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OPPORTUNITES AND ADVANTAGES OF THE CONCEPT OF DIGITAL ARCHIVES

Abstract: Digital transformation of the economy inevitably entails a change in the content of the activities of archives and the archive management as a whole. The widespread use of electronic documents and information resources, the formation of large databases, the creation of information systems for interaction requires the availability of infrastructure that provides for the storage, management and use of this huge array of digital information. The article analyzes current trends, problems, development strategies and possible consequences of digitalization of the archive industry. The study of the features of the transformation of archives seems relevant in the theoretical and applied aspect and can be activated by the archival professional community. The digital archive model involves digital management, the most advanced implementation of the latest technologies, which allows not only to automate and optimize certain processes, but also provide for the revision of a number of archive functions, the generation of new data that increase the efficiency of archives.

Keywords: archive, electronic document, electronic archive, archives of Kazakhstan, long-term storage, information system

Introduction

In modern conditions, information in electronic form has become a valuable management resource. Electronic documents are increasingly becoming important means of keeping, storing and exchanging data. The mass connectedness of all spheres of economy and society are premises of emergence of a new format of social relations and historical course of time. Today it is already clear, this is especially acute in the context of the COVID-19 pandemic, that information technologies (Internet, social network, information systems) which are practically the only possible means of communication and information exchange.

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The digital economy has a direct impact on archives, retaining a main role of keepers of both analogue and digital information. The changes taking place together with changes in the public administration system are so radical that the question about the future of the archiving system, the profession of archivist and archival sciences in general arises.

Over the past decades, the archives have done a tremendous job of automating work and introducing computer technology, which has entailed a revision of many well-established ideas about both the document itself and its carriers, and the methods of working with them. This is both an idea of an automated workplace for an archivist, and an idea of which works in the archive can be formalized in a computer environment, and which should be kept for the archivist in a traditional form. These are questions about ways and methods of document examination and determination of the degree of its value. It became obvious that the types of automation can be subjected to many types and directions of archival work. In particular, the creation of standardized descriptions of electronic documents, the development of an electronic scientific reference apparatus and an automatic search system. Moreover, rapid development of information technologies opens limitless, absolutely novel possibilities for digital transformation of archives. Research conducted in this area could become a "breakthrough decision" in the establishment of digital archive.

Kazakhstan experience of informatization of the archival industry

The archive of the President of Kazakhstan is a pioneer of computerization of the archival sphere in the Republic. The archive of the President of the Republic of Kazakhstan adopted the Concept of computerization of the institution in 2014, for its phased implementation "the Program of computerization of the Archive for the years 2014–2016, then for the years 2017–2019" was approved.

Work on the development of information technology required the development of a systematic approach based on the policy document. At the request of the Archive of the President of the Republic of Kazakhstan, the Archive Agency of the Russian Federation put into operation the program complex "Archive Fond" and signed an agreement on gratuitous use. By order of the President of the Republic of Kazakhstan dated June 15, 1999 No. 52 a new regulation on the Archive of the President of the Republic of Kazakhstan was approved, which establishes a fundamentally new obligation – to accept electronic documents for state storage together with software and appropriate electronic computing equipment. From 1999 began to operate the program complex "Archival Fond", which took into account the characteristics of accounting documents of the party organs, the party and investigative, personal and appellate cases of the Communists. In accordance with the State program for the formation and development of the national information infrastructure, approved by presidential decree No. 573 of 16 March 2001, the concept of an "Electronic archive

of a state body" was envisaged and implemented, which was designed to create an electronic archive and ensure the storage and retrieval of archival documents, as well as to provide ample opportunities for their classification and use. The archive of the President of Kazakhstan was included in the list of institutions of the first stage.

In 2001, the archive fond database was again improved – the fields were expanded and data on the physical state of affairs were entered: the number of damaged documents requiring filing and restoration, restoration of low-contrast text, the presence of particularly valuable documents, insurance fond, use fond and secret affairs.

The system "Electronic archive" (SEAGO), supposed at that time for implementation, was intended for acquisition, storage, accounting and use of electronic documents in departmental and state archives. It is based on a document-oriented data warehouse with an information retrieval system based on the IBM Content Manager Software product that provides the ability to search for information both on the details of the attributed documents and their content (context). The industrial database management system (DBMS) DB2 is used as a database.

In the framework of Informatization since 2006, the Archive was opened to researchers have access to the database: "Decisions of the party committees", "Personal directory", "Personal file Cabinet", "archives", "the Acts of the President of the Kazakh SSR". At the same time, the creation of an electronic photo library and a thematic catalog for photo documents began.

In 2011, the third version of the database "Archive Fond" put into operation, which was developed by the Republican state enterprise "Banking service Bureau of the National Bank of Kazakhstan" on the basis of "Lotus Notus". The database was a separate module in the electronic archive system. The program provides automatically: a General list of fonds by types and categories, the number of inventories, storage units, personnel of the insurance fond of particularly valuable documents, personal, party investigation and personal affairs, personal origin, passport Archive. The database is connected on a local network to the module "Reading room" and the researchers could receive, taking into account the degree of access to electronic inventories, cases and the entire scientific reference device to them (Макфадден К., Алпысбаева Н., Алимгазинов К. 2019).

