying the source(s) of the search using guidebooks, indexes of bibliographic manuals, catalogues of information publications, Internet search engines; explaining the rules for working with these sources. When it came to finding documents from the collection, users were taught how to search catalogues (both traditional and electronic).

The second function was to solve the client's problems. In addition to providing information, the consultant can also play a role in solving the problem facing the organisation. For example, moving library resources to another server or copying data and making a backup copy, or integrating with new hardware. S.C. Stryker (2011) defined consulting as a task in which the consultant and client seek to solve the client's organisational problem through a specific process, realising that consultants, unlike other professional consultants such as lawyers, teachers,

or accountants, seek to "solve the problem on a one-time basis, through a continuous, short-term arrangement". The purpose of the agreement between the client and the consultant was to "ensure that assistance is prompt and accurate to address a specific issue" (Murphy, 2011). In turn, S. Stewart (2019), using the interview method, interviewed an information management consultant and determined that the author described their work as a problem, when there was a problem that needs to be solved. The recipient also defined the role of consultants as agents of change. According to the researchers, consultants were people, who make changes, and other colleagues in general were recipients of these changes, and success or failure depended on how much change agents interact, primarily with people (colleagues): impose changes or implement them unobtrusively.

The third function was diagnostics, which may require re-identifying the problem. Consultants were also used to create clarity and consistency in the organisation. In this case, this implied primarily external abilities referred to by the client. Namely, the ability to provide the client with an objective view of a particular problem (De Silva, 2021). The consultant should reveal the real state of affairs and help the client see the situation as it really is. Diagnostics was used so that you can understand the problem that will need to be solved or make an action plan, training for its further elimination. In the practical work of Ukrainian libraries, the concept of "document path" was used, that was, moving a document from the acquisition department to the book depository. During document processing, "technological loops" may occur when the document was returned to the same sector several times, and this slows down the "document path". The role of the consultant was to help the client think about and understand the meaning and reason for the client's actions. In addition, clients themselves should act as reflexive practitioners (Jespersen, 2009), that is, clients should analyse their actions, when diagnosing a particular problem. To understand the client's problems, the consultant should listen carefully to the client and ask the question: When did the problem occur? How did they try to solve it? What real results are expected? Who will be responsible for implementing the recommendations? How long do I need to finish the project or solve the problem? The answers to these and similar questions will allow the consultant to save a lot of time in the future. In the case of "document path", it was necessary to diagnose the work of each sector and identify the problem link in document processing in the library.

The fourth function is to develop recommendations based on diagnostics. R. Wüst & A. Osswald (1994) noted that a consultant was hired for his experience and skills that were not available in the organisation for an independent perspective. Based on feedback and evaluation, the consultant developed a set of recommendations for solving the identified problem. Depending on the nature of the consultation relationship, the consultant may remain in the organisation until the agreed recommendations were implemented. It was in this area that consultants work: "raising the right questions, identifying current problems, collecting and analysing facts, developing an implementation plan, finding solutions, and consulting on their implementation". Depending on the nature of the consultation relationship, the consultant may remain in the organisation due to the implementation of agreed recommendations (Lemmer, 2014). In library practice, consultants can recommend the introduction of a new automated library and information system that will have more powerful technological capabilities and reveal the content of the document in more detail. In addition, it can be the software developers themselves. It was worth noting that the establishment of good relations with the client occupies an essential place – if the relationship between the "client-consultant" did not work out from the very beginning, then it was unlikely that they will improve in the future. Therefore, it was better to look for clients with whom it will be comfortable to work. H.M. Stephen-Smith (1987) devoted a significant portion to a survey, in which a respondent from the firm F surveyed noted that a consulting librarian was hired to review information requirements and recommend appropriate staffing.

The fifth function was to help in the implementation of recommended solutions. As an organisation expands, it usually required employees with experience in various fields. While small organisations may also need such diverse expertise, they often find it more appropriate to hire part-time consultants if necessary, rather than hiring full-time staff, which may not always be available (Ciampi, 2017). If a library consultant was involved in implementing solutions, they will:

- develop an implementation schedule or participates in its development;
- participate in the preparation of personnel for the implementation of programmes;
- participate in the implementation of programmes and schedules;
- define the form of control over project implementation measures;
- provide advice to the client organisation's staff responsible for project implementation;
- adjust certain decisions during the implementation process;
- transfer knowledge from the consultant's company to the client's company.

