Information and library services for library users: Innovative approaches and vectors modifications

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Abstract. The relevance lies in the in-depth analysis of the problems of development and transformation of library and information services, as well as in the changed user requests and information needs caused by the information development of society. The purpose is to explore the benefits of using the latest technologies and services in information services in the context of research by Ukrainian library professionals; to analyse the dynamics of library development and its modification in the system of user service. The study used general scientific methods (analysis, synthesis, generalisation) and approaches: socio-cultural, socio-communicative, and systemic. The current challenges of informatisation of society and the rapid expansion of the volume and content of information resources raise the issue of revising the methods of work in the field of reference and bibliographic services for libraries. This requires the development of scientific principles of modern activities of reference and bibliographic services aimed at providing information to users and based on a systematic approach to the formation, organisation and use of reference and information resources. Also, in the study of trends in the use of cloud services as an innovative tool in libraries in the era of digitalisation, which has become an effective means of expanding the possibility of remote access to library collections, resources, promoting the storage and analysis of data for more convenient user service. The results of the study may be important for employees of methodological and bibliographic departments, Internet centers in libraries, and can also serve as a basis for a more detailed study of specific aspects of this topic by library practitioners, teachers and students studying in information and library specialty programs. They can also be useful for replenishing the information base on the organisation and development of reference and bibliographic services in libraries

Keywords: transformation of the library sector; innovative library technologies; reference and bibliographic services; remote services; electronic library resources; cloud services; mobile libraries

Introduction

In the 21st century, when informatisation and globalisation play a key role in various spheres of life, the relevance of this topic becomes extremely important. The task of the library: to move from the information society to the concept of an open library and knowledge society (Bilous, 2024). This means the introduction of modern technologies that improve access to information, develop electronic resources, digitise collections, and create innovative services for users. Digital platforms and software enable libraries to create online catalogues with quick and easy access to bibliographic records. Using mobile applications allows users to quickly find the information they need. The development of artificial intelligence and machine learning – to automate the processes of indexing and analysis of bibliographic data. Updating and modernisation of information and library services has become the subject of research by many scientists. The author V.O. Kopaneva (2020) encourages a new approach to the transformation of the library industry, which will be based on the conceptual

principles of the "leader" model.

In the monograph, O. Zhelai (2021) emphasises the importance of improving remote forms of information and information-analytical user service. Scientist V. Medvedieva (2019) is engaged in the study of the functioning of the social institute in the media space. The introduction of multimedia technologies into the activities of libraries is the need to organise high-speed data transmission facilities in the information-library space. In particular, T. Granchak (2019) notes that openness and close interaction between the library and society leads to a new model of communication and services: flash mobs, intellectual games, library classes, co-working spaces, trainings. Cloud services play a significant role in providing information services to library users. Gradual transformation of libraries into media libraries expands functions and remote information services by combining traditional books with a collection of DVD, BLU-RAY and audio CDs, e-books, multimedia educational programs, as noted by S.E. Orekhova & N.M. Lynska (2019).

The scientists A.V. Rzheusky *et al.* (2015) in their work note and propose service delivery models using cloud technologies, such as: software; platform as a service; desktop as a service; infrastructure as a service. Advantages of cloud technologies: saving money on the purchase and maintenance of computer equipment, software, availability. This helps optimise the work of libraries and ensures more efficient use of their resources.

The researcher H.V. Salata (2022) draws attention to: the library website, electronic catalogue, e-mail and managers (Facebook Messenger, Messenger Lite, WhatsApp, Telegram, Viber). Many cloud providers install authentication and authorisation mechanisms. It is important for libraries to have built-in systems for monitoring and detecting threats in cloud services. Advantages: detect potential attacks or security breaches in a timely manner. Cloud technologies open up new perspectives for optimising management processes:

working with web multimedia storage services, such as photo services (Picasa, Panoramio), video services (YouTube), geoservices (Google Maps) and document management (Slideshare, Google Docs, SkyDrive). The author I. Yarema (2022) emphasises that in library service there is a combination of established practice with the possibilities of information and communication technologies. Innovations are based on the latest information technologies: organisational (e-catalogues, databases), service (virtual services), product (e-collections, multimedia products), technical (presentation of information on websites, social networks, blogs, messengers), business (paid services). The advantage of digital technologies is the possibility of a comprehensive approach to solving the problems of library and information services.

The purpose of the study is to analyse the achievements of library professionals in the context of introducing new services in information and library services to users.

The scientific novelty of the study lies in a comprehensive study of the emergence of various means for organising, storing and transmitting information, which requires a revision of traditional methods of work in the field of reference and bibliographic services of libraries. In turn, this means improving the methods of preparation and provision of information services, and thus leads to the development of new strategies to ensure maximum satisfaction of users' needs for access to information. Therefore, it is important to clarify the importance of using cloud services that allow storing and processing large amounts of information on remote servers, making them accessible from any location and device with an Internet connection.

Materials and Methods
To complete the study of the topic, the following methods were used: scientific observation, comparative method, methods of analysis and synthesis, descriptive, structural and functional (Table 1).

