Web Technologies and Effective Representation Tools of the Archival Resources of Ukraine

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Abstract. The results of the content analysis of the websites of national archives as the basic channels of representation of the composition and structure of the National Archival Fund of Ukraine are highlighted. Website content is analyzed using the following quality criteria: variety of information products and services of archival institutions; clarity and comfort of services and the structure of the site; search efficiency and the availability of user feedback.

Keywords: National Archives, Ukraine, Website, Content, Web Technologies, Online Resources, Archival Industry.

1   Introduction

An important impetus for the digitization of archival industry of Ukraine was the adoption in 2003 of the XXXII General Conference of the UNESCO Charter on the Preservation of the Digital Heritage, which stated that digital heritage was a unique treasure of human knowledge, created both digitally and on the basis of conversion of existing resources supported by analog media [16]. The basic tool for representing digital archival resources in the global communications space is the websites of archival institutions, which provide the society with a round-the-clock access to a wide range of archival sources of information, significantly reducing the need for physical appeals from citizens to government bodies. With the adoption in 2018 by the Cabinet of Ministers of Ukraine "Concepts of development of the digital economy and society of Ukraine for 2018 – 2020" [12] one of the priorities of the archival field is digitization of all processes of acquisition, registration, storage and making available to the National Archival Fund. In addition, the work on digitizing the most valuable funds of national archives, creating electronic reference and search aids to archival resources, exercising full access to them through the network information and communication infrastructure is intensified.

Despite this, the pace of digitization of archival sector of Ukraine remains unsatisfactory: only 60% of state regional archives now offer a range of online information products and services, the vast majority of which are the individual elements of the scientific reference system rather than a collection of full-text archival documents. This makes it necessary to scientifically substantiate the conceptual model of developing an optimal structure and meaningfulness of the website of an archive as a communication tool for representing the components of the National Archival Fund in the global information space.

2   2 Related Works

The research of the following specialists addresses the problems of introduction of web technologies and services in the activities of archival institutions: A. Alieksieienko [1], H. Boriak [4, 5], Federico Valacchi [6], M. Vasylchenko [7, 8], L. Dubrovina [9], A. Kyselova [10], S. Lytvynska [13], L. Yaremenko [17] and others. Thus, S. Lytvynska emphasizes that "electronic resources play an important role in the implementation of the information and communication function of the archive and have significant advantages over traditional means of communication, namely, the formation of a positive image of the institution; a round-the-clock information access for users from all over the world; time-sensitive updating of information; timely consideration of users' requests and offers; providing large amounts of information, including multimedia; personalization of information intended for a specific target audience; multidimensional and fast search of the necessary data files; retrieving data on website traffic, that is, its effectiveness as a means of communication [13].

The first step in developing the theoretical and methodological and organizational principles of forming the electronic archival resources of Ukraine was a thorough work of L. Dubrovina [9], which back in the late 1990s substantiated the need to develop specialized software to create automated archival systems.

Among the thesis research the most relevant from the point of view of solving the problems of optimization of the functioning of archival resources of Ukraine in the context of integration into the global communication space are considered the works of M. Vasylchenko [7] and A. Kyselova [10]. These experts have stressed the importance of content websites of archival institutions as comprehensive "electronic reference prompt guides". As A. Kyselova emphasizes: "The existence of such a site is a prerequisite for the further development of prompt archival information for consumers, innovative activities of archival institutions, the development of the theory and practice of archival affairs under the conditions of informatization of society" [10].

The technological aspects of the effective representation of archival resources on the Internet were successfully developed by T. Bilushchak, A. Peleshchyshyn, M. Komova, U. Yarka, Zh. Myna [2, 3], H. Boriak [4, 5], F. Valacchi [6], L. Klymchuk [11], L. Yaremenko [17], emphasizing that the creation of a web portal of the National archives of Ukraine "Archives of Ukraine" has been an important step in the informatization of the industry, which is a powerful integrating information

resource that contains a vast array of diverse information about the documentary heritage of Ukraine. But despite the wide range of scientific research on solving the problems of formation of archival Internet resources and services integrated into the global communication space, the content and search capabilities of the websites of most national archives of Ukraine require significant improvement.

3　Methodology

The most successful solutions to the problems of the effective representation of archival resources in the global communication space are socio-communication and systematic approaches. An attempt to put these approaches into practice has been made in the "Basic Rules of Archives of Ukraine", approved by the Board of the State Committee of Archives of Ukraine 03.02.2004, which regulate the issue of archival information on the Internet. They state that the mandatory members of the archive website structure are: historical background, data on the composition and content of repositories, the list and features of corpus, information on unique and especially valuable documents, the performance of reference aids, information on the opening hours of the archive and reading room and arrangements for the access to documents [15, p. 228].