Tactics for making changes to working methods that will help to prevent difficulties in implementing solutions were shown in Table 3.

Table 3. Tactics for making changes to working methods

1	Familiarisation with the selected scheme. The consultant should familiarise the group with the chosen work scheme to achieve the best result before starting work. This will ensure that the established order is followed in different situations when people choose their own scheme
2	Implementation of changes at intervals. Performance is improved more efficiently if new methods are introduced relatively quickly with interruptions, rather than continuously and en masse
3	Repetition. When applying new methods, the consultant should provide for repeated training to better remember actions or processes
4	Moving from familiar to unfamiliar. The consultant can use this means of attracting attention, showing that "known" procedures are no longer suitable for current purposes. If new methods are introduced directly without breaking established previous practices, there is a serious risk of negative carryover effects
5	Setting complex but realistic goals. Tasks need to be set a little more complex than the expected result, so that there is a sense of victory. They should not be too easy or impossible to implement
6	Consideration of the "absorption capacity". People perceive and remember information differently, so it is necessary to present information from the standpoint of ease of perception. Information can first be presented as a single whole, and then broken down into subsections for more detailed study, or it can be built gradually by synthesising individual parts. The chosen method will depend on the nature of the problem, the composition of the audience, and the personal preferences of the consultant
7	Provision of facts and feedback. Proven facts are more stable than beliefs. Therefore, it is necessary to provide facts and analyse the information received from the client for monitoring and correction

Source: based on M. Kubr (2002)

Thus, the library can be restructured departments: the management introduces the heads of departments to the chosen restructuring scheme, and not each of them comes up with their own, respectively, reengineering library processes should be carried out at intervals. The sixth function is to build consensus and commitment to corrective actions. Consensus is the foundation for successful implementation of changes in libraries. This is a coordinated decision based on collective discussion and consideration of the opinions of all participants, including librarians, management, users, and experts. Stages of building consensus: involvement of all participants – it is important that all stakeholders have the opportunity to influence the decision-making process. Holding meetings, seminars, and focus groups will help to gather a variety of opinions.

The next step was to create a space for open communication: providing an open platform where participants can freely express their ideas and concerns. S.A. Murphy (2011) noted in paper the term "Voice of the customer", which was used by the business and product development community to define the process of "stated and undeclared customer needs or requirements". Systematic collection of "Voice of the customer" data can significantly help an organisation to identify and translate consumer requirements into the necessary technical requirements to provide consumers with a high-quality service product or offering. The process involved collecting, sorting, developing, and converting customer needs into satisfying products and services. When used, "Voice of the customer" can help library and information consultants both to develop and maintain customer relationships. Library staff use kinship charts to list ideas, thoughts, and issues that consumers identify, and then organise them into groups based on their affinity. Figure 1 showed an affinity chart created by a team of library and information consultants after a survey of library consumers.

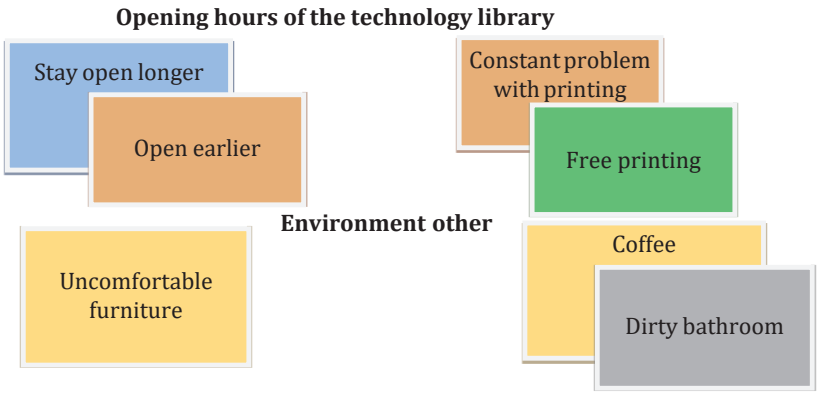

Figure 1. Similarity chart based on customer survey

Source: based on S.A. Murphy (2011)

