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## RECORDS AND ARCHIVES MANAGEMENT IN THE CONDITIONS OF DEVELOPMENT AND IMPLEMENTATION OF AUTOMATED INFORMATION SYSTEMS: DELIMITATION OF COMPETENCES BETWEEN ARCHIVISTS AND IT SPECIALISTS

### ABSTRACT

*The article is devoted to the problem of interaction between archivists and IT-specialists in solving issues of creating electronic documents, managing them throughout their life cycle, as well as transferring them to the archive. Should archivists adapt to the automated information systems developed by IT-professionals, which often offer methods of document processing that are contrary to traditional archival practices, or should they insist on developing such systems that are consistent with these practices? The answer is largely depends on the authority in the field of records and archives management, which the legislation gives to archivists. The presence of appropriate authority allows archivists to establish the functional requirements for automated information systems; the task of IT-professionals in these conditions becomes technical implementation of the established requirements.*

**Key words:** *electronic document, archivist, IT-specialist, competence, modern information technologies, automated information systems*

## GESTIONE DI DOCUMENTI E GESTIONE DEGLI ARCHIVI NELLE CONDIZIONI DI SVILUPPO E IMPLEMENTAZIONE DI SISTEMI INFORMATIVI AUTOMATIZZATI: DELIMITAZIONE DI COMPETENZE TRA ARCHIVISTI E SPECIALISTI INFORMATICI

### SINTESI

*L'articolo è dedicato al problema dell'interazione tra archivisti e specialisti informatici nella risoluzione dei problemi relativi alla creazione di documenti elettronici, alla loro gestione durante tutto il loro ciclo di vita ed al loro trasferimento nell'archivio. Gli archivisti dovrebbero adattarsi ai sistemi informativi automatizzati sviluppati dai professionisti informatici, che spesso offrono metodi di elaborazione dei documenti contrari alle tradizionali pratiche di archiviazione, oppure dovrebbero insistere nello sviluppo di tali sistemi coerenti con queste pratiche? La risposta dipende in gran parte dall'autorità nel campo della gestione dei registri e degli archivi, che la legislazione dà agli archivisti. La presenza di un'autorità competente consente agli archivisti di stabilire i requisiti funzionali per i sistemi informativi automatizzati; il compito dei professionisti informatici in queste condizioni diventa l'attuazione tecnica dei requisiti stabiliti.*

**Parole chiave:** *documento elettronico, archivista, specialista informatico, competenza, moderne tecnologie dell'informazione, sistemi informativi automatizzati*

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## UPRAVLJANJE DOKUMENTARNEGA IN ARHIVSKEGA GRADIVA IN ARHIVOV V POGOJIH (PRIMERU) RAZVOJA IN IZVAJANJA AVTOMATIZIRANIH INFORMACIJSKIH SISTEMOV: RAZMEJITEV PRISTOJNOSTI MED ARHIVARJI IN IT-STROKOVNJAKI

### IZVLEČEK

Članek je posvečen problemu interakcije med arhivisti in IT-strokovnjaki pri reševanju vprašanj ustvarjanja elektronskega gradiva, njihovega upravljanja v celotnem življenjskem ciklu in njihovega prenosa v arhiv. Bi se morali arhivisti prilagoditi avtomatiziranim informacijskim sistemom, ki so jih razvili IT-strokovnjaki, ki pogosto ponujajo metode obdelave dokumentov, ki so v nasprotju s tradicionalnimi arhivskimi praksami, ali naj vztrajajo pri razvoju takšnih sistemov, ki so skladni s temi praksami? Odgovor je v veliki meri odvisen od pristojnosti na področju upravljanja dokumentarnega in arhivskega gradiva, ki jih zakonodaja daje arhivistom. Prisotnost ustreznih pooblastil arhivistom omogoča, da določijo funkcionalne zahteve za avtomatizirane informacijske sisteme; naloga IT-strokovnjakov v teh razmerah postane tehnična izvedba uveljavljenih zahtev.

**Ključne besede:** elektronski dokument, arhivist, IT-strokovnjak, kompetenca, sodobne informacijske tehnologije, avtomatizirani informacijski sistemi

## КІРАВАННЄ ДАКУМЕНТАМІ І АРХІВАМІ ВА ЎМОВАХ РАСПРАЦОЎКІ І УКРАНЕННЯ АЎТАМАТИЗАВАНЫХ ІНФАРМАЦЫЙНЫХ СІСТЭМ: РАЗМЕЖАВАННЄ КАМПЕТЭНЦЫЙ АРХІВІСТАЎ І ІТ-СПЕЦЫЯЛІСТАЎ