Table 1. List of methods used

Scientific observation	Comparative method	Methods of analysis and synthesis	Descriptive	Structural and functional
Formulation of the goal and object of scientific research, development of an observation plan, interpretation of the obtained results, formulation of conclusions	Studying and identifying trends in the transformation of traditional information and library services and user services through new library services	To make an attempt to conduct an in-depth study of the existing (implemented in library practice of the latest technologies) in library processes, to reveal the possibilities of information and library services in Ukrainian and foreign libraries. To analyse and substantiate the feasibility of mobile libraries as one of the latest innovations in the library and information sphere	Trace the development and transformation of traditional library services into modern ones. Select material and describe the activities of social institutions and their information and library services. Identify one or more innovative library services that are most accessible and in demand in Ukraine and other countries. Describe and analyse library services and innovative approaches in the field of information and library services	Structure the processed material in accordance with the publication plan and the requirements of a professional journal. To focus on the activities of libraries caused by new user needs. To study the competencies that a librarian should have in order to provide quality library services

Source: developed by the author

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The research methodology is based on the use of general scientific approaches: socio-cultural, socio-communicative, systemic, as well as on the application of general scientific methods (analysis, synthesis, generalisation). The methodological basis is the socio-cultural approach in combination with the systemic, socio-cultural and informational approaches, which together made it possible to analyse the paradigm of information and library services in the context of innovative methods and library practices. The use of comparative and content analysis methods allowed us to identify significant features of the development of library institutions in Ukraine and the United States. This analysis revealed the current tasks and challenges they face in the modern world. These methods were used to solve the following tasks, namely: research of scientific sources: monographs, professional publications, electronic resources, library websites and reveal the concepts within the outlined topic; identify innovative approaches to the organisation of information and library services for library users; characterise traditional forms and justify the expediency of implementing remote user service; to study and analyse the experience of academic libraries, public Ukrainian and foreign libraries in the field of information and library services; outline traditional forms, identify innovations in the work of each library and explore the advantages of interactive services.

During the research, materials were collected through a thematic search in electronic libraries and archives, as well as using the source base of official websites and scientific publications of leading Ukrainian and foreign scholars. The following sources were used in the study: Official website of Poltava Regional Universal Scientific Library named after I.P. Kotlyarevsky (2024); Official website of Ternopil Regional Universal Scientific Library (2024). Based on the official websites of two public libraries, in particular: Ternopil Regional Universal Scientific Library and Poltava Regional Universal Scientific Library named after I.P. Kotlyarevsky, an analysis of the "Virtualna Dovidka" service was carried out as an innovative library service for fulfilling the requests of virtual users. The advantages and disadvantages of the Virtual Help desk are determined. The correctness of the formation of the request and the registration form was checked. The following data were analysed of Official website of Vinnytsia Military Administration (2024). As a result of the analysis of the works of the authors L.A. Dubrovina & O.S. Onyschenko (2009), K.V. Lobuzina (2012), S. Chukanova (2012) were selected and taken into account statistical data on the activities and trends of the reduction of public libraries as of the beginning of 2020. Data on the implementation of remote forms of information service for users using the library's electronic catalogue, webportals and a number of others innovative forms of information-library user service were selected as a

result of the analysis of research by the authors O. Serbin & S. Halytska (2013), V.O. Kopaneva (2020), O. Zhelai (2021).

Results and Discussion

The information society reflects a new era of civilisational development, where knowledge and information are becoming the main resources. This society is characterised by the rapid development of technology, which affects all spheres of life, including economy, politics and culture. The role of the library in this context is becoming extremely important, as it plays a key function in providing access to knowledge and information, contributing to the informatisation of society and its further development.

At the legislative level, the concept of "reference and bibliographic services" is interpreted as services related to servicing information consumers in accordance with their requests. This includes the provision of references and other bibliographic services aimed at meeting the needs of users in searching for and obtaining information (Isayenko, 2011). According to T. Dobko (2013), reference and bibliographic services consist of processes related to accepting one-time requests from users, systematic search for information in various sources, transferring information to users about various types of documents (handwritten, printed, electronic) and identifying various facts in information sources. The Law of Ukraine No. 32/95-VR (2022) defines the tasks of the library in the process of forming a new information society. According to this law, the library in the modern world acts not only as a place of information storage, but also as an active participant in the development of information resources and a guide in the global information space.

Innovative library technology is not only the process of creating or improving products and services, but also the integration of creative, research, and practical efforts into all areas of library activity. It encompasses the development of new methods and tools for storing, organising and disseminating information, and contributes to increasing the accessibility of cultural and educational resources to the public. This technology affects all aspects of library work, from bibliographic activities to the organisation of cultural and educational events (Isayenko, 2011). The topic of researching library and information services in the electronic environment has gained significant development in light of the growing use of digital technologies.