The survey included open-ended questions designed to determine, how the library can improve its services from the consumer's standpoint. To create an affinity chart, each team member reviews the survey results and then silently writes down each idea or problem that they have received from the client, marking it on individual stickers, as shown in Figure 1. Team members were encouraged to use stickers, when creating affinity charts to make it easier to group and rearrange ideas. After completion, each team member places their sticky notes on the wall. As they walked around the room, each team member silently grouped the notes into pairs that made sense to them. The goal of this affinity diagram process was for team members to respond quickly by grouping ideas by instinct, rather than thinking too long about a choice. The grouping process was then repeated until participants agree on categories, which may take several rounds. When the participants come to an agreement, the team members then collectively determine the outcome of each group, and this served as a label for that category. Thus, Figure 1 showed the classification of consumer needs in the form of stickers, which were grouped into categories: "Library opening hours", "Technologies", "Environment", and "Other". Regarding the category "Library opening hours", users expressed their wish that the library would remain open longer and open earlier. The category "Technologies" revealed constant problems with printing and offers for free printing. Uncomfortable furniture was marked in the "Environment" category. The "Other" category showed a lack of coffee and the presence of dirty bathroom. It was surprising that the quality of electronic catalogues and customer service was out of the question. Consumers often expressed their desires and needs in vague general words. The challenge for the service provider was to translate these desires into performance standards or product specifications that will meet the needs of the consumer.

Consultants should have an adequate understanding of the attributes and implications of their services, when looking for new clients. The more attention will be paid to listening, the easier it will be to find a common language (Murphy, 2011). In this context, provision of information was crucial: provision of reliable information about research, trends, and best practices in library consulting will help participants to make informed decisions. And it was also worth highlighting the commitment to corrective actions – readiness of all participants to implement agreed solutions. To achieve this, it was necessary to: define roles and responsibilities (a clear definition of the roles of each participant helped to avoid confusion and ensured responsibility in performing corrective actions); create an encouraging environment (a positive atmosphere that supports initiative and new ideas increases motivation for change); monitoring and evaluation of regular assessment of progress in the implementation of plans helps to identify problems and make adjustments in a timely manner, which increases confidence in consulting processes).

The seventh function was to promote customer training, i.e., to train customers to solve similar problems in the future. In the library sphere, the most relevant areas were: the development of information literacy, individual consultations, and the creation of training courses. Consulting librarians teach users to formulate a query, use directories, keywords that improve search results, databases, online resources, and correctly refer to sources (academic integrity). These skills contributed to the development of an assessment of critical skills, among which applicants for education or other participants in the educational process distinguish between reliable and unreliable sources, get acquainted with the criteria for evaluating information: authority of the source, relevance, objectivity. During the consultation, the librarian-consultant acts as a mentor: not only provided an answer, but also commented on the search progress, teaches users to think analytically and consistently. Library specialists created instructions, video tutorials, memos, and presentations that help users master the skills of independent work with information. This function was necessary, when learning the latest technologies. Most managers in this study mention the fact that consultants should be involved, when their organisation lacks the necessary experience, or when they themselves, as managers, lack the necessary skills (Jespersen, 2009).

The eighth function was to continuously improve the efficiency of the organisation. In order to calmly perceive changes and adapt to them and the development of technologies, organisations need consultants, who will influence its effectiveness, coverage of the latest technologies and global trends. Consulting professionals were hired for their ability to influence changes, help the organisation to implement its strategy, plan or successfully redesign services after the introduction of a new technology (Popova & Hurova, 2016). Consultants focused on results, helping clients to identify their needs, and acquired the competencies and skills to meet those needs. In this process, the consultant guides the client from a state of unconscious incompetence to unconscious competence (Weiss, 2009). This was associated with training or training, when, for example, a library employee was taught to use the latest technologies, or collaborate with a robot that scans the indexes of books on shelves. Consequently, the functions of library consultants were diverse, they were not limited to one task, and the role of a consultant was multifaceted. Information consulting was one of the basic functions of a consultant, implemented both through direct interaction with library users and within the framework of external consulting. Such activities contributed to improving the information culture and efficient use of library resources.

