

# Sustainable Development of Library Institutions through Digital Transformations

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**Como citar:** NIKOLOVA, Ivana; TSVETKOVA, Elisaveta. Sustainable Development of Library Institutions through Digital Transformations. *In: TERRA, Ana Lúcia; FUJITA, Mariângela Spotti Lopes (org.). Integrating Information Science for Sustainable Development: Topics and Trends.* Marília: Oficina Universitária; São Paulo: Cultura Acadêmica, 2025. p. 161-176. DOI: <https://doi.org/10.36311/2025.978-65-5954-624-4.p161-176>



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# Sustainable Development of Library Institutions through Digital Transformations

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**ABSTRACT:** We live in a society where information technologies are used in all areas of human life, including the recording, storage and distribution of information. Modern consumers are constantly hungry for information, but prefer to receive it in electronic format. In this environment, libraries must adapt to adequately respond to current user demands. The most logical step to ensure sustainability of libraries in the modern information environment is precisely their digital transformation by including digital resources and services. The main objective of the research presented in this paper is to present and analyze the digital transformation of library institutions from the point of view of changes in the modern information environment and the wide advent of new information and communication technologies. As a specific example of digital transformation, the Digital Library at the Library and Information Center of the University of Library Studies and Information Technologies – Sofia, Bulgaria is presented. The methodology applied to carry out the research includes the tools of content analysis and synthesis, monitoring and comparison of traditional and electronic sources of information and good practices. In summary, this paper aims to highlight the key importance of the active inclusion of modern information and communication technologies in libraries today and to demonstrate that digital transformation is a key element of the sustainability of any modern library.

**KEYWORDS:** Digital libraries, Mobile digital libraries, Bulgaria, Library and information services, Digital transformation.

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## **INTRODUCTION**

In the context of the digital transformation of education, the importance of forming an electronic library is justified, taking into account the fields of study, research topics and other searches of all target groups of the educational institution. The active use of Internet sources by students and teachers sets the task of popularizing and disclosing electronic collections and organizing trouble-free access to valuable, reliable information from legitimate sources. Introducing the practice of constant use of verified content by students, teachers and scientists has become the main task of the library. In this regard, the principles and methods used in libraries are investigated for collecting and disseminating information, organizing events, applying academic norms and new forms of work for using information resources in the educational process and research activity.

## **LIBRARIES IN THE MODERN INFORMATION ENVIRONMENT**

Libraries are some of the most widespread and popular cultural and informational institutions in Europe. They have centuries-old traditions in providing quality and universally accessible information, and have won the broad support and trust of society. In their millennial history, libraries have gone through various transformations influenced by socio-political, economic and cultural factors, but they have always been some of the most important public institutions preserving the written memory of the world. Today, libraries are the place that provides all the necessary opportunities for the full development of both the individual and the society as a whole.

But the efficient and quality provision of information requires modernization of the processes for collecting, processing and providing information resources and a developed technological infrastructure. Modern information and communication technologies provide limitless opportunities precisely for the introduction of innovative library activities and services, for the initiation of up-to-date and user-requested policies that will further increase the social status and role of library institutions. Libraries are some of the oldest scientific, educational and cultural

institutes. For the long period of their existence, their social functions have undergone significant changes, influenced by the historical development of society. The purpose of the first libraries was to store documents. From the moment of their emergence until today, libraries have gone through the first stage of the evolution of the public mission: from serving the needs of the ruling elite to meeting public, scientific, educational and cultural needs. The library has become a social institution, including scientific-informational and cultural components, ensuring the sustainability of connections and relations within the framework of the new information society and the knowledge society.

The major principles of the information society are:

- increasing the role of state authorities in promoting the use of information and communication technologies for social development;
- development of information and communication infrastructure and a favorable environment for applications of information and communication technologies, primarily in the scientific and educational sphere;
- ensuring scientific, cultural and linguistic diversity and development of the regional component;
- building information and intellectual potential, including by organizing access to education and information;
- strengthening and expanding international and regional cooperation in the field of information technologies;

The peculiarity of the modern age lies in the fact that it is the arena of two revolutions at once – mental and technological. The first one is related to the process of globalization and the formation of a new cultural paradigm, and the second is to the consequences of technological breakthroughs in the field of communications.