### РЭЗЮМЭ

Артыкул прысвечаны праблеме ўзаемадзеяння архівістаў і ІТ-спецыялістаў пры вырашэнні пытанняў стварэння электронных дакументаў, кіравання імі на працягу іх жыццёвага цыклу, а таксама перадачы на захоўванне ў архіў. Ці павінны архівісты прыстасоўвацца да распрацаваных ІТ-спецыялістамі аўтаматызаваных інфармацыйных сістэм, якія часта прапануюць методыкі работы з дакументамі, якія ідуць насуперак традыцыйнай архіўнай практыцы, альбо яны павінны настойваць на распрацоўцы такіх сістэм, якія б гэтым практыкам адпавядалі? Адказ на гэтае пытанне шмат у чым залежыць ад паўнамоцтваў у сферы кіравання дакументамі і архівамі, якімі заканадаўства надзяляе архівістаў. Наяўнасць адпаведных паўнамоцтваў дазваляе архівістам ўсталёўваць функцыянальныя патрабаванні да аўтаматызаваных інфармацыйных сістэм; а задачай ІТ-спецыялістаў у гэтых умовах становіцца іх тэхнічная рэалізацыя.

**Ключавыя словы:** электронны дакумент, архівіст, ІТ-спецыяліст, кампетэнцыя, сучасныя інфармацыйныя тэхналогіі, аўтаматызаваныя інфармацыйныя сістэмы

## 1 INTRODUCTION

In the last decade, modern information technology (hereinafter - IT) has rapidly entered the field of records and archive management. In previous years automation processes were mainly subject to the creation, accounting and search of records on traditional media, but now modern information systems allow creating electronic records without paper analogues and radically change the technologies of their processing and storage. Nowadays, the archivist can no longer ignore the invasion of IT in the sphere of his professional activity. Information systems are becoming increasingly important in the professional activities of records managers and archivists, who have to organize their activities within the framework defined by these systems. The archivist is forced to pay more and more attention to the technical aspects of creating electronic documents, their selection for transfer to storage in the archive, their preservation and use in the archive. It is no accident that the topics related to the use of IT in the archival sphere dominate in the subjects of the 19th Congress of the International Council of Archives, that initially was planned to be held in Abu Dhabi, United Arab Emirates in November, 2020 ("artificial intelligence", "big data", "automated appraisal", "managing metadata", "digital preservation", etc.) (*Congress 2020: Abu Dhabi, United Arab Emirates, 16 - 20 November 2020. Call for Proposals and Papers*).

In these conditions, a number of difficult, but very important questions arise before archivists.

Should archivists adhere to traditional practices when they acquire electronic documents to archive, elaborate finding aids, organize their use in archive, just adapting modern IT to solve these tasks? Or should they fully rely on IT specialists, trust in the computer programs and artificial intelligence developed by them? In other words, should archivists hand over electronic documents to IT-professionals, leaving in their own competence only documents on paper and other traditional media? Or will the solution of professional archival problems in processing electronic documents stay in the hands of archivists, and IT-specialists only technically ensure the implementation of their decisions?

The answers to these questions largely depend on the authority of archivists to establish requirements for the content and functionality of the information systems developed by the IT-specialists. In this regard, the key issue is the distribution of competencies between archivists and IT-professionals in the development of records management information systems and information systems for archival storage.

## 2 ARCHIVISTS AND INFORMATION SYSTEMS IN THE FIELD OF RECORDS AND ARCHIVES MANAGEMENT: PROFESSIONAL ISSUES

The problems of implementing records management information systems in the activities of government bodies and other organizations have been in the focus of attention of records managers and archivists for many years. This attention is justified, since documents accepted for storage in archives are created in the operative (current) activities of organizations. The quality of documents created and stored in organizations, regardless of the type of medium, first of all their ability to serve as confirmation and evidence throughout the entire period of existence (*Rybakou, 2019*), is of paramount importance when deciding on the selection of documents for storage in the archive. The transition from a traditional paper document to electronic (digital) one, created and stored in the information system, actualizes the problem of ensuring its long-term preservation. In these conditions, the task of ensuring the authenticity and integrity of electronic documents comes first.

However, ensuring the authenticity and integrity of electronic documents in information systems at the stage of their operative storage is only part of the problem, the solution of which worries archivists. With the ever-wider implementation of records management systems in the activities of organizations and the accumulation of large amounts of documented information in them, archivists came close to the need to resolve issues related to the acquisition of valuable electronic documents created in various records management systems in archives, including for permanent storage in state archives. It is not only the problems of ensuring the long-term preservation of electronic documents. Archivists need also to solve legal, organizational and technical issues of their acquisition, description, construction of finding aids, organization of use in the archive.

As to traditional paper documents, archivists over the centuries have developed their professional approaches to solving the indicated problems. But the fundamentally different physical nature of the electronic document, its special structure, the presence of metadata compel archivists not only to review some traditional theoretical principles of documentation and archival science (the concepts of "document", "archival document", "originality and copy of a document", etc.), but also revise traditional methods and practices of processing the documents (*Международный архивный форум в Словении, 2019*).

Features of the physical state of an electronic document and its perception by a person can be figuratively described by the words of the outstanding German philosopher Immanuel Kant, who claimed that any object of the real world is a "thing-in-itself", and our perception of it is a "thing-for-us" (*Кант, 1907; Кант, 1965*).

