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Information Analytics in the Structure of Ukrainian National Libraries Activity (Based on Analysis of Their Sites)

The objective of the study is to determine the optimal structure for organizing information and analytical activities of Ukrainian libraries of the national level. **The method** of analysis was used for identifying the diversification of the forms of organization of information and analytical activities of the indicated libraries. **The results** of the study indicate the existence of two forms of organizing national libraries regarding the implementation of information and analytical activities, one of which is based on realizing their functions in different departments of libraries, and another one is aimed at creating a separate unit in the organizational structures of libraries. **The conclusions** of the study proved the dependence of the form of organization of information and analytical activities in national libraries on their level in the library system. Creating separate departments carrying out information and analytical activities can be considered as a perspective form of organizing information and analytical activities of Ukrainian national libraries due to the increasing responsibility of employees for the timing of the work and integration of analysts of various specializations, as well as creating conditions for developing the cognitive component of library activity.

Keywords: national library; information analytics; information and analytical activity; organizational structure; information and analytical department

Introduction

The current stage of society's development is determined by the transition to complex informatization of all social institutions and processes associated with forming information resources and transferring knowledge. The complexity and ambiguity of the processes occurring in the world, the diversity and redundancy of information, the need for its selection, and the lack of reliable knowledge are prerequisites for using information and analytical activities in all areas (Karpenko, 2017; Losiievskiy, Kobieliev, Shcherban, Solianyk, & Karpenko, 2022; Mandziuk, 2018). This tendency is reflected in libraries, which, under the conditions of informatization, are turning from a "storehouse of books" into social organizations that ensure the accumulation, storage and provision of documents, information and knowledge to users. To optimize these processes, it is necessary to revise the management guidelines of the existing library theory and practice, taking into account the changes occurring in libraries and the library social institution as a whole. In this context, it should be noted that taking into account the experience of developed countries in the conditions of the emerging knowledge society, information analytics is acquiring

special relevance as a special sphere of human activity, designed to meet society's information needs with the help of information and analytical technologies, namely, the processing of initial information and obtaining a qualitatively new knowledge (Kobieliev, 2019). This is the reason for growing the role of the information and analytical component in national libraries' activities around the world including Ukraine (Rebmann, 2022; Roy Aalia, Mercieca, & Sarkar, 2018; Shcholokova, Paleshko, & Horozhankina, 2021; Varenko, 2019).

The purpose of the research is to analyze the current and prospective forms of organizing information and analytical activities in the national libraries of Ukraine.

The necessity of processing knowledge became one of the most important components of professional activities of certain people and structures including libraries as a logical result of fixing administrative apparatus' decisions as early as in the ancient world. It is known that Socrates widely used the interactive way of solving problems, but it was Aristotle who is still considered to be the founder of analytics thanks to his fundamental work "Analytica" which contains the foundations for analytical thinking (Teasley, 2018).

At an early stage of scientific and technological development, intellectual workers performed independently all the auxiliary operations that ensure the productivity of their main activities (registration, collection, analytical and synthetic processing, storage, search, and dissemination of information). However, gradually, with spreading and complicating communication types, auxiliary operations became to take too much time in the total balance of intellectual workers' activity, which began to affect its efficiency negatively. It led to the necessity of appearing information specialists first and information and analytical ones later, for whom realizing certain operations to ensure the functioning of social communications become professions. Therefore, since the 19th century, there has been a process of institutionalization of analytics in particular in library and bibliographic activities, archive affairs, and the editorial and publishing industry. At the end of the 20th century, this process contributed to the emergence of such professions as informant-analysts, cognitologists, etc.

It should be mentioned the availability of facts of the priority of the library theory and practice in the systematic organization of information and knowledge. In ancient libraries special "collections of fixed knowledge" were created; techniques to facilitate access to collections in the form of classifications, catalogues, bibliographic indexes, abstracts, and other search aids were developed; the content of library collections according to carefully developed models of the structure and relationships among the branches of knowledge and disciplines were described. Wherein analytical work has been a necessary component of these kinds of library activities.