The active research, development of methods and approaches to providing information assistance to library users is announced in the scientific works of the ukrainian researcher T. Dobko (2013), in particular, in the monograph "Reference and bibliographic activities of scientific libraries of the National Academy of Sciences of Ukraine: Formation and development (20th century - the first decade of the 21st century)". In the

monographic study, the author reveals the methodological principles, types, forms and directions of reference and bibliographic services, as well as its formation as a component of scientific and bibliographic services. Special attention is paid to the formation of reference and bibliographic services as a component of scientific and information activities in the system of library communications. The author also identified the continuity of traditions and means of introducing innovations into the activities of libraries. The researcher examined both traditional and modern terminology in the field of library science and proposed conceptual approaches to the organisation of reference and bibliographic activities of scientific libraries, taking into account changes in the information environment and information technology communications, and thus user needs and social priorities. The study analysed the foreign experience of reference and bibliographic activities in the context of constant and dynamic growth of information resources.

The research conducted by O.O. Isayenko (2011) has made a significant contribution to the study of the terminology and features of the practical implementation of reference and bibliographic services in the online environment in the activities of libraries of various levels. The research of the scientist allowed to better understand and assess the impact of Internet technologies on meeting the information needs of users, as well as to develop effective approaches to improving library services in the online environment.

O. Serbin & S. Galytska (2013) research also addresses the issue of reference and bibliographic services. In particular, the authors publication examines the processes of information optimisation and develops a collapse/expansion methodology that allows for effective data volume management. In addition, the author proposes a classification of collapse/expansion processes that takes into account the evolution of the structure and functions of library science. The possibilities of using modern technologies to optimise information flows are analysed, which opens up new prospects in the field of library activities. The field of librarianship is constantly undergoing innovations and transformations aimed at improving access to knowledge and information. One of the key goals is to introduce modern technologies that contribute to more efficient user service and improve the quality of services. This includes automation of library processes, development of digital resources, introduction of virtual services, and provision of access to electronic collections. Such initiatives contribute to the development of a modern information environment, increase information literacy and meet the knowledge needs of users. Also, the scientists emphasises and analyses the state of implementation of information technologies, in particular, on the example of the Vernadsky National Library of Ukraine (VNLU), he reveals the work of the Electronic Catalogue as a component of the reference and search

apparatus and a component of the library's automation system, its functions and purpose. Vernadsky National Library of Ukraine (VNLU) uses the multifunctional library automation system (LAS) IRBIS64 to process new arrivals. This system combines all technological stages of document processing within the technological cycle "Document Path" and is a complex of automated workplaces and processes. Electronic catalogues and other automated systems become the basis of the organisation of information and search activities of the library, which contributes to the improvement of the quality of user service and the development of the library industry as a whole.

The study conducted by L. Kononuchenko (2011) notes the active involvement of ukrainian libraries in the implementation of local and regional computer networks, the use of modern information technologies and the creation of their own electronic information resources at the beginning of the 21st century. The researcher emphasises the importance of applying the latest technologies in librarianship, as these technologies significantly increase the level of satisfaction of users' information needs. According to the study, in the 90s of the 20th century, the level of satisfaction with the service in regional universal scientific libraries was 59%, and at the beginning of the 21st century 92%. The introduction of new services based on information and communication technologies contributed to the active study of the impact of modernisation processes on the quality of information and library services.

The Internet environment has a significant impact on modern library users, as they increasingly prefer virtual communication and quick access to information. Internet technologies are changing the work of libraies, adapting their traditional forms of information activities to modern requirements. In modern digital world, libraries provide a variety of remote services to ensure that users have convenient and efficient access to information even when they are working remotely. These services include access to electronic catalogues, e-books, databases, audiobooks, magazines, and other digital resources. Remote services expand users' options for selecting and obtaining information. In addition, they allow libraries to attract new audiences, including those who have limited access to traditional library services due to geographical, physical, or other limitations.

Remote services also help to optimise library workflows and ensure efficient use of resources. For example, they allow social institutions to effectively manage user requests via e-mail, online chat, or phone (smartphone or iPhone), which greatly facilitates communication and reduces the time spent waiting for a response. Thus, an important advantage of remote services is their impact on the development of information literacy of users. Librarians can therefore provide advice and teach users how to effectively search, evaluate, and

use information resources on the Internet. Thus, modern remote services are becoming an important tool for providing access to information and improving the level of service provided by libraries.

In the third millennium information and communication technologies are central to many aspects of our lives. Their active use contributes not only to an increase in the amount of information in electronic form, but also to the emergence of new types of electronic resources. They also contribute to the creation of various types of electronic docu ments, including electronic publications, audio and video information, and multimedia products. As pointed V. Vergunov (2014), libraries in the modern world play not only the role of distributors of ready-made information, but also actively become producers of their own electronic information resources. Such resources are formed with the help of a wide range of bibliographic, abstract and full-text sources.