Libraries, both traditional and electronic, especially electronic, occupy a certain place in the communication system – social, scientific, cultural. It is through libraries that scientific communication takes place above all. Although the development of computer technologies and telecommunications has changed the basic communication model of society, the social need for the functions of libraries as an element of the scientific communication system remains. According to statistics, over 70% of scientists use libraries (mainly academic, scientific, and university) as a source of information. However, updating traditional library collections does not fully meet the needs of modern users-researchers for a complex of intractable reasons. But still, a large and significant part of scientific electronic document circulation inevitably passes through libraries.

#### **CHANGES IN THE DEMANDS OF MODERN LIBRARY USERS AND THE RESPONSE OF LIBRARIES**

The young generation is the most interesting group of society in terms of education, knowledge and answers to interesting questions. A significant number of young people choose universities, institutes, science and business schools to obtain a higher educational status. Given their age, we can confidently say that they have come into this world with a well-developed network space with technologically new forms and opportunities for distributing and receiving information. The popular belief that all the information needed for education and research is available on the Internet is controversial, as quantity is no guarantee of quality, reliability, and relevance. Information must be checked through a “sieve of professional expertise” and younger users lack the critical and analytical skills to evaluate the information they find on the Internet (Anuradha, 2018 p.810). Academic libraries existing in university structures are able to solve this problem in the conditions of an abundance of information, not only shortening the path to the necessary and valuable content, but also creating an atmosphere of cooperation with students, teachers, scholars to achieve academic and research goals (Gerasimenko, 2019). But in order to solve this problem, new approaches are needed for the formation

of collections, strengthening the work of university libraries for their disclosure and introducing modern communication channels with users.

Bibliographic information on traditional printed publications (for example, textbooks, monographs, etc.) sought by students and teachers is reflected in catalogs (printed or electronic, sometimes in more complex information systems). With the emergence of a large number of supporters of electronic content, the need to solve the problem of unification and disclosure to users of traditional collections, separate electronic publications, own and external network resources, that is, the use of specialized technologies and services, has become obvious. Despite the active development of university and scientific libraries for the scientific and educational community, there remains an acute question about the preferences of users of search engines without taking into account the degree of trust in the information received. (Kozyreva, et al., 2021). To solve these problems, libraries take the following actions:

- actively promote the use of network resources with verified content, forming collections of the most valuable open access sources, making an expert selection of materials;
- use services for full-text search of documents from the collection (an approach similar to search engines);
- introduce a culture of working with information, organizing courses, master classes, and lectures for various target groups of the organization;
- reveal the advantages of working with information resources through tools and additional platform services.

New methods of information handling not only save time but also provide a substantial amount of information on the desired query. The process of gathering information from sources such as periodicals has undergone significant changes, which are most evident in the article format of publications such as magazines, newspapers, and other sources. The use of print publications or their electronic counterparts as a means of reviewing material on a topic is no longer considered appropriate for

serious research. With the advent of electronic information resources, it is now possible to conduct searches beyond the scope of a single journal, thematic collection, or yearbook. Aggregator platforms have been specially designed to accumulate information and conduct searches from sources of different publishers, organizations, and countries, as well as from interdisciplinary documents. Some publications may be challenging to locate if the user only searches for the periodical's name. The number of publications produced at the intersection of various scientific fields is already substantial, and it is expected to increase. This underscores the importance of attracting individuals interested in information to academic libraries. The use of new methods and tools to attract attention to professional information resources, services and communication is the task of libraries (Al Dwairi KMO, 2019; Gavrilova, 2021). Libraries are no longer the sole provider of information and are forced to compete for customers with the Internet, online stores and social networks, and to meet the challenge of raising awareness of their values and capabilities, which requires marketing solutions to build strong relationships with users through planning, implementation and continuous monitoring of activities (Golubeva, 2020; Lapo, 2021).

## **RESEARCH OBJECTIVES AND METHODOLOGY**

The main goal of the research presented in this paper is to present and analyze the digital transformation of library institutions in view of the changes in the modern information environment and the widespread of new information and communication technologies. As a concrete example of digital transformation, the Digital Library at the Library and Information Center of the University of Library Studies and Information Technologies in Sofia, Bulgaria, is presented.

The methodology used to conduct the research includes tools for analysing and synthesising content, and observing and comparing traditional and electronic information sources. The object of the study is the digital libraries created by the library and information institutions in Bulgaria. As a good example, the Digital Library of the Library and

Information Centre of the University of Library Studies and Information Technologies (ULSIT) is presented and analysed in detail. The methods of observation, comparison and content analysis of the information on the state of digitization in the library sphere allowed to summarize the experience and to identify the main problems and advantages of the period of active use of information and communication technologies in the library system in Bulgaria. The library, as a traditional structure, is responsible for the collection, preservation and dissemination of knowledge presented through various media. Nowadays, the most appropriate way of disseminating information is through modern digital and mobile technologies. The latest ways of information transfer allow libraries to reach a variety of contacts and to create new forms of communication with the readers, i.e. to organise work on a new level: at any time of the day and outside the library premises (Lotova, 2017).