In general, it can be stated that the technology and methodology of information and analytical activities have largely gradually and systematically developed from the time of appearing first scientific research in the library and bibliographic direction (Cassiodorus Senator, Isidor of Seville, Ildefonsus Toledo, Vincent from Beauvais, Richard Furnival, Gabriel Naude, etc.) to the time of publishing the first scientific journals and the beginning of the systematic abstracting of scientific papers in the 17th century. It means that the analytical function has been realized by libraries since the moment of their separation into the sphere of social practice. Its transformation into separate techniques, methods and technologies, the organizational formation took place in parallel with the deployment of basic functions of libraries and their fulfilment of social and production tasks (Kobieliev, 2019).

The information and analytical work is a component of the following kinds of library activities related to the appropriate processing of documented information, including compilations of bibliographic descriptions; cataloguing, indexing of manuscripts and printed publications; classification of documents based on certain scientific schemes; annotating, summarizing documentary sources; bibliographic search, etc. It is also reasonable to add to these kinds of library

activities that appeared as a result of developing their information components, such as forming and developing creative motivation in the field of library services; organizing library cooperation and corporate movement; creating navigators and searching for partners on the topic; organizing conferences, forums on the Internet; forming a highly intellectual environment of users, where it is possible to exchange opinions and express any ideas freely, regardless of titles, statuses and ranks.

Libraries play an important role in forming the modern information environment since they have always been centers of accumulation and dissemination of knowledge despite all the changes in society's life. Nowadays, libraries should turn into infopolises which are considered as research, information, publishing, and cultural and educational complexes with developed infrastructures for both forming and analytical and synthetic processing documentary and information flow to support science, production, education, and culture. This, in turn, contributes to the development of the information and analytical component of libraries' activities, the general strengthening of specialists' attention to research of various aspects of information and analytical activities in general and their areas.

The study of information and analytical activities in the libraries of Ukraine makes it possible to state that information analytics in libraries is an evolutionarily objective process of strengthening their communication functions in the conditions of complications in social and communication interactions. Transforming libraries became a significant factor influencing the evolution of their information and analytical activities since they have been considered leading communication centers, having gone a long way from accumulating, storing, processing, and disseminating documented information, and organizing information services to working with knowledge constructs. Library analytics solves different problems including the following ones: analysis and assessment of rapidly growing flows of information, including network, their processing and producing information and analytical products taking into account the needs of relevant categories of users; preparing information flows for use in a convenient form through the study and forecasting of users' information needs (Kobieliev, 2019; Shahid & Parveen, 2021).

The result of the evolution of the social communications system became forming and developing library's information and analytical producing, appearing its new electronic forms such as corporate information retrieval systems, virtual reference services, library systems based on branched communication channels; abstract, factual databases, which gradually become competitors for other subjects in the market of information products and services; creating special information and analytical services, the activities of which are based on the use of their generation of information resources, as well as the resources of the global network (Rebmann, 2022; Roy Aalia, Mercieca, & Sarkar, 2018).

Methods

The methodological basis of the research is the basic provisions of the general theory of social communications, reflecting the diversity of manifestations and the fundamental purpose of libraries in the system of social communications. The analysis of Ukrainian national libraries' sites was carried out from the point of view of displaying their information and analytical activities and relevant structures (Table 1). This work is a logical continuation of the research devoted to the study of information and analytical activities of Ukrainian special and regional libraries, as well as leading university libraries.

Table 1. National Libraries of Ukraine

Name	Year of Foundation	Funds, millions of copies
Vernadsky National Library of Ukraine	1918	15,8
Lviv Vasyl Stefanyk National Scientific Library of Ukraine	1940	7
Odessa National Scientific Library	1829	5
Yaroslav Mudryi National Library of Ukraine	1866	4,7
National Scientific Medical Library of Ukraine	1932	1,5
National Historical Library of Ukraine	1939	0.8
National Library of Ukraine for Children	1967	0,4

The results of the study of Ukrainian national libraries' sites concerning the trends in the distribution of functions and tasks of information and analytical activities among individual departments of libraries that is shown in Figure 1.