Thus, by 2014, a number of local information retrieval systems (IPS) and databases for thematic complexes (fonds) of archival documents were developed and implemented in the Archive, which were intended for operational reference and information services for consumers of archival information, as well as for the preparation of archival directories in an automated way. These include local databases (DB) of the most popular fonds stored in the Archive: "Policy decisions of the Supreme authorities", "Archival Fond", "Acts of the President of the Kazakh SSR", "Acts of the President of Kazakhstan", "Especially valuable documents", "Institutions – sources of acquisition of the Archive of the President of Kazakhstan", "Personal catalogue of documents of personal origin", "Personal file of documents of personal origin", "Reference and information fond", "Library fond", "Nomenclature personnel of Soviet Kazakhstan". A total

of 16 information retrieval modules were developed and implemented in the main areas of the Archive.

The creation in the Archive of a single electronic database of primary documentary information by digitizing paper originals, as well as audio, video and photo documents, lagged far behind modern needs. The objective reasons preventing the mass digitization of documents were a huge amount of source material, the high cost and complexity of work, the limited involvement of foreign organizations in its implementation due to the "regime" conditions. An important and promising component of the IPS Archive is the organization of online access of virtual users to its information resources on the Internet in the form of a specialized archive portal.

In 2018, Kazakhstan launched the implementation of the State Program "Digital Kazakhstan", which provides for the transformation of traditional sectors of the economy, the development of human capital, the digitalization of government agencies, the development of digital infrastructure, as well as a breakthrough in the development of an ecosystem of entrepreneurship in the field of digital technologies and, as a result, a change models of production and value added in the real sector of the economy (Постановление Правительства Республики Казахстан от 12 декабря 2017 года No 827 "Об утверждении Государственной программы *Цифровой Казахстан*").

As part of the implementation of this Program in 2018–2020 accessible information system "Unified archive of electronic documents" was developed, which ensures order, storage and management of electronic documents. Information system allows automatizing state and departmental archives. The processes of sending documents to archives, recording and making expertise of documents' value, storing of archival documents has become automatized. The creation of web portal of the "Unified archive of electronic documents" provides users with online access. The web portal has function of providing access to full-text and attribute search of publicly available archival data and to apply for granting access to archival documents. Through integration platform external informative systems of public bodies are integrated.

Control and administration of "Unified archive of electronic documents" information system provides automatization of administrative and access differentiating functions. Moreover, control and analysis of data could be done by software of "Unified archive of electronic documents" information system.

Opportunities and prospects for digital transformation of archives

Meanwhile, in the context of digital transformation, new ideas are emerging in the archive industry and the potential for transformations dictated by new development needs is being formed. It is obvious that the period digitalization, informatization and intelligent archiving has completely new opportunities for a technological breakthrough. The model of a modern archive presupposes digital management,

the most expanded implementation of new technologies, which undoubtedly entails a widespread growth in the number of volumes and the role of digital assets.

The main challenge of our time for archives is the increase in the volume of information that is created. According to the forecast of the analytical company IDC "Data Age 2025" by 2025 the volume of all data worldwide will be 163 zettabytes (ZB). This is 10 times more than the total data as of 2016 (Reinsel D., Gantz J., Rydning J. 2018). This requires the development of better methods for its collection, storage, processing, protection and transmission.

In the present time there is a tendency to wide acceptance of distributed storage of data. In particular, the systems providing transfer of distributed data are developed. As a rule, most of them are connected with "block chain" technology (Galiev A., Ishmukhametov Sh., Latypov R., Prokopyev N., Stolov E., Vlasov I. 2019). Active utilization of block chain technology in economics formed a data set mostly of financial character which uses cryptography to protect documents during creation and storage. In a long-term perspective it seems relevant to use this technology in development of archive management system to provide authenticity and safety of electronic documents. The Block-Sign platform developed by New York company named Basno is an example of using open-access register which stores documents signed by electronic signature.

Another promising areas of development of archives is the management of completely new types of electronic objects, based on the use of "smart" technologies. The ability to manage this array of information in order to store and efficiently use it becomes especially important. Such opportunities are provided by Big Data technologies, which have become widespread in recent years. Big Data tools enable researchers to manipulate and analyze data stored in different formats (Marciano R., Lemieux V., Hedges M., Esteva M., Underwood W., Kurtz M., Conrad M. 2018). Moreover, for archives, they can be used to conduct an examination of the value of documents, i.e. automatic selection of records that can be useful for analytical studies. Also, one of such Big Data tools as search can be used to help archivists improve access to a huge number of records in various formats, etc.

Thus, archives are already successfully using optical character recognition programs for scanning and recognizing both printed and handwritten texts. The technology breaks down words into a series of images of individual letters – for this it recognizes letter spacing. Then it compares the image to the letters from memory. Having found the best match, the program translates the letter into a computer code and thus turns on the text search function.

Artificial intelligence technologies provide borderless potential and new possibilities in solving the tasks of collection, evaluation, selection and management of digital data. For example, a joint project of the Ben-Gurion University in Negev and Microsoft allows historical written and printed works of the Prime Minister David Ben-Gurion to be easily accessed by researchers who plan to create a comprehensive archive of documents with the use of artificial intelligence. Artificial intelligence

technology finds random similarities in archival documents and activates technical tracing methods so that to connect those documents through interactive map. Microsoft also will integrate diary notes of Ben-Gurion in Microsoft Outlook to provide open access to public. This technology which is currently under research will provide deep evaluation of historical documents in minutes which was earlier impossible to do. It is a pioneer project of Ben-Gurion Archive and Microsoft Israel with the use of machinery education (Keyser Z. 2019).

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