## **DIGITAL LIBRARY AND INFORMATION PROVISION IN BULGARIAN LIBRARIES**

Today, as we have witnessed extremely rapid developments in technology, especially in the last two decades, information centres are once again readjusting their policies and taking into account the impact of various external factors and influences. The emergence of new information channels, new information media, changing information and knowledge flows, changed user attitudes - the desire for instant access to resources here and now - are at the heart of the need for library institutions to adapt and seek new models to respond to contemporary conditions and needs.

In spite of some negative facts and trends, such as insufficient care on the part of the government, the lack of adequate regulations in some respects and a persistent financial shortage, there has been some progress in the development of the library and information sector in Bulgaria in recent years. As a result of the active stance of the Library College, the efforts of individual libraries and representatives of the library profession, our information centres have begun to introduce modern European standards into their activities and are increasingly seeking their new place



and role in the social and educational environment. Digital and even mobile digital libraries have already been established in many of our larger libraries. Many library centres are equipped with modern equipment and software for digitisation, collection preservation and automation of library processes. Library managers are aware of the important role of European projects and make effective use of the opportunities they offer to the institutions they manage. The importance and role of library education and of well-trained and motivated information professionals is also recognized. Existing university programs are being optimized and there is an increasing emphasis on student and staff mobility and on learning about good library practices and professional experience abroad. At the same time, the need for lifelong learning to continuously improve and develop the skills and knowledge of library professionals is being recognised (Tsvetkova, 2022).

Undoubtedly, one of the positive directions in the development of the library and information system of our country is the creation of digital library collections accessible in electronic form, including through the latest forms of information and communication technologies, namely mobile phones and tablets. Any digital library can be used through mobile devices and is considered mobile in this type of access. Digital libraries meet the needs of modern users for quick and easy access to a wide range of information. It is also a way of promoting national cultural heritage beyond national borders, across the globe, using 21<sup>st</sup>-century technology.

### **THE DIGITAL LIBRARY OF IVAN VAZOV NATIONAL LIBRARY, PLOVDIV**

The Ivan Vazov National Library's Digital Library was launched on July 4, 2017. Currently, all nine collections are available to users, with digital content being continuously added. The digital platform offers several advantages:

- is intended to appeal to the widest possible range of users;
- the interface is clean, modern and user-friendly;
- special preview mode for mobile devices;

- a possibility of an integrated search for cultural objects by all the participating institutions;

- by creating different types of accounts, including user accounts and multi-level administrator accounts, the system provides different levels of access;

- a possibility of forming personal user virtual collections representing lists of selected objects;

- bilingual interface - Bulgarian and English

- the administrative part of the system is flexible, convenient and requires no special computer skills, offering a wide range of features including the ability to export lists and track employee actions within the system, etc.;

- playback of different file types is supported, including images, 3D models, virtual video tours, videos, and audio.

The Digital Library of the Ivan Vazov National Library, Plovdiv, offers modern services and possibilities in accordance with the world standards of library services, promotes the national cultural heritage preserved there worldwide and provides convenient and permanent access to users.

## **SOPIA LIBRARY AND ITS DIGITAL RESOURCES**

The Serdika Digital Platform is a free online resource that provides a large range of users with access to various materials, including full texts of books, journals and articles, digital copies of paintings and audio recordings from the Sofia Library Collection. In addition, users are able to explore documentary exhibitions and collections of different documents on specific topics. The platform also includes postcards, photographs, films and documents related to the history and development of the city of Sofia, its schools, community centres and cultural institutions.

‘Digitization of Cultural Heritage - an Accessible Portal to Historical Memory’ Project is being implemented as part of the Cultural Heritage and Contemporary Arts Program. Its objective is to establish four digitization

centres to document Bulgaria's cultural history. The project aims to increase institutional and public participation of Bulgarian cultural heritage in pan-European cultural exchange while also contributing to the protection and preservation of Bulgarian cultural heritage for future generations. The cultural institutions involved in the project include the Sofia Library, the Museum of Sofia History, and the Sofia City Art Gallery. The project's implementation aims to preserve the cultural institutions' collections, making them more accessible to the public. This will provide citizens and visitors of the capital with equal and free access to a high-quality package of cultural services, including rich web collections.