The specificity of the physical nature of electronic documents shows itself at different stages of processing them, for example, when establishing logical connections (links) between documents and assignment them to primary complexes (both in records keeping when organizing operative storage and in the archive when organizing their permanent archival storage). Paper documents, which are separate physical objects, can be easily formed into one paper file, which is also a separate physical object that can be subjected to archival description as an independent unit of storage. The information of an electronic document physically does not constitute a single, integral object and looks like it only when the external presentation of an electronic document is in a form accessible and understandable for human perception. How in this case to form electronic documents into primary logical complexes ("electronic files"), which for the same reason can also exist only as a "thing for us", that is, virtually? Should this be done in principle or should this traditional practice be abandoned? If this practice should be abandoned, then how to describe electronic documents at a level higher than a level of a single document? Will artificial intelligence be able to solve qualitatively the problems of searching for archival documents and information in case of abandonment of traditional archival directories (inventories, registries, etc.)?

The solution of these problems is complicated by the fact that electronic documents are created in information systems developed by IT-specialists who are not familiar with either the theory or the practice of records and archives management. When developing information systems, they are driven particularly by commercial interests. Records managers and archivists are not always involved in the development of these systems. Developers do not always consider it necessary to consult with them, to take into account their opinions and wishes. In many cases, IT-specialists put in their developments subjective, sometimes everyday ideas about records keeping and archive business processes, use unprofessional terminology. As a result, when solving professional problems, archivists are tightly limited by the framework into which the developers of the corresponding information systems put them, which forces them to look for non-standard solutions, often contrary to the main provisions of archival theory and practice.

Archivists constantly pay attention to the invasion of IT-specialists in the field of records and archives management and the difficulties arising in connection with this. When developing information systems for archival storage, IT-specialists reduce the problem to archiving documents in the operative (records management) system, they do not see the difference between operative and archival storage of documents. But documents in current activities and in the archive execute different functions, therefore this approach is not acceptable for archivists (*Larin, 2019*). A very important problem is the fact that in many information systems the links of documents with their creators are lost. This threatens the maintenance of one of the most important principles of archival science – the principle of provenance. In turn, this leads to the loss of value of such a key element of the classification of archival documents as the fond. But it is precisely the principle of provenance that gives the document the value of evidence and is an important part of owning the context of the document (*Schmalzl, 2019; Международный архивный форум в Словении, 2019*).

Can records managers and archivists somehow influence the situation that is rapidly getting out of their control? Or there is no choice for them and they have to accept humbly the conditions imposed on them by IT-specialists? It seems that they can, but this opportunity is determined by the powers vested by archivists, as well as the correct distribution of competencies between archivists and IT-specialists in the development of information records management systems and information systems for archival storage.

### 3 ARCHIVISTS AND IT-SPECIALISTS: AUTHORITY AND COMPETENCE

As practice shows, if archivists are endowed with sufficient authority to regulate the creation, use and storage of electronic documents, establish special requirements for the functionality of developed and used information records management and archival systems, then the fundamental, basic principles of archival science and based on them archival methods and practices can be saved. Naturally, they should be modified according to the specific nature and features of the electronic document, as well as the applied information technologies.

It is very important to secure the authority of archivists in the legislation. Consider the Belarusian example.

According to the Archival Law, state regulation in the field of archives and records management is carried out by the President, the Government, the republican administrative body in the field of archives and records management, as well as local authorities. The functions of the republican administrative body are performed by the Ministry of Justice of the Republic of Belarus, which includes the Department on Archives and Records Management. State regulation includes the implementation of a unified state policy, the establishment of uniform principles for archives and records management, including the accumulation, storage and use of documents in archives, control over their activities, etc. (*Закон Республики Беларусь Об архивном деле и делопроизводстве в Республике Беларусь, 2011, art. 6*).

The legal basis for the use of electronic documents in the country, the basic requirements for electronic documents are established by the special Law on Electronic Documents and Electronic Digital Signatures. State regulation in the field of electronic documents circulation is carried out by the President, the Government, the National Bank, the Ministry of Justice and state archival institutions. The powers of the latter include the development and implementation of a unified state policy in the field of the formation of the National Archival Fond with electronic documents, ensuring their safety, organization of their use as well as state regulation of electronic record keeping and control

over it (*Закон Республики Беларусь Об электронном документе и электронной цифровой подписи, 2009; Закон Республики Беларусь О внесении изменений и дополнений в Закон Республики Беларусь «Об электронном документе и электронной цифровой подписи», 2018, par.7, 12*).

It is obvious that Belarusian archivists have sufficient authority to regulate the creation, use and storage of electronic documents at all stages of their life cycle, including transfer to archives.

It is fundamentally important that according to the Archival Law archivists are empowered to establish requirements for organizing and maintaining record management in state bodies and other organizations (*Закон Республики Беларусь Об архивном деле и делопроизводстве в Республике Беларусь, 2011, art. 26*). In the context of the implementation of records management information systems, the realization of the relevant powers allows archivists to establish requirements