The main goal of a modern library and its subdivisions is to ensure high-quality and prompt satisfaction of users' information needs. One of the key areas of this

activity is reference and bibliographic work, which includes the formation of a reference and bibliographic collection and the provision of appropriate services. The effectiveness of this activity depends on the quality of the bibliographic apparatus, professional skills of the bibliographer and availability of the necessary material and technical support in the library. The dynamics of library development, fast and efficient search for reliable information is becoming a key task. Information technology provides us with a wide range of tools to achieve this goal. Online databases, electronic resources, and search engines allow us to search for and retrieve information in the fastest possible way. At the same time, it is important not to forget about traditional methods of bibliographic services, such as librarians' consultations and work with reference sources. The combination of these approaches allows us to provide users with high-quality and comprehensive information support. T. Loga (2016) note that reference and bibliographic services for remote users are developing in three directions (Fig. 1).
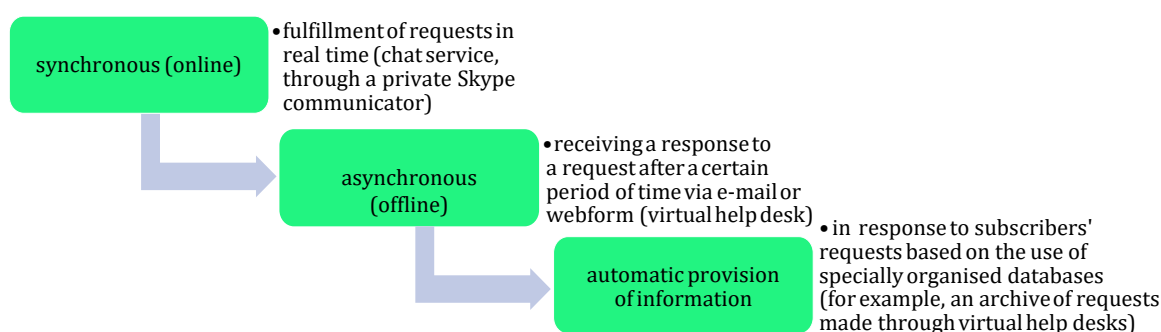

Figure 1. Modern forms of library user service

Source: based on T. Loga (2016)

Given the growing information needs of users and rapid changes in the technological environment, O. Isayenko (2011) monograph is a source of knowledge for understanding current trends in the library sector. By analysing the experience of best practices in the implementation of innovative technologies, the author provides important insights for the further development of library information systems. A significant contribution to the study of this issue is the monograph by N.E. Kunanets (2013) "Information and library services for users with special needs: History and modernity". The author emphasises the specifics of serving users with different forms of nosology. The researcher proposes to use the hierarchy analysis method to choose the way of presenting knowledge in the information system for serving users with special needs. The weights of objects obtained by the method of expert evaluation help to determine the ontological approach as the most convenient way to represent knowledge, which is flexible and easily adaptable to changes in the process of serving this category of users.

Scientists are actively researching the computerisation of bibliographic activities in Ukrainian libraries. Ukrainian researcher I.O. Davydova (2005) focusing on the automation of library processes, establishing the continuity of traditions and methods of introducing innovations. The authors of the monograph L.A. Dubrovina & O.S. Onishchenko (2009) substantiate the main trends in the development of libraries and librarianship in Ukraine in the 20th century. L. Kudrya (2009) announces the use of modern information and communication technologies, taking into account the virtual online exhibition, substantiates their advantages and provides vivid examples of virtual exhibitions on library websites.

The introduction of computer and telecommunication technologies open up new opportunities for users, therefore: physical readers have different needs, which include access to various electronic resources in the library. It can be an electronic catalogue, a digital library, local and network resources of electronic collections, etc. At the same time, virtual readers usually get access to library services through the institution's website on

the Internet. Modern trends in bibliographic service include operational organisation of access to electronic catalogues, information about library resources, databases, and electronic libraries in real time. In addition, they provide access to virtual services, such as electronic delivery of documents, virtual reference service, viewing of electronic library exhibitions (review of new literature in the format of electronic slide presentations or images of annotated book covers) (Lobuzina, 2012). For example, web-based bibliographic guides, lists of useful websites, and other navigation materials are becoming a necessary element for libraries in the modern information environment. Each library is actively working to create such resources that contain selected and verified information for prompt and high-quality user service.

One of the forms of reference and bibliographic services for remote users is reference service in the virtual reference service mode. This is an innovative approach that allows providing access to information resources and library services online. This service provides users with the opportunity to get the necessary information and consultations anytime and anywhere. The main principles of the virtual reference service are: general accessibility, openness, and free of charge for all users; promptness of request fulfillment; mandatory processing of milestones of accepted requests and provision of a response; as well as mandatory notification of the impossibility of fulfilling the request; interpersonal communication between librarians and remote users, as noted O.S. Onishchenko (2024). Its main characteristics are the following advantages (Table 2).

