Mikhail Larin[1]

ELECTRONIC DOCUMENTS IN ARCHIVING: A THEORETICAL ASPECT

ABSTRACT

The development of theoretical aspects of the preservation of archival electronic documents in modern conditions is very relevant. Scientists and specialists from many countries are actively working on their solution. Scientists and specialists of the Russian Federation pay considerable attention to this area of archival science, developing various topics of the archiving of electronic (digital) documentation. The report focuses on a number of key aspects of this problem in connection with the implementation of the National Project "Digital Economy". Within the framework of this project, it is necessary to conduct research and solve practical problems in the field of electronic documents: problems of terminology, selection of electronic documents for storage, designing of information systems of archives, creation of the Center for electronic documents preservation.

Keywords: *archival science, archive, electronic document, preservation, archival document, long-term storage, storage rules, information technology.*

DOCUMENTI ELETTRONICI IN ARCHIVIO: UN ASPETTO TEORICO

ABSTRACT

Lo sviluppo degli aspetti teorici della conservazione dei documenti elettronici d'archivio in condizioni moderne è molto rilevante. Scienziati e specialisti di molti paesi stanno lavorando attivamente alla loro soluzione. Scienziati e specialisti della Federazione Russa prestano notevole attenzione a quest'area della scienza archivistica, sviluppando vari argomenti di archiviazione della documentazione elettronica (digitale). Il rapporto si concentra su una serie di aspetti chiave di questo problema in relazione all'attuazione del progetto nazionale Economia digitale. Nell'ambito di questo progetto, è necessario condurre ricerche e risolvere problemi pratici nel campo dei documenti elettronici: problemi di terminologia, selezione di documenti elettronici per l'archiviazione, progettazione di sistemi di informazione degli archivi, creazione del Centro per la conservazione dei documenti elettronici .

Parole chiave: *scienza archivistica, archivio, documento elettronico, conservazione, documento archivistico, conservazione a lungo termine, regole di conservazione, tecnologia dell'informazione.*

1   Dr. Professor Mikhail Larin, Head of the Department of electronic records management systems, Historical and Archival Institute of the Russian State University for Humanities (RGGU), Russia, Moscow, 125993, GSP-3, Miusskaia pl., 6, Tel: +7 495 628-52-97, mobile: +7 910 421 05 29, e-mail: mik091947@gmail.com; larin.m@rggu.ru.

ELEKTRONSKO GRADIVO IN ARHIVIRANJE: TEORETIČNI ASPEKT

IZVLEČEK

Razvoj teoretičnih vidikov hrambe arhivskih elektronskih dokumentov v sodobnih razmerah je zelo relevanten. Znanstveniki in strokovnjaki iz mnogih držav aktivno delajo na njihovi rešitvi. Znanstveniki in strokovnjaki Ruske federacije posvečajo veliko pozornosti temu področju arhivske znanosti, saj razvijajo različne teme glede arhiviranja elektronskega (digitalnega) gradiva. Poročilo se osredotoča na številne ključne vidike tega problema v povezavi z izvajanjem nacionalnega projekta "Digitalna ekonomija". V okviru tega projekta je potrebno izvesti raziskave in rešiti praktične težave na področju elektronskih dokumentov: problematiko terminologije, izbiro elektronskih dokumentov za shranjevanje, oblikovanje informacijskih sistemov za hrambo, ustanovitev Centra za hrambo elektronskih dokumentov .

Ključne besede: *arhivska znanost, arhiv, elektronski dokument, hramba, arhivski dokument, dolgoročno shranjevanje, pravila shranjevanja, informacijska tehnologija.*

АРХИВНОЕ ХРАНЕНИЕ ЭЛЕКТРОННЫХ ДОКУМЕНТОВ: ТЕОРЕТИЧЕСКИЕ АСПЕКТЫ

АННОТАЦИЯ

Разработка теоретических аспектов хранения архивных электронных документов в современных условиях является весьма актуальной. Ученые и специалисты многих стран активно работают над их решением. Ученые и специалисты Российской Федерации уделяют значительное внимание этой сфере архивного дела, разрабатывая различные темы архивоведения электронной (цифровой) документации. В докладе уделяется внимание ряду ключевых аспектов данной проблемы в связи с реализацией Национального проекта «Цифровая экономика». В рамках данного проекта предстоит провести научные исследования и решить практические задачи в сфере электронных документов: проблемы терминологии, отбора на хранение электронных документов, построения информационных систем архивов, создания Центра хранения электронных документов.