However, this list of website components is now outdated because it is focused primarily on a representational rather than a search-and-communication feature. Studying foreign experience in developing effective and interactive archival Internet communication shows that the strategic focus of the national archives of the world is to provide online access to full-text archival resources, which are equipped with automated information retrieval systems.

Many websites of archival institutions of the national level (Archivia Net, Repositories of Primary Sources, National Archives of Canada, UK, Sweden, Czech Republic, US National Archives Service, Australia, Latvian National archives system, Directorate General of National archives of Poland, Central National archives of Prague, etc.) publish powerful databases and integrated archive materials on the Internet. Each archive necessarily provides options for an interactive user feedback in order to measure the level of satisfaction with the quality of information services.

4　Results

The results of the content analysis of the websites of 23 state regional archives of Ukraine indicate that only 60% of them actively master modern web technologies and tools, giving an access to the users to online information retrieval systems and full-text archival document collections. In the other 40% of the national archives, the content of the websites, unfortunately, performs predominantly a representational function.

In comparison with the figures of the last three years, archival institutions of Ukraine have stepped up their work to expand remote access to a digitized scientific reference device. The information on existing funds and collections is submitted on

the websites as a bibliographic archived record of the case as a PDF file. Only 10 of the 23 regional archives have a small collection of unique documents, digitized and published as djvu, doc, jpg, pdf, rar files. National archives of Volyn, Kirovohrad, Kyiv, Odesa, Rivne, Sumy, Kharkiv regions are among them. A significant problem with the implementation of a multidimensional archival search is the fragmented representation on the websites of electronic scientific reference aids, which are dominated by guides and electronic registers of document descriptions.

Thus, digitized descriptions of archival cases are available on the websites of national archives, Vynnytsia, Donetsk, Zhytomyr, Kirovohrad, Kyiv, Mykolaiv, Odesa, Poltava, Rivne, Cherkasy, Chernihiv regions.
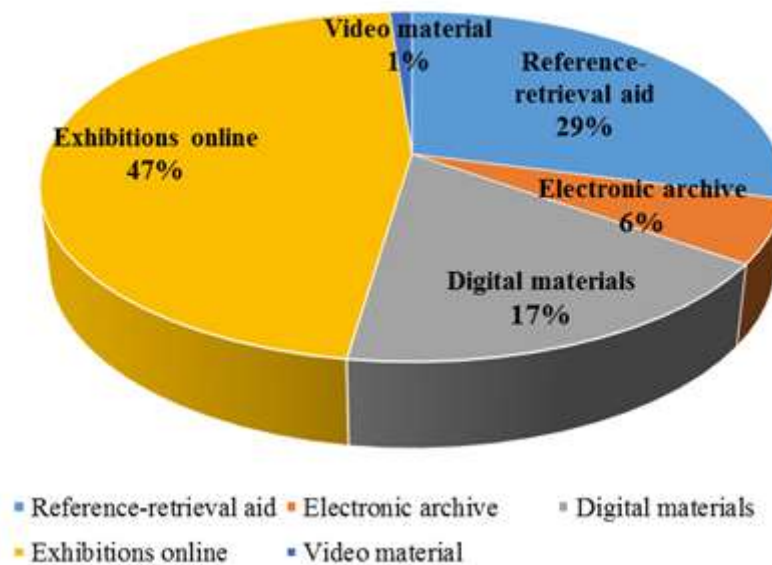

Fig. 1. Structural features of the archive website

According to the content analysis, only 52% of archival sites offer an online search for archival information, mainly it is the search using the site tools through a browser, another 22% through Google tools.

Unfortunately, 26% of regional archival sites do not provide any capabilities for information retrieval.

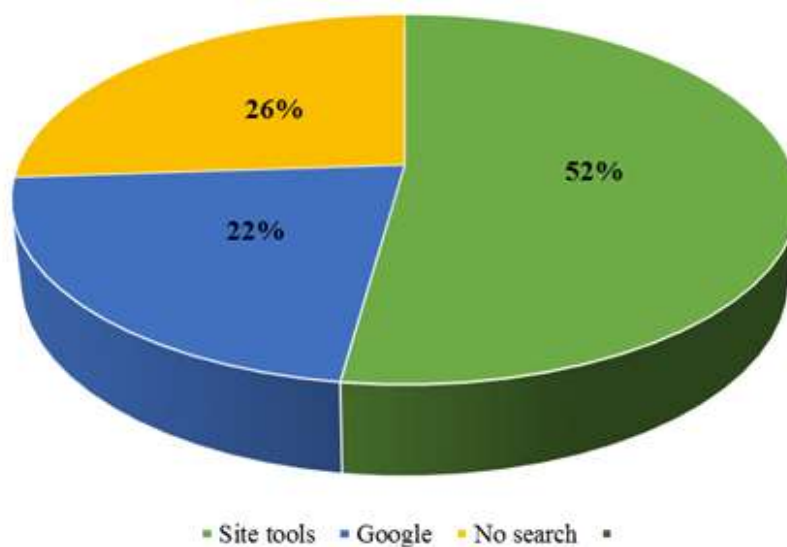## Search capabilities of the websites of archival institutions