Table 2. Benefist of the Virtual Help desk

Online accessibility (users can obtain information through the library's website; e-mail; chat or other special messaging platforms)	A wide range of services: the virtual reference service provides access to a variety of services, such as information search, assistance in using databases, preparing research papers	Accessibility support. The virtual reference service allows the library to ensure accessibility of its services for different categories of users: people with disabilities and those who are in different time zones	Monitoring and analysis: information about users' requests and needs can be used to improve the quality of service and develop the library's collections

Source: developed by the author

It is worth noting that one of the most recent innovations in the library and information sector is mobile libraries. For example, here is the Vinnytsia mobile library "Ideas Box" for leisure and youth development. On October 24, 2022, a presentation of the library was held at the regional Youth Center "Square". According to the Official website of Vinnytsia Regional Military Administration (2024), the "Ideas Box" mobile library, developed by the organisation Bibliotheques Sans Frontieres (Libraries Without Borders), is an innovative non-formal learning tool aimed at children and youth. This mobile learning center is equipped with a variety of resources, including Internet access, a printer, tablets, board games, e-books, paper books, and a movie theater. The goal of this initiative is to provide access to education and culture in places where these resources may be limited or unavailable. The "Ideas Box" mobile libraries at KVADRAT serve not only as places for recreation, but also as centers for education and youth development. Thanks to the wide range of available resources, they create unique conditions for meaningful leisure and self-development. In addition to entertaining board and computer games, each tablet is equipped with educational materials in English, German and French for individual study. This allows young people to develop their skills and improve their knowledge in a way that is convenient for them, contributing to their personal and professional growth. In times of war, the mobile library functions as a space for the integration of internally displaced persons. Victor Tchaikovsky,

Head of the IT sector at KVADRAT, noted that the main advantages of such mobile libraries are their independence from power supply and access to mobile Internet (Official website of Vinnytsia Regional Military Administration, 2024). This means that they can be deployed anywhere, even in areas with limited or no infrastructure. Their autonomy is ensured by their own power generator, which allows them to operate without interruption and provide access to cultural and educational resources even in remote or crisis areas.

For example, in the early 1850s, the idea of mobile libraries in the form of "walking libraries" pulled by horses appeared in England. This approach made it possible to provide access to books in remote and sprawling areas. A similar initiative was also introduced in the United States in 1905 in Washington County, Maryland, where the first mobile library of its kind was established. In the United States, bookmobiles serve users of various groups: schoolchildren, nursing homes, hospitals, and prisons. These mobile libraries provide access to literature and other information resources to those who cannot physically visit regular libraries (Mobile Libraries…, 2024).

In the 21st century, the Internet provides many opportunities for reference, bibliographic and information services to users, which primarily led to a revision of traditional approaches in the activities of library staff, including bibliographers. Library staff must be able to use the Internet to search, analyse, and evaluate information, and become experts in the use of digital

resources. Such reorganisation of reference and bibliographic services is becoming necessary to ensure effective service in a rapidly changing digital reality.

It is worth noting that the reference service in the library was launched by Melvil Dewey back in 1884, when he worked at Columbia College (now Columbia University, USA). This service has undergone numerous changes, especially with the advent of Internet technologies. The first attempts at real-time virtual communication with users took place in the mid-1980s in the United States, initially through e-mail, and from the 1990s to 2024, mainly through the "Ask a librarian" service. It is quite difficult for a remote user to navigate the information products offered by the library or to search for information on the Internet on their own. Accordingly, a new form of reference service for remote users "Virtual Reference Service" has become widely used. In the professional literature, the following synonyms for the term "virtual reference service": "chat help", "electronic help", "digital help". The polysemy of the term does not refute the importance of reference and bibliographic services, but rather enhances its significance. All of them mean reference and bibliographic services for users that take place in the electronic environment using various communication channels: e-mail, chat, web forms (Prygornytska, 2013).

In Ukraine, the introduction of such a service dates back to 2003. In the age of digitalisation, electronic reference services should provide a wide range of services: professional thematic search; making inquiries about the availability of publications and clarifying the background information of documents stored in the collections of a particular library; search for factual information; navigation of the library website; navigation of Internet resources; formation of electronic collections of reference and bibliographic publications (Kovalova, 2013).

H.M. Shvetsova-Vodka (2004) interprets the term "virtual reference" or "virtual reference and information service" and uses them as synonyms for similar terms: "digital reference", "electronic reference", "live reference". Online reference and bibliographic services are when a user can submit his or her information request via the Internet and receive a response in the same way. This saves time for the user, and for the library it is good advertising and popularity as a reference and information center. The author distinguishes the following types of library reference and bibliographic services via the Internet: via e-mail; chatting; organisation of the "Virtual Reference" service under a special program. Almost all researchers support this position. In particular, S. Chukanova (2012), a researcher who studies traditional and virtual library services.

One of the most important for website users is the virtual reference service section, which is a product of the library's information and analytical activities. This section provides for the preparation and provision of information and reference products, including answers to users' requests, recommendations on how to search for information, as well as access to various resources and databases. The virtual reference service provides prompt and convenient access to the necessary information, which increases the efficiency of user service and expands the library's capabilities in the digital environment.