Ключевые слова: *архивоведение, архив, электронный документ, обеспечение сохранности, архивный документ, долгосрочное хранение, правила хранения, информационные технологии.*

INTRODUCTION

For several decades, electronic documents have been the subject of discussion in the professional community of records management professionals and archivists. However, in recent years electronic documents have become increasingly important due to the fact that their significant array, accumulated in various information systems, requires practical solutions for the organization of long-term and permanent storage. This circumstance led to the fact that the storage of electronic documents began to bother the heads of organizations. The lack of effective methods for storage of electronic documents archives and a certain inertness of archival institutions, the presence of a certain psychological barrier among archivists led to the fact that specialists from various fields of activity began to be actively involved in solving the problems of long-term storage of electronic documents. It is quite clear that these specialists approached the solution of this task, based on their specific practical experience and theoretical knowledge from their professional sphere. Two years ago the implementation of the National Project "Digital Economy" began in the Russian Federation, which presupposes the creation of conditions for a more active and effective implementation of information technologies in all sectors of the national economy, including in records management. For these purposes measures are planned to improve legislation that ensures the implementation of paperless interaction, the use of electronic documents and the creation of legal conditions for the formation of a unified digital environment. By 2025 it is expected to increase the volume of departmental and interdepartmental electronic document circulation up to 90%. Achieving this indicator will require serious hard work based primarily on the results of scientific research.

Terminological aspect. In order to fulfill the positions of the National Project "Digital Economy" working groups were created in various areas of the project, including the spectrum of problems of electronic documents. It is noteworthy that the work of this group, formed from representatives of different areas of knowledge, involves finding answers to theoretical questions, starting with the conceptual apparatus of an electronic document. It should be noted that these questions cannot be vulgarly reduced only to the search of the definition of electronic document that suits everyone, as some authors do. Of course, as in classical records management, the essential characteristics, functions, features and attributes of an electronic document should be investigated. Without pretending to complete the solution of this scientific problem, let us dwell on some theoretical aspects that are relevant to the theory and practice of organizing the archival storage of electronic documents.

Regarding the concept of "electronic document" we have repeatedly noted the diversity of its definitions in legal acts and in national standards of the Russian Federation[2]. Attempts to find a common universal definition for all fields of activity of an electronic document was not reached. The mentioned working group, organized in the course of the implementation of the "road map" of the National Project "Digital Economy", leads the second year of the discussion on this issue. However, significant progress and results have not yet been achieved. The problem, in our opinion, lies in the fact that the term "electronic document" is used in various spheres of professional activity, for each of which its own specific characteristics matter, which the authors try to include in the defined concept.

---

2   Larin M.V. Theory and Practice of Electronic Records Archival Storage. //ATLANTI, IIAS, Trieste – Maribor, vol. 27(2017) No 1, c.117 - 124.

For office work this is the provision of legally significant electronic records management, for archival science it is long-term preservation, for information technology - data structuring, for law - the ability to use as evidence, etc. In our point of view the most reasonable way out of this situation is to bind the definition of electronic document to a specific sphere of professional activity. For example, the standard of the Russian Federation GOST R 52292-2004 "Information Technology (IT). Electronic exchange of information. Terms and definitions", interprets the "electronic document" as follows: "Electronic document; ED: A form for presenting a document in the form of a set of interconnected realizations in an electronic environment and their corresponding interconnected realizations in a digital environment"[3]. From the point of view of a computer expert, this definition quite adequately conveys the technical and technological specifics of an electronic document. On the other hand, this definition is not perceived by either records managers or archivists as belonging to their professional field.