In particular, it was found out that among 7 analyzed national libraries only two national libraries (Vernadsky National Library of Ukraine and the Yaroslav Mudryi National Library of Ukraine) have organizationally separated and structured information and analytical subdivisions. In Vernadsky National Library of Ukraine, these are the following departments: political science analysis and operational information department, analytical and forecasting department, information and analytical department that are included in various organizational structures of the library. In Yaroslav Mudryi National Library of Ukraine, there is the department of information support for the authorities and an information center on culture and art issues.

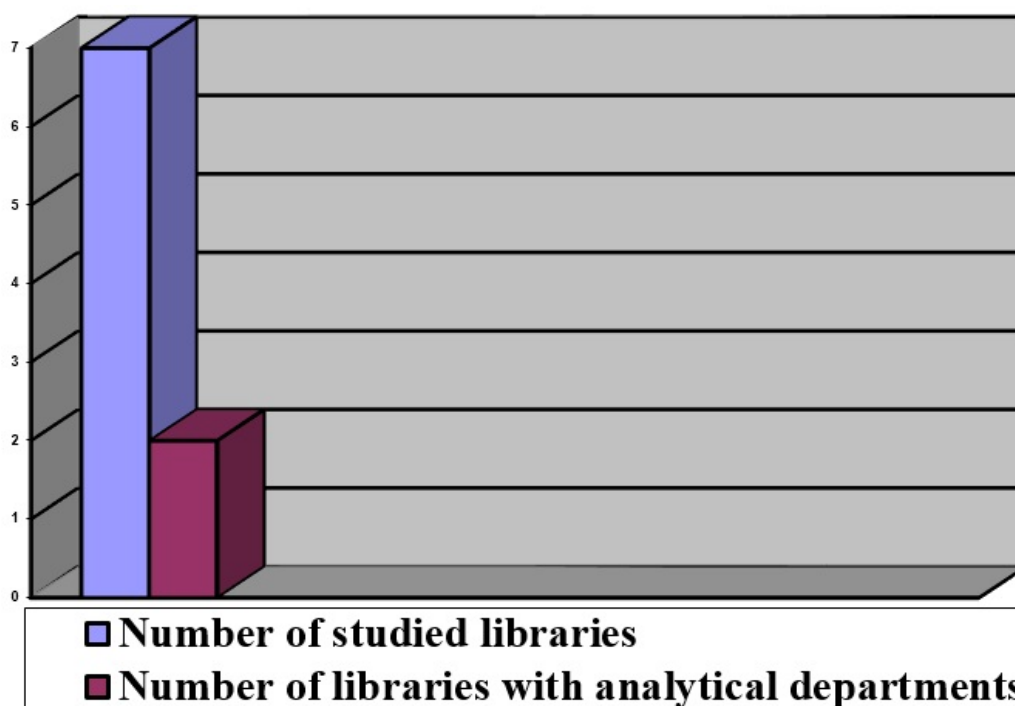


Fig. 1. Information analytics in the organizational structure of Ukrainian national libraries

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In the rest of the five national Ukrainian libraries, information and analytical work are "scattered" within several departments including, first of all, information and bibliographic (reference) departments and departments for scientific and methodological work (Figure 2). After analyzing their structures (information and reference (bibliographic) departments – 6, scientific and methodological (research) departments – 7, other departments, for example, library science – 2) it can be concluded that information and analytical activities for most national libraries remain as a tool for improving internal library processes, not for offering products or services to users.

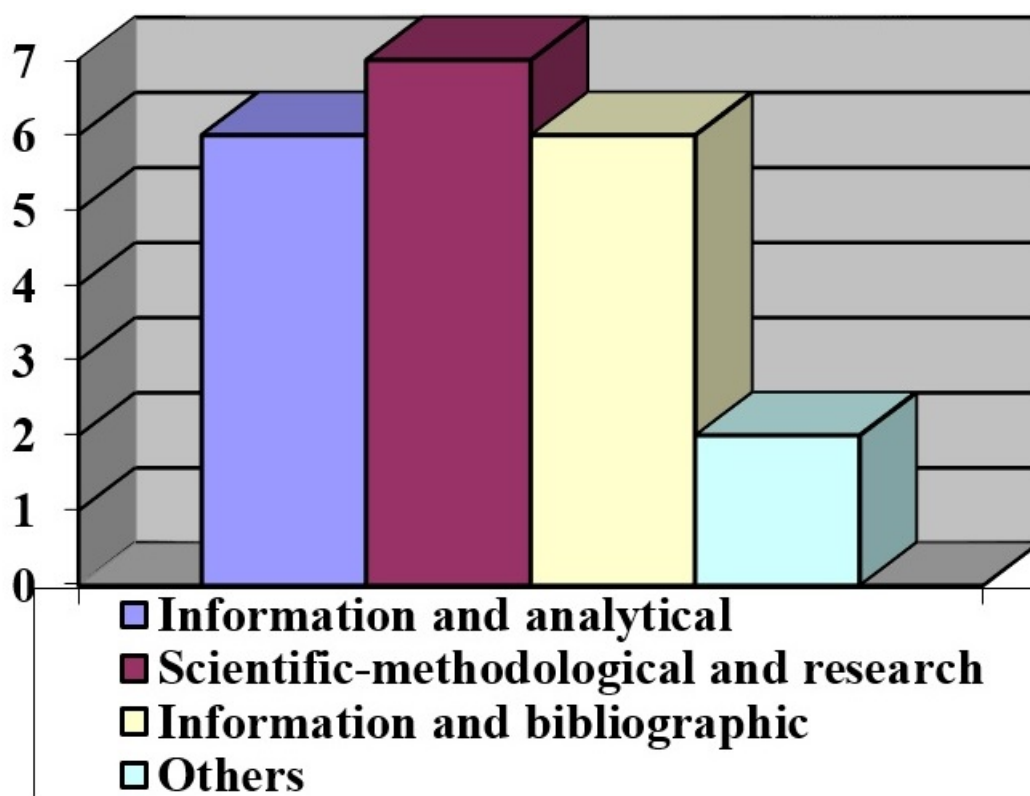


Fig. 2. Specialized information and analytical departments and departments realizing information and analytical functions

In our opinion, this situation can be explained taking into consideration several factors, including the following ones:

- rating of studied libraries among users that is shown in Figures 3, 4. The data was obtained thanks to the well-known analytical tool SimilarWeb (www.similarweb.com) shows statistics of direct user requests to 6 library websites (Vernadsky National Library of Ukraine, Yaroslav Mudryi National Library of Ukraine, National Library of Ukraine for Children, Lviv Vasyl Stefanyk National Scientific Library of Ukraine, National Scientific Medical Library of Ukraine National Historical Library of Ukraine). Odessa National Scientific Library was not shown in the figures because of its low statistic rating on SimilarWeb.
- the insufficient funding of libraries in the conditions of the socio-economic and political crisis;
- the lack of trained specialists for analytical work.



Fig. 3. Statistics of direct user requests to library websites (Vernadsky National Library of Ukraine, Yaroslav Mudryi National Library of Ukraine, National Library of Ukraine for Children)



Fig. 4. Statistics of direct user requests to library websites (Lviv Vasyl Stefanyk National Scientific Library of Ukraine, National Scientific Medical Library of Ukraine National Historical Library of Ukraine)

Taking into account the above-mentioned, it is possible to state that the indicated factors make it impossible to create appropriate information and analytical structures at the proper quality level at national libraries. Wherein, there is a clear understanding among specialists of the fact that information and analytical structures could become an important form of library participation in solving the main problems of socio-economic reforming the country.

Results and Discussions

The main result of the research is the substantiation of the integrative nature of information analytics in the system and functional organization of libraries as an element of society's social communications. Wherein such nature involves cooperation, the convergence of forms and methods of library activities, and arrays of scientific and technical information for processing the information flows and resources so that to obtain knowledge, and present it as a product in the system of library production.

Creating an effective system for producing high-quality analytical information in libraries depends not only on the level of information, organizational, technological, and financial security

but also on the state of organizational and personnel support. Wherein it should be noted that the human resource of the library's information and analytical activities can largely be solved at the level of the library and information industry, in contrast to the material and financial support that should be solved at appropriate levels of legislative and executive bodies. That is why the issue of the human resource of the library's information and analytical activities is of strategic importance. It is especially important for libraries of national, regional levels, as well as central branch libraries to solve this problem as it is underlined in the work of Shcholakova, Paleshko, Horozhankina (2021).

Taking into account the analysis of work experience of information and analytical departments in libraries, it is possible to state that there is the need for a certain specialization of analytical workers in libraries including specialists of specialized information and analytical departments (analyst-cognitologist, analyst-expert), as well as employees realizing information and analytical tasks in other library's structural divisions (bibliographer-analyst) (Kobieliev, 2019). Each of these categories of librarians requires a certain level of information and analytical training. Therefore, the modern system of training library personnel should provide for the introduction of separate specializations such as "analyst-cognitologist", "analyst-expert", "bibliographer-analyst", etc. It is possible to solve this problem through modernization of education programs of relevant higher education institutions and, therefore, curriculums, since now there are more than 30 higher education institutions in Ukraine as to training students in the specialty 029 "Information, Library and Archival Studies" (Karpenko, 2021). Such education programs should take into account the learning outcomes of students' goals to apply their knowledge, skills, abilities according to chosen specializations to meet modern labor market's needs. Besides, it is also worth increasing the information culture of both students specialized in Information, Library and Archival Studies and librarians as to analyzing, systemizing, generalizing, identifying the content of the information that customers need, as well as to its searching, processing, keeping, using within their professional fields of knowledge.

This, in turn, is a means of increasing the competitiveness of educational services of appropriate universities and library professions in the labor market.

Conclusions

The form of organization of information and analytical activities in national libraries depends on sizes, specializations and organizational structures. In relatively small, specialized national libraries, the functions for carrying out information and analytical activities can be performed in traditional library departments, in large ones – specialized departments and information and analytical centers are created. In other words, there are two possible options for organizing information and analytical activities of national libraries. The first option allows distributing tasks of information and analytical activities among library departments that is reasonable for use by those libraries where it is impractical to create information and analytical unit (departments) on a permanent basis, or impossible for the cost of their maintenance. The second one provides the creation of independent analytical units (services, departments) in organizational structures of national libraries. We consider this form of libraries' information and analytical activities to be more expedient and promising because of the greater responsibility for the timing and results of analytical work. They are structures that allow the uniting of analysts of different professional directions.

Prospects for further researches on the development of information and analytical activities in the library and information sphere are connected with the activation of using analytical

technologies in libraries, their restructuring and creating specialized information and analytical units as one of the means of their adaptation to the new social and communicative reality.

In this context, developing theoretical and methodological, personnel, organizational, and technological directions for optimizing information and analytical activities of Ukrainian libraries in the condition of forming the knowledge society is promising for our further research.

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Інформаційна аналітика в структурі діяльності національних бібліотек України (на основі аналізу їх сайтів)

Метою дослідження є визначення оптимальної структури організації інформаційно-аналітичної діяльності бібліотек України національного рівня. **Методика.** У роботі застосовано метод аналізу щодо виявлення диверсифікації форм організації інформаційно-аналітичної діяльності зазначених бібліотек. **Результати дослідження** свідчать про наявність двох форм організації національних бібліотек щодо здійснення інформаційно-аналітичної діяльності, одна з яких базується на реалізації її функцій у різних відділах бібліотек, а інша – спрямована на створення окремого підрозділу в організаційних структурах бібліотек. У **висновках дослідження** доведено залежність форми організації інформаційно-аналітичної діяльності в національних бібліотеках від їх рівня в бібліотечній системі. Створення окремих відділів, що здійснюють інформаційно-аналітичну діяльність можна розглядати як перспективну форму організації інформаційно-аналітичної діяльності українських національних бібліотек завдяки зростанню відповідальності працівників за хронометраж роботи та інтеграції аналітиків різних спеціалізацій, а також створення умов для розвитку пізнавальної складової бібліотечної діяльності.

Ключові слова: національна бібліотека; інформаційна аналітика, інформаційно-аналітична діяльність; організаційна структура; інформаційно-аналітичний відділ

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