Research confirms that the most accessible and popular service among library users is the Virtual Reference service, due to its high convenience and accessibility. In contrast, e-mail services are not widely used as an independent form of reference and bibliographic services. Chat-based consulting also requires a significant investment of time, as well as constant access to the Internet (Official website of Ternopil Regional Universal Scientific Library, 2024). The website can be accessed quickly and easily from any search engine. The Virtual Reference Service is a separate section. Before creating a request, the user must familiarise himself with the Rules of the Service, such as: 1. General Provisions (basic principles of work: general accessibility, openness and free of charge for all users; promptness of fulfillment of requests; mandatory processing of all requests and provision of a response). 2. Rules of operation of the LDC (universality: for all categories of users, regardless of whether the user is a library reader). Separately, information about restrictions in the fulfillment of the request, in particular: incorrect requests are deleted, issues related to writing scientific papers are not taken into account, and inquiries requiring complex scientific and professional search are not fulfilled. The full list is available on the library's website.

It is mandatory for the user to clarify the purpose of the request and the amount of information required. Librarians-bibliographers perform various types of references, such as thematic, local history, factual, clarifying, address references. In virtual reference and bibliographic services, the problem of repeated requests often arises. Therefore, a characteristic indicator of the service is the presence or absence of an electronic archive of completed references, which allows to effectively manage and analyse user requests. That is why the Rules of the Virtual Reference Service on the library's website state that before asking a question, it is recommended to consult the "Reference Archive" (Official website of Ternopil Regional Universal Scientific Library, 2024). If the user does not find a "ready-made answer", then he/she registers on the website and fills in all the fields of the form. Electronic help desks have a number of advantages, as they allow anyone to contact anyone, from any location and at any time. The user receives a written, qualified response by email within one to three days, depending on the complexity of the request.

Registration form of the virtual help. The purpose of the innovative library service is to fulfill one-time

requests of virtual users. Anyone can use it, regardless of the fact of their registration, age, level of education, place of residence. Before making a request, the user should familiarise himself with the Regulations on the virtual help desk. Clear announced rules provide a comprehensive answer in order to correctly form an information request. The registration form is simple, you need to fill in all the fields (name, email, select the category to which the user belongs, the purpose of the request and select the send button) (Fig. 2).

Figure 2. Registration form of virtual help
Source: based on Official website of Ternopil Regional Universal Scientific Library (2024)

The archive of certificates can be searched manually by browsing the array of requests formed in chronological order by year (since 2017), and then within a year, by the subject of user requests. Each completed certificate contains information about the person who prepared it (Fig. 3).

Figure 3. An example of a completed virtual help
Source: based on Official website of Ternopil Regional Universal Scientific Library (2024)

Official website of the Poltava Regional Universal Scientific Library named after I.P. Kotliarevsky (PRUSL) (2024) can be accessed quickly and easily from any search engine. The "Virtual Bibliographic Reference" of the I.P. Kotliarevsky POUNL offers the same services as the TBNL. The archive of questions can also be searched manually by browsing the array of queries formed in chronological order. The search by month and year (since November 2009) is excellent. Also on the website of the I.P. Kotliarevsky POUNL, for efficiency and ease of search, the user is offered a field where he can search for information by keyword or phrase. In contrast to the TOSL, the website of the I.P. Kotliarevsky UDL does not list the bibliographer by name.

On the library's website, in the Library Services section, there is a Virtual Help. The registration form is quite simple and convenient. In the fields of the form, you need to enter your name, email, question, enter a secret code, duplicate it again and send the generated request. Also, before the registration form, the Rules for the use of the Virtual Help Service are submitted, which the user must familiarise himself with before starting to formulate a request. It is also posted on the Archive page of questions submitted by month and year of implementation (Fig. 4). This is how the execution of an information request on the website is designed: in the form of Questions and Answers (Fig. 5).
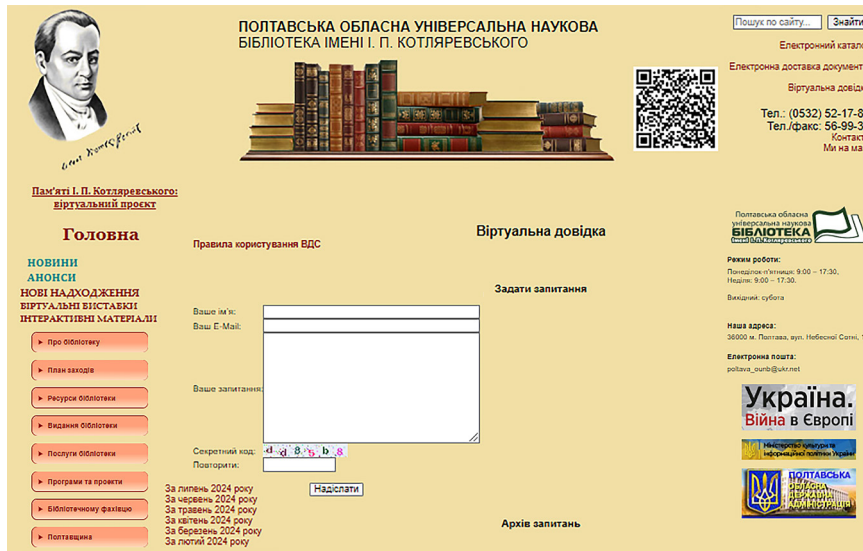