The joint partnership between the Institute of Literature at the Bulgarian Academy of Sciences, the National Museum of Literature, and the Sofia Library, from 2009 to 2014, resulted in the project 'Bulgarian Literary Classics - Knowledge for All: Unknown Archives and Cultural Contexts.' The aim of this project is to collect, systematize, digitize, and preserve the cultural heritage of 13 Bulgarian literary classics, including Petko R. Slaveykov, Ivan Vazov, Pencho P. Slaveykov, Peyo Yavorov, Elin Pelin, etc. The realization of this project contributes to the popularization of the archive among the general public, the creation of free access to it, and its transformation into a source of information for future cultural and educational products. Three digital centres have been established within the project to develop an innovative cultural and educational product. These centres include a web-based digital repository, a website featuring new literary texts, unknown and unique archival materials, as well as films and virtual collections.

### **THE NEW BULGARIAN UNIVERSITY'S DIGITAL LIBRARY AND SCIENTIFIC ELECTRONIC ARCHIVE.**

The NBU Digital Library provides the Collection for Blind Readers, which offers electronic texts in a format suitable for playback from speech synthesizers via computer or mobile phone. This mode of reading is highly preferred by the visually impaired and has largely replaced reading via Braille.

The Scientific Electronic Archive of New Bulgarian University (SEA of NBU) is an open electronic repository that stores electronic documents for the long term and facilitates the dissemination of scientific results on the Internet.

Figure 1: The digital library of The New Bulgarian University's Digital Library and Scientific Electronic Archive .

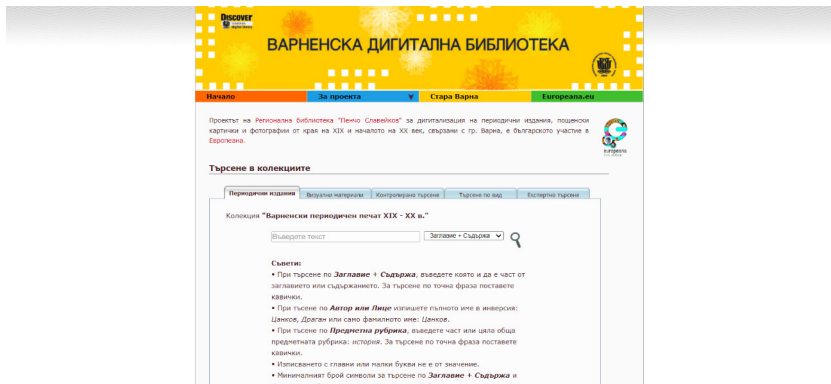


## **DIGITAL LIBRARY AT THE PENCHO SLAVEYKOV REGIONAL LIBRARY, VARNA**

The Varna Digital Library presents a collection of various documents including photographs from the late 19<sup>th</sup> to the 20<sup>th</sup> century, postcards, photo portraits, of events, of buildings emblematic of Varna and the surrounding region as well as periodicals issued in Varna after 1880. These collections of documents are owned by the library and the cultural institutions in the city. The digitised collection includes both documents and metadata with analytical descriptions of the objects.

These are some of the digital collections created by Bulgarian libraries. The teams of experts of the respective libraries continue to work on these collections and they are being enriched on a continuous basis. However, only the National, some regional, and some university libraries have digital collections. School and community libraries are currently unable to create and maintain such collections mainly due to financial reasons.

Figure 2: The digital library of Pencho Slaveykov Regional Library, Varna.



## DIGITAL LIBRARY OF THE LIBRARY AND INFORMATION CENTRE (LIC) AT ULSIT

University and academic libraries play a crucial role in the Bulgarian library and information system. They serve as leading information centres with modern services and resources, well developed in technological and organisational terms. These libraries provide information at a high professional level and are pioneers in many of the new forms of information services and resources offered (Tsvetkova, 2022).