In scientific publications, consulting was described as an effective tool for managing innovative infrastructure. The study by H. Boelens (2010) showed the work of a school librarian and information specialist. The researcher used qualitative and comparative methods, drawing on data from different European countries, to assess how school libraries contribute to student learning, digital competence, and equal access to information. The focus was shifting to the fact that libraries were no longer peripheral support structures, but were becoming central to teaching, learning, and developing digital literacy in schools across Europe. The manual "Management consulting", prepared by the International Labour Organisation under the editorship of M. Kubr (2002), was considered the most thorough source of theoretical and practical aspects of consulting activities. Real examples of successful work of information consultants were given in the publication by A.J.H. Johnson (1995). Various tips for information consulting were presented by I. Wormell *et al*. (2011) for information professionals moving to the position of consultants. The researchers used their extensive international and professional connections to allow clients to share their experiences and expectations with information consultants. A unique view of the client was highlighted: managers and clients talk about their motivation, experience, and advice. A list of the "top five" qualities of consultants was presented. L. Robinson (2009) contributed to the theoretical foundations of computer science, suggesting that a combination of process-oriented and context-oriented approaches can better inform research, systems design, and information services. The main purpose of the study by S. Stewart (2019) was to establish the extent to which library and information professionals in London and surrounding areas were actively managing change. The study found that 91% of library and information professionals suggested that change management was important and should be mandatory in courses related to library and computer science. J. Reeve (2018) noted: "motivation is a process. Whether defined as an excuse or a need, motivation is an internal state that seeks change in itself or in the environment. When this energy well is used, motivation gives a person the drive and direction necessary to interact with the environment in an adaptive, open way aimed at solving problem". The essence of motivation was energetic and persistent purposeful behaviour, when a person was motivated, they move and act.

E. Ushioda & Z. Dörnyei (2021) noted that motivation depended on meeting needs that were either necessary for maintaining life or necessary for well-being and growth. The word motivation comes from the Latin verb "movere", which means "to move". Thus, motivation was a word used to describe what "makes us move". In view of S. Bai *et al*. (2018), the motivation for consulting activities may vary depending on the goals of the company or consultant. Potential consumers of consulting services were any organisations that face management problems. These included private companies, banks, government agencies, professional associations, and investment funds. The library sector has not spared global trends. Consulting in the organisational sense dates back to 1870 (Murphy, 2011), and the emergence of library consulting dates back to 1913, when an information and consulting service called the library of engineering societies was founded in New York (Jespersen, 2009). Since consultants were involved to help libraries to identify, design, and implement solutions on a variety of strategic, managerial, operational, and human resources issues, the question arose in the study of the reasons for attracting consultants to the library sphere and the need for consultants' services (Aftandilyants, 2014).

The role of the consultant in solving the client's problems or requests confirmed their function as an agent of change, capable of implementing practical and technological solutions in crisis situations. The diagnostic activity of the consultant provided an objective vision of the situation, allowed rethinking or clarifying the problem or the need to prepare the organisation for the next stages of solution. Diagnostics also contributed to the development of a reflexive approach on the part of the client. Based on diagnostics, the consultant forms sound recommendations, which were often based on experience that was not available from within the organisation, in particular libraries. The effectiveness of implementation largely depended on the trust between the consultant and the client and the quality of interpersonal interaction. The consultant can actively participate in the implementation of solutions, performing not only advisory functions, but also organisational and methodological support: creating plans, training personnel, monitoring implementation and transferring knowledge. Building consensus and commitment to change was a prerequisite for successful project implementation. To do this, consultants use methods of attracting stakeholders, open dialogue, feedback (in particular, the "Voice of client" method), and create conditions for collective responsibility. Facilitating client training was a long-term investment in the development of the library, as it allowed increasing the client's independence in solving similar problems in the future, especially in the context of rapid technological development. Consultants played an important role in improving the overall efficiency of libraries, helping them adapt to changes, implement the latest technologies and global trends, which required a high level of strategic vision, competencies, and communication skills.