Figure 4. Registration form of virtual help
Source: based on Official website of Poltava Regional Universal Scientific Library named after I.P. Kotlyarevsky (2024)
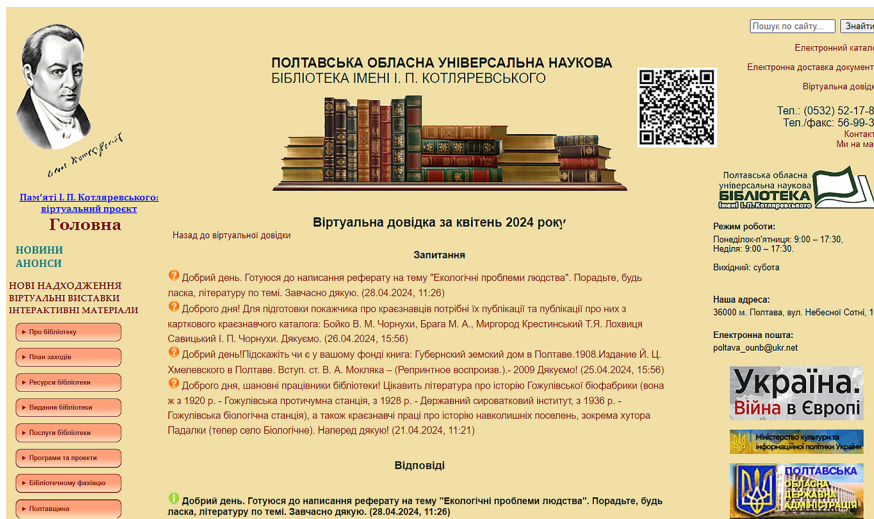

Figure 5. A sample of completed Virtual Certificate for April, 2024
Source: based on Official website of Poltava Regional Universal Scientific Library named after I.P. Kotlyarevsky (2024)

In general, the Virtual Reference service in both libraries is quite well represented, as the answer is relevant to the user's request and is provided promptly. In contrast to the centuries-long development of libraries in the world, the formation and development of libraries in the U.S. dates back to the 19th century. During this period, public libraries began to form in the U.S., becoming important cultural and educational institutions. In particular, in 1854, the Boston Public Library was opened, which became one of the first large free libraries in the country.

L. Filipova (2020) notes that modern libraries in the United States, including public and academic libraries, are an important element of the country's digital infrastructure. They provide access to the Internet, digital books, audio recordings, images, databases, electronic

reference and information services, and have professional librarians who support these resources and help users navigate the digital world. All public libraries in the country provide Internet access, and most of them are the only provider of free access to online resources in local communities. This is made possible by the financial support of patrons, government programs, and the assistance of local communities. Thanks to modern technologies, libraries have become not only knowledge storage centers but also active participants in the life of their communities. They organise educational programs, digital literacy trainings, seminars, and cultural events. In addition, libraries adapt their resources to the needs of users with special needs, ensuring that information is accessible to all. Libraries are funded through a variety of sources, including government grants, private donations, and partnerships with non-profit organisations. This allows libraries to expand their services and introduce new technologies to improve the quality of user experience.

There are more than 9000 public libraries in the United States (16000 with branches) that offer free access to books, computers, the Internet, and educational activities across the country. As noted by L. Filipova (2020), the future trend of digitalisation in American libraries, where projects are already being developed to introduce artificial intelligence (AI) technologies into their activities. Libraries are adapting their work to new technologies, and such projects are already predominantly used in academic libraries. For example, the Massachusetts Institute of Technology (MIT) is working to create a technical infrastructure so that library collections can use machine learning algorithms and be read using AI tools. This allows not only to automate processes but also to provide users with more accurate and relevant search results. Other new developments include the use of bots in academic libraries. For example, at the University of Oklahoma library, a chatbot helps students with questions about searching subject databases. Chatbots can answer standard queries, direct users to the right resources, and even provide advice on information searches. However, experts are concerned whether this technology will lead to the replacement of human librarians with their technological counterparts. This issue raises discussions about the role of librarians in the future and the need to adapt their professional skills to new conditions. The introduction of AI and other innovative technologies in librarianship will continue, but it is important to strike a balance between technological innovations and the human factor, which remains key to effective user service.

Deborah Long, assistant director of Louisville Public Library (Ohio), as a user of this libary, shares an interesting innovative solution in user service (Fig. 6). The author notes that the library has created a separate room that has been converted into a multifunctional space – a sensory room with an Experia USA play floor. The room was created by Experia USA. The gaming area is equipped with a projector for displaying educational and sensory games, a computer with a motion sensor, software, and a foam mat. In particular, the motion sensor allows the software to respond to the player's movements. The room can be booked in advance to meet the needs of the user, both for educational and leisure purposes (Smith, 2022). For teenagers, it is used when watching sensory fairy tales, for adults – during yoga classes on chairs (adults sitting on a chair can touch the floor with their feet and be in a simulated pond with fish). While in the sensory room, library users can jump in a pile of virtual leaves, create fire works on a rug, and simulate playing the piano, creating beautiful patterns with their movements. For example, the sensory room plays an important role for users with special needs, in particular, children with autism like "The Hungry Hippos" game, where a child steps on a virtual lever to make the dragon eat the balls. Such innovative solutions implemented in the library turn them into active participants in social and cultural life (Conway, 2022).