All the good wishes of individual specialists who dream of establishing a single defenition of a document (electronic document) in the laws governing various spheres of social and economic life in international and national standards from various professional fields will not lead to anything. And we need to understand the objective reasons for this, related primarily to the fact that each subject area of the branches of scientific knowledge forms its own specific terminology system for the practical activities of specific specialists (records managers, archivists, librarians, IT specialists, lawyers, managers, etc.). In our case, it is fundamentally important that the concept of an "electronic document" be equally perceived by records management specialists and archivists. In our opinion, the most adequate is the understanding of an electronic document as a document which information is represented in a digital form.

The question of the definition of an electronic document acquires additional relevance also because along with this term the term "digital document" is actively used. In this connection, the question arises of how significant this problem is in the scientific aspect? What is behind the use of these terms, only synonymy or is a truly digital document significantly different from an electronic document? For the solution of this question we will stop on both definitions in legal acts and standards.

As for the digital document, in many respects its use is due to the tribute to modern trends (digital economy). However, a fair question arises: is this phrase used only for a witty remark? Is there a new concept behind it? This problem requires a serious theoretical understanding.

In a multilingual database of archival terminology, the terms "electronic record" (electronic document) and "digital record" (digital document) are given. Although they are positioned as two separate terms, they are actually defined in the same way: information that was included in the system, which provides the storage of documents and work with them in an automated system and which requires the use of the system to make it understandable to men.

The term "digital record" (document) is not used in Russian legislation, however, the words "electronic-digital" and "digitized" are often used. In all cases the use of the word "digital" is associated with the technical side of the existence of a document in the information system where it is represented as a sequence of numbers (0-1), in a binary system.

---

3   GOST R 52292-2004 "Information Technology (IT). Electronic exchange of information. Terms and definitions "[Electronic resource]. URL: http://docs.cntd.ru/document/1200038309 (the date of the appeal 11.03.2019).

This statement may be supported by the study of international standards containing the terms "electronic" document and "digital" document. In standards that are related to records management, the concept of "record" (document) is generally used, since the medium is not decisive for the formation of a records management methodology. As soon as the standards talk about technical aspects that provide separate records management processes in information systems, the term "digital record" (document) appears. The problem of the relationship between the concepts of "electronic" document and "digital" document from the point of view of the scientific discipline "records management" requires further study. In our opinion, it is fully justified in this case to appeal to the philosophical aspects of information theory.

It is known that almost all views on the essence of information are grouped around two main approaches: attributive and functional. According to the supporters of the attributive concept, information is an inherent intrinsic property of all material objects, it is contained in all the elements and systems of the material world. The cognitive process in this case is the decoding of information that is contained in real-world objects. Supporters of the functional concept proceed from the inextricable connection of information with management, with the functioning of self-organizing, self-governing social-cybernetic systems. Based on these concepts, it can be assumed that the concept of a digital document fits better into the essence of the attribute concept, and an electronic document can act as an object of a functional concept. In other words, the concept of "digital" characterizes the internal organization of a document, and the concept of "electronic" indicates that a document belongs to an information system, thanks to which it can take on a form accessible to human perception. Of course, this assumption can still be called a scientific hypothesis that requires further special development.

Theoretical aspects of the preservation of electronic documents. As it has already been mentioned above, the interest that has arisen to electronic documents from the part of the management bodies is due to the need to ensure their safety and long-term preservation. Therefore, all aspects of the preservation of electronic documents today are the subject of practical solutions. Most often hopes for a confident solution to this problem are reasonably associated with the activities of IT specialists. However, in our opinion, this issue, first of all, is a topic for theoretical understanding in the field of records management and archive science. The problem is that IT-specialists rather simply perceive the problem of documents storage, reducing it to archiving electronic documents in the information system, often without separating the operational and archival storage of documents. A striking example of this approach is the fact that until recently none of the electronic records management systems that are used in Russia did not have an archive module. That is, electronic documents that have lost operational value continued to be stored in the electronic records management information system.

However, documents cannot be used in operational activities and stored in the archive in the same sense as archivists understand it, in one information system, since the functional characteristics of these systems are fundamentally different, as well as the functions that specialists perform working with documents in record keeping and archive.

Today in the practice of documents preservation the following scientific and methodological approaches are developed. In the operational activities documents are stored in the record keeping in the framework of the nomenclature in accordance with the retention period or until minimization of need. After completion of cases in record keeping, documents are grouped into files and having passed expert appraisal are transferred to the archives of the organization for storage, where they are stored in accordance with the Rules for the Storage, Completion, Accounting and Use of Documents of the Archival

Fund of the Russian Federation and other archival documents in government bodies, local government and organizations. At the same time, the organization is still responsible for their safety.

If the organization is a source of acquisition of state or municipal archives, then after the deadline set in the Federal Law "On Archival Affairs in the Russian Federation", archival documents are transferred to the state archive for permanent storage in the relevant archive fund, and the state archive is responsible for their safety. Thus, according to the storage conditions, three document arrays are clearly distinguished. The first two (the record keeping and the archive of the organization) are the responsibility of the organization; it is their owner and is responsible for their safety. The difference in the organization of the storage of these three arrays of documentation lies in the different schemes of classification and indexing, due to the functions of the record keeping and the archive. The storage of documents in record keeping and the archive of the organization is determined by clear time periods and depends on the period of storage of the documents themselves. The third array of documents is already state property and is fully under the responsibility of the state archive.

This procedure for managing the life cycle of documents has been maintained for decades. It led to the development of stable traditions, the typification of procedures for processing documents, the emergence of stereotypes in the work. However, the emergence of electronic documents led to the fact that the established principles of working with documents needed to be revised. There were problems with working with electronic documents. First of all, it became clear that it is necessary to reduce the storage time of documents in information systems that ensure the operational work with documents so that these electronic documents quickly come under the control of archivists. For this, it is necessary to change the relevant positions of regulatory acts, first of all, the relevant positions of the archival law.

Obviously, the main source of replenishment of archives is records management documentation. Office work of state and other organizations is a fairly well-established and regulated process that relies on a solid regulatory framework, trained personnel and workflow automation systems. With regard to electronic documents as part of the documentation, there are two main questions. The first question is how to select those electronic documents from the general array that meet the principles of authenticity, integrity, reliability and usability at all stages of the life cycle. And the second question is what methods and tools should be used to examine the value of such electronic documents for their transmission for archival storage.

In our opinion, the established rules and methods of archival work can be fully applied to this group of documents, but the technical and technological features of working with electronic documents, based on their specifics, should be taken into account. But at the same time the tasks of archives are drastically complicated due to the need for long-term preservation of electronic documents, since to do this you need to create a trusted environment, ensure the continuity of its operation, information security, information protection, and also maintain a complex of software and hardware. The last is especially important, since, in our opinion, only consistent synchronous updating of the software environment can ensure the authentic preservation of information from archived documents. The hope that it is necessary to create unique information carriers for the preservation of archived electronic documents and to develop "perpetual storage formats" does not justify itself. Waiting for this you can lose many files of valuable documents.

In addition, for long-term preservation of electronic documents we should take care of the reliability of media and information storage, create and constantly maintain physical, technical and sanitary conditions of storage of archived electronic documents, provide emergency power systems and protection from natural disasters. If, in general, any room can be adapted for storing documents on a paper basis, then a room with special characteristics that not every organization can provide is required for storing archived electronic documents. Moreover, in Russia, the information system of the state organization archive must comply with the standards of the Typical functional requirements for electronic records management systems and electronic records storage systems in the archives of state bodies.

Thus, the practical application of electronic documents as a document memory translator is a rather complicated and expensive procedure which requires the creation of an appropriate infrastructure in the organization, the availability and constant updating of information technologies, and highly qualified personnel. Since the creation and, most importantly, the operation of information systems that provide archival storage functions for a separate organization can be a very expensive project, it is proposed to undertake the task of storage of electronic documents on the principles of outsourcing to state (municipal) archives. At the same time, the owner of the electronic documents, before the deadline for their transfer to state storage, will be the organization - the founder.

For the Russian Federation this issue is relevant today in connection with the launch of the project for the creation of the Electronic Document Storage Center (TSHED). The preparation of the concept of the TSHED requires deep study not only of technological solutions for its implementation, but also of the theoretical and methodological foundations for the storage, acquisition, accounting and use of electronic documents of the Center. A special feature of the documentary file stored in the information system of the TSHED will be that it is intended to store not only electronic documents originally created in electronic form, but also electronic documents created as a result of digitizing documents whose originals are in paper form.