The Digital Library of the Library and Information Centre (LIC) at ULSIT was launched in December 2020. Its purpose is to facilitate the educational and research processes at the University, and to provide controlled access to electronic information resources. To access the digital library, click on the 'Digital Library' button on the Library and Information Centre website. The library consists of four primary collections that are regularly updated:

Resources for electronic learning

For internal use only

Public Information

Free electronic resources

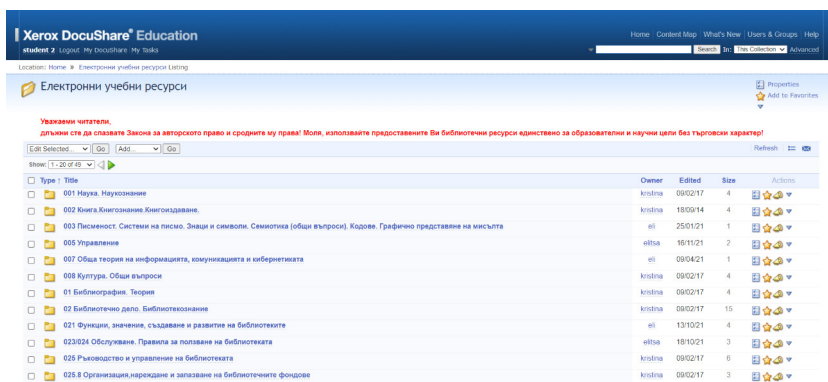
Access to the collections ‘Resources for electronic learning’ and ‘For Internal Use Only’ is restricted to students, postgraduate students, faculty, and staff of the University. To gain access, readers must register with the BIC librarians, sign a statement of compliance with the Copyright and Related Rights Act, and obtain a username and password for controlled access.

The collection ‘Resources for Electronic Learning’ offers access to complete learning materials in PDF format. In order to facilitate the use of the platform, the documents are organised in 45 folders, covering all fields of knowledge according to the Universal Decimal Classification. This makes it possible to search for literature in a given field without the reader having to know the specific author and title of the document, which results in a wide range of results (Tsvevkova, 2022).

To ensure accuracy and specificity of results, another way to search for documents in the Digital Library is to enter a keyword, author name, title, term, etc. in the search box.

One significant advantage of the digital platform is the ability to search the full text of documents, rather than just the metadata as is the case with electronic library catalogues. This indicates that the results obtained are comprehensive, precise, and relevant to the query.

Figure 3: The digital library of Library and Information Centre (LIC) at ULSIT.



## CONCLUSION

The overview of digital library, information and education services in Bulgarian libraries covers only a representative part of libraries that have successfully adapted to the new information environment, representing a small fraction of the Bulgarian library and information network. There are objective reasons for this situation, although the number of libraries working according to modern information standards is relatively small compared to the total number of libraries. The library and information system in Bulgaria faces challenges related to financial security, normative and legislative regulations, as well as material, technical and infrastructural provisions, but despite all of these it is making progress in developing and adapting library structures to the modern global information reality. The positive trends in this field are due to the professionalism and motivation of the professionals, the coordinated approach and interaction with the Bulgarian Library and Information Association and library and information education.

In the modern age of rapid technological change, the sustainability of library institutions proves not only possible but also necessary through the implementation of digital transformations. The digitization of library resources offers unprecedented access to information and knowledge, significantly expanding the reach and influence of libraries. It also facilitates better resource management and optimisation of operational processes, leading to higher efficiency and profitability.

Digital transformations allow libraries to adapt their services to the needs of modern society, providing platforms for online learning, access to e-books and scientific databases, as well as opportunities for virtual exhibitions and events. These innovations not only support the traditional role of libraries as repositories of knowledge, but also establish them as active centres for digital learning and cultural exchange.

In addition, through digital technologies, libraries can preserve and preserve valuable historical and cultural documents, making them accessible to future generations. This is particularly important in the

context of globalization and the digital age, where information must be easily accessible and protected from loss or damage.

For the preservation, protection, promotion and development of a country's cultural, historical and intellectual heritage, the sustainability of library institutions is crucial. Digital transformation is essential in this process, offering opportunities for modernisation and adaptation to the contemporary needs of the society. Digitising library resources is essential to improve information accessibility, regardless of location and time. However, digital transformation requires not only technological change, but also a rethinking of business models and service delivery. Active engagement with users, enhanced research opportunities and new forms of learning can be fostered by integrating new technologies and innovations into library policies. To remain relevant in an era of rapidly evolving technology and information needs, digital transformation is essential for the sustainability of library institutions. In conclusion, library institutions that successfully integrate digital transformations will not only survive, but also thrive in the future. They will continue to be indispensable centres of knowledge and culture, adapting to the changing needs of society and providing innovative solutions for access to information. The sustainability of libraries depends on their ability to adapt and use technology to their advantage, thus maintaining their relevance and relevance in the digital age.

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