Conclusions

The study identified and analysed the main reasons for involving information consultants in the library sector, which were related to specific areas of library work. The motivation of consulting activities was

focused on the functional tasks of consultants and was determined by solving the tasks of library institutions in professional support during and in improving the processes of library activities. Information consultants function as agents of change, played an important role in supporting the strategic development of the library, librarians, users, providing them with the opportunity to get an objective assessment of the situation and determine the best ways to improve their work. The main incentive for consulting activities was the need to solve problems that may be hidden or insufficiently realised by the library team. The consultative approach allowed not only to identify existing challenges, but also to predict potential threats and develop effective mechanisms to eliminate them. Due to the independence of consultants from the library's internal processes, their recommendations were often characterised by impartiality and flexibility, which contributed to better decision-making.

Consulting activities in the library sector cover a wide range of tasks: from strategic planning to optimisation of library business processes and work with library users. An important aspect of the motivation of consultants was the ability to directly influence the improvement of the library's activities, which made their work not only useful for users, but also socially significant. The motivation of consulting activities and their functional direction was the driving force for positive changes in the management and strategic development of libraries and bibliotechnological activities. The need to attract trained consultants was to strive for continuous improvement of processes, search for the best solutions, and ensure efficient use of resources, which contributed to the development of both individual libraries and the industry as a whole. Further research in this area will be aimed at the practical implementation of information consulting in the activities of libraries in Ukraine and psychological aspects of information consulting.

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Мотивація консалтингової діяльності: бібліотечний аспект

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Анотація. У другій половині 2000-х та першій половині 2010-х років бібліотеки України зіткнулися із проблемами, пов'язаними з глобалізацією та оцифруванням, які вплинули на підвищення ролі консалтингу в бібліотечній сфері. Метою статті стало розкриття сутнісних ознак мотивації консалтингової діяльності в залученні інформаційних консультантів до бібліотечної діяльності. Консалтингова діяльність в бібліотечній сфері охоплювала широкий спектр завдань: від стратегічного планування до оптимізації бібліотечних бізнес-процесів і роботи з користувачами бібліотеки. Було проаналізовано основні причини залучення інформаційних консультантів до бібліотечної сфери, що стосувалися різних напрямів роботи бібліотеки. Під час дослідження інформаційного консалтингу в бібліотечній сфері комплексно висвітлено причини залучення інформаційних консультантів до бібліотек. Аналіз публікацій дозволив розкрити зміст основних причин залучення консультантів, якими активно послуговувалися в теорії та практиці бібліотекознавства. Виявлено, що консультанти залучалися для допомоги бібліотекам у визначенні, проєктуванні та впровадженні рішень для різноманітних стратегічних, управлінських, операційних, людських ресурсів. Вони призначені для того, щоб завчасно виявити проблеми, які були в бібліотеці; якщо їх не усунути вчасно – це могло негативно позначитися на роботі бібліотеки. Зазначено, що консультанти функціонували як агенти змін, відігравали важливу роль у підтримці стратегічного розвитку бібліотеки, бібліотекарів, користувачів, надаючи їм можливість отримати об'єктивну оцінку ситуації, визначити оптимальні шляхи покращення роботи. З'ясовано, що вони залучалися на певний термін для оцінки та вирішення конкретної проблеми в бібліотеці, а також для того, щоб розробити набір рекомендацій для покращення роботи бібліотеки. Мотивація консалтингової діяльності та її функціональне спрямування виступило рушійною силою позитивних змін в управлінні, стратегічному розвитку бібліотек та бібіліотекознавчій діяльності. Потреба у залученні підготовлених консультантів виявилася у прагненні до постійного вдосконалення процесів, пошуку найкращих рішень, забезпеченні ефективного використання ресурсів, що сприяло розвитку окремих бібліотек, галузі в цілому. Практична цінність цього дослідження полягає у можливості вдосконалення інформаційного консалтингу в бібліотечній сфері України шляхом використання зарубіжного досвіду на рівні окремого бізнес-процесу і на загально бібліотечному рівні

Ключові слова: інформаційний консалтинг; бібліотечний консалтинг; бібліотечні консультанти; консалтингові послуги; причини залучення консультантів

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