Fig. 2. Search capabilities of the websites of archival institutions

In recent years, the work on creating full-text electronic archives has been intensified by the national archives of Vynnytsia, Kyiv, Kirovohrad, Rivne, Kharkiv, Odessa regions. The typological composition of collections of full-text archival documents also needs improvement: in addition to digital copies of unique text documents, the national archives of Zaporizhzhia, Poltava, Chernihiv regions provide access to digital collections of unique photo documents, the national archives of Odessa region – to cartographic documents, Dnipropetrovsk region – to video documents. Archival publications of scientific and historical and regional studies are posted only on 56% of sites of state regional archives of Ukraine. Thematic online exhibitions of archival documents contain 80% of the websites of archival institutions, among them the photo exhibitions and exhibitions of unique digitized archival affairs prevail, but unfortunately, their documentary content is still insignificant – from 3 to 10 percent of unique full-text documents.

The number of archival institutions that offer the option of online user feedback on websites remains inconsiderable; these include the archives of the Kyiv, Poltava and Rivne regions providing online communication via social networks, and the State regional archive of Kharkiv – also via Skype.

Only 60% of regional archives websites show a monitoring of the linguistic component of content provision on the websites of national archives of Ukrainian regions, their readiness to integrate into the global information space, the content of which is available in more than three languages (Cherkasy (6 languages), Dnipropetrovsk (4 languages), Ternopil (4 languages)); the web-sites of the national archives of Rivne,

Volyn regions provide information in only two languages (Ukrainian + English); others provide information only in one language – Ukrainian, which is very insufficient for a full implementation of the communication function of the archive site.

The language component of the websites of national archives of the regions of Ukraine

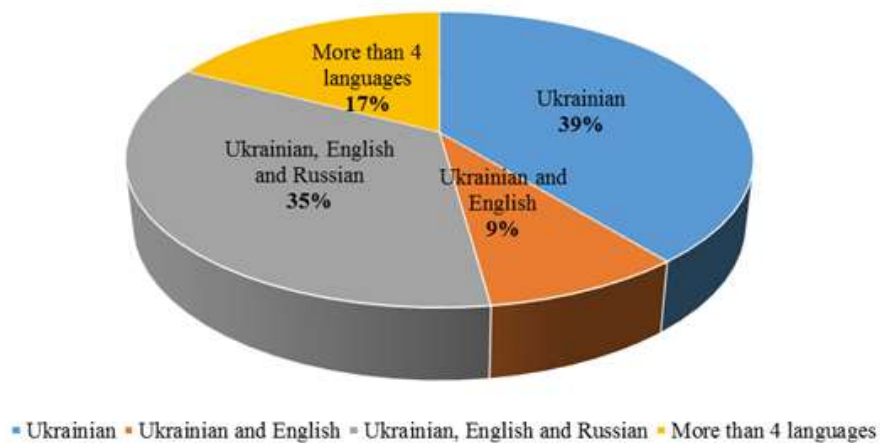- Ukrainian ▪ Ukrainian and English ▪ Ukrainian, English and Russian ▪ More than 4 languages

Fig. 3. The language component of the websites of national archives of the regions of Ukraine

The content of the websites of most state regional archival institutions contains mainly administrative and management information and nomenclature of services, information about the historical stages of development of the archival institution, scientific and information legislative resources, archival periodicals, the information on the conferences and chronicles of current events. Against this background, the information on the funds and archival documents is clearly insufficiently covered, mainly providing brief case descriptions, preventing electronic search of information in the fund and access to full-text resources.

As for the content structure of the site, it remains unchanged for the last 15 years, among the priority headings of the main menu of websites of state regional archives:

— «About the archive» (history, structure, management, main tasks, organizational documents);
— "Funds" or "Resources" (storage, databases, scientific reference aids);
— "Network of archival institutions of the region" (archival departments of city councils, labour archives, etc.);
— "Services" (prices, procedure for provision of paid services, sample applications, etc.);
— "Documentary exhibitions on-line" (mainly thematic representational photo exhibitions);
— "Recent Events",

— "Archive Posts" (articles, guides, etc.);
— "Materials in the Media";
— "Useful links";
— "Announcements / News";
— "Regulatory framework";
— "Citizens' Appeal";
— "Government Procurement"; "Anti-Corruption";
— "Contacts" (address, telephone, e-mail, opening hours);
— "Portal / Site Map".

Only the national archive of Dnipropetrovsk region has a content section "Video".