Figure 6. Louisville Public Library (Ohio)

Source: based on C. Smith (2022)

This approach and innovative solutions in the public library of Ohio turns it into an active participant in cultural and social life, transforming to meet the needs of everyone, providing a useful and interactive recreation for both children and adults.

Conclusions

Librarianship is constantly changing and adapting to the requirements of the present, obviously in a state of significant dynamic changes caused by the rapid development of technology and transformations in the information environment. One of the key trends in the development of libraries is the growing role of electronic technologies. In particular, libraries are the third millennium actively using online resources to provide reference and bibliographic services, which allows users to have quick and convenient access to information even in remote regions. Online reference services are becoming increasingly popular, as they provide users not only with information but also with the opportunity to interact with librarians and other users to share experience and knowledge.

One of the key aspects of these changes is the transition to the virtual space, which opens up new opportunities for libraries in the field of user services. Online reference and bibliographic service is an important element of this process, which allows to provide access to information even in the absence of a physical presence in the library. This approach helps to optimise the processes of searching for and obtaining information, making them more efficient and convenient for users. Thus, the development of online reference and bibliographic services is becoming an important task for modern libraries aimed at improving the quality of service and meeting the needs of users.

In particular, cloud services have really changed the paradigm of libraries, expanding their capabilities and making access to information more convenient and efficient. These technologies allow libraries to offer a wider range of services, including access to electronic resources, virtual consultations, online courses and other forms of distance learning. Thus, libraries are turning into real digital information centers that meet the needs of the modern user for information and knowledge. Libraries, including public libraries, are actively using Google's cloud services to facilitate their work and improve user access to information. For example, Gmail is used to communicate with users, and YouTube is becoming a convenient channel for publishing video materials, including video tutorials, cultural programs, and presentations. Hangouts allows for video conferencing and chats, which allows libraries to hold online meetings, consultations, and even virtual events for users. These services help to improve user experience and empower libraries in the virtual environment.

The intellectual aspect of librarianship is shaped both by the external environment and by the high level of librarians' awareness of innovative technologies and forms of service. Accordingly, innovative approaches contribute to the continuous development and improvement of libraries, which contributes to the growth of both the qualifications of library workers and the library sector as a whole.

Prospects for further research are in the most comprehensive study of remote service of virtual users in Ukrainian and foreign libraries, because the advantage of using modern technologies in library service makes it possible to provide high-quality services to various categories of users.

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Conflict of Interest

None.

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Інформаційно-бібліотечне обслуговування користувачів бібліотек: інноваційні підходи та векторні модифікації

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Анотація. Актуальність дослідження полягає у поглибленому аналізі проблем розвитку і трансформації бібліотечно-інформаційних послуг, а також у зміні запитів користувачів та інформаційних потреб, зумовлених інформаційним розвитком суспільства. Мета – дослідити переваги використання новітніх технологій та сервісів в інформаційному обслуговуванні в контексті досліджень українських бібліотекознавців; проаналізувати динаміку розвитку бібліотек та їх модифікацію в системі обслуговування користувачів. У дослідженні використано загальнонаукові методи (аналіз, синтез, узагальнення) та підходи: соціокультурний, соціально-комунікативний, системний. Сучасні виклики інформатизації суспільства та стрімке розширення обсягів і змісту інформаційних ресурсів порушують питання про перегляд методів роботи у сфері довідково-бібліографічного обслуговування бібліотек. Це вимагає розробки наукових засад сучасної діяльності довідково-бібліографічних служб, спрямованої на інформаційне забезпечення користувачів і заснованої на системному підході до формування, організації та використання довідково-інформаційних ресурсів. Також у дослідженні вивчено тенденції використання хмарних сервісів як інноваційного інструменту в бібліотеках в епоху цифровізації, що став ефективним засобом розширення можливостей віддаленого доступу до бібліотечних фондів, ресурсів, сприяння зберіганню та аналізу даних для більш зручного обслуговування користувачів. Результати дослідження можуть бути важливими для працівників методичних та бібліографічних відділів, інтернет-центрів бібліотек, а також слугувати основою для більш детального вивчення окремих аспектів цієї теми бібліотечними фахівцями-практиками, викладачами та студентами, які навчаються за програмами інформаційно-бібліотечних спеціальностей. Вони також можуть бути корисними для поповнення інформаційної бази з питань організації та розвитку довідково-бібліографічного обслуговування в бібліотеках

Ключові слова: трансформація бібліотечної галузі; інноваційні бібліотечні технології; довідково-бібліографічне обслуговування; дистанційне обслуговування; електронні бібліотечні ресурси; хмарні сервіси; мобільні бібліотеки