In this regard it is impossible to ignore the emergence of a new concept of "replacement scan", which arose during the implementation of the positions of the National Project "Digital Economy". Under the replacement scan is proposed to understand the creation of certified electronic copies of documents on paper with the subsequent destruction of the originals. The proposal is very controversial from many points of view. We are convinced that in this situation it is much wiser to initially abandon the creation of documents on paper and switch to electronic documentation and electronic records management in government bodies, where it is possible and appropriate. This transition makes expensive and complicated manipulations with documents unnecessary for the solution of elementary tasks of their preservation in the terms established by the law.

As another theoretical task it is necessary to put forward the mastering by archivists of an enormous array of documents created without human participation in information systems or automatic devices, figuratively speaking, "robotic" documentation. In modern conditions, documents and messages automatically generated by information systems will soon dominate in volume in organizations of the digital economy. It seems that a certain part of such documents from banking, payment, postal, information and other systems of this kind can be represented as a new category of archival documents and as such deserves the attention of scientists and specialists.

Thus, electronic archival documents are a stimulating factor for the deepening of archival theory and a source of new knowledge of archival science of the 21st century.

REFERENCES

National project "Digital economy in the Russian Federation". https://futurerussia.gov.ru/cifrovaya-ekonomika

Order of the Ministry of Culture of the Russian Federation of March 31, 2015 No. 526 (registered with the Ministry of Justice of Russia on September 7, 2015) "On approval of the Rules for the organization of storage, acquisition, accounting and use of documents from the archival fund of the Russian Federation and other archival documents in government bodies, local government authorities and organizations ", http://archives.ru/sites/default/files/prikaz-mkrf-526-pravila.pdf.

Typical functional requirements for electronic records management systems and electronic records storage systems in the archives of state bodies [Electronic resource] // URL: http://archives.ru/sites/default/files/2018-06-14-project-tft.doc.

GOST R ISO 30300-2015 "System of standards on information, librarianship and publishing. Information and documentation. Management systems for records. Fundamentals and vocabulary

GOST R 7.0.101-2018 / ISO 30301-2017 "A system of standards for information, librarianship and publishing. Information and documentation. Management systems for records — Requirements"

Records management. Terms and Definitions. Dictionary.- M., VNIIDAD, 2013.

Surovtseva N.G. (2019). Problems of ensuring the authenticity of electronic documents. Scientific Herald of the Crimea. No3. [Electronic resource] // URL: http://nvk-journal.ru/index.php/NVK/article/view/460.

Artizov A.N. (2019). On the results of the work of the Federal Archival Agency in 2018, tasks for 2019 and the medium-term outlook. Otechestvennye arkhivy. No2.

Bobyleva M.P. (2018). On the evolution and co-evolution of analog and electronic documents // *Documentation in the information society: actual problems of managing electronic documents: Reports at the XXIV International Scientific and Practical Conference on November 21-22, 2017* / Rosarchiv, VNIIDAD, Moscow. p. 192.

SUMMARY

The report discusses some theoretical aspects of the organization of archival storage of electronic documents. In the Russian Federation the problem of long-term preservation of electronic documents in archives of various levels has been exacerbated by the implementation of the National Project "Digital Economy" in which electronic documents play a key role as means of communication using electronic records management systems. To solve these problems scientists and specialists from related branches of knowledge are involved. Therefore, the report puts forward the thesis that the decisive influence on the formation of a methodology for managing electronic documents should belong to archivists. The report focuses on terminological problems, and concludes that it's futile to search for a single definition of an electronic document for various scientific branches of knowledge. The terms "electronic" and "digital" were compared with the use of the philosophical categories of information theory. Proposals are made for dividing arrays of electronic documents by life cycle stages into three groups, each of which must have its own management methods. The issues that require theoretical understanding in the practical solution of the problem of archival storage of electronic documents in state (municipal) archives are named. Attention is drawn to the problems of the so-called "replacement scan" and to the need to pay attention to the safety of the arrays of "robotic" documentation.