Several archives (Dnipropetrovsk, Zhytomyr, Kyiv, Kharkiv regions) keep automated databases, but their names are only on the site.

Analyzing the structure and information capacity of the website content, it can be stated that the organization and content of archive sites are generally similar and developed according to the same scheme. The most informative are 60% of websites of state regional archives, which should be ranked as follows:

- Kirovohrad region (dakiro.kr-admin.gov.ua);
- Odesa region (archive.odessa.gov.ua);
- Kharkiv region (archives.kh.gov.ua);
- Chernivtsi region (cv.archives.gov.ua);
- Rivne region (http://rv.archives.gov.ua/);
- Poltava region (http://poltava.archives.gov.ua/);
- Kyiv region (http://dako.gov.ua/);
- Ivano-Frankivsk region (http://if.archives.gov.ua/);
- Zaporozhzhie region (http://www.archivzp.gov.ua/);
- Zhytomyr region (http://archive.zt.gov.ua/);
- Dnipropetrovsk region (http://dp.archives.gov.ua/);
- Volyn region (http://volyn.archives.gov.ua/);
- Vynnitsa region (http://davio.gov.ua/).

The websites of these archival institutions have, in addition to the general ones, additional information sections:

- "Reference Aids" (submitted mainly as a PDF file);
- "Electronic Archive" (descriptions of archival affairs, funds, full-text databases of digitized metric books; digitized documents as a DjVu file);
- "Internet Reception";
- "Order online" (national archives of Kharkiv and Kherson regions).

It is positive that the national archives of Dnipropetrovsk, Kharkiv, Cherkasy and Poltava regions have a desire to meet the information needs of users with visual impairments, for whom they offer a special version of the site, where they will be more comfortable to perceive the information. In addition, the national archive of Chernivtsi region offers audio hyperlinks.

It should be stated that the content is a unique component of every website. The important criteria for the effectiveness of the organization of the functioning of archive websites are: content management and systematic updating; the ability to post and view information in various formats (graphic, audio, photo, video, multimedia); a comfortable, interactive interface for user feedback; providing multidimensional and prompt search of archival information; a quick view of documents stored on the website. The content and structure of the web site of a national archive should facilitate the following basic functions: information (round-the-clock availability of information for the user); advertising (effective promotion of the archive in the search engines of the global network, presentable elucidation of the system resources and services); communication (online communication with partners, users); image (formation of a positive image of the national archive). In addition, it is important to meet the general requirements for the organization and content of the website: understandability, convenience, ergonomics, informational contents, updateability.

5   Conclusions and Future Works

Thus, the conceptual model of developing an optimal structure and meaningful content of a website of an archival institution as a communication tool for representing the components of the National Archival Fund in the global information space.
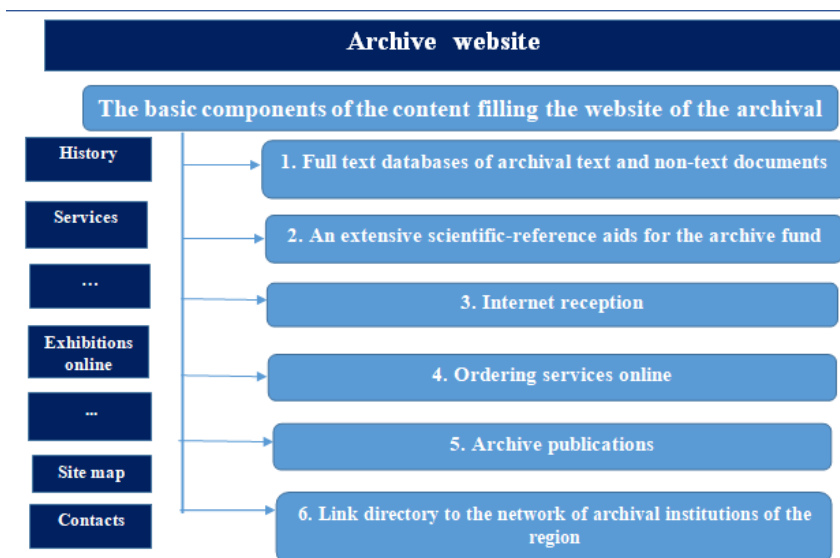

Fig. 4. Conceptual model of the website of the archival institution

The conceptual model should include the following basic components:

1. Full-text databases of archival text and non-text documents automated with a multidimensional search system;
2. An extensive scientific-reference aids for the archive fund;
3. Internet reception;
4. Ordering services online;
5. Archive publications;
6. Link directory to the network of archival institutions of the region.

Submitting information on websites in Ukrainian and English will help accelerate the integration of national archival heritage of Ukraine into the global communication space. The areas of further research are the development of a unified web platform that will integrate the resources of all archival institutions of the region and the country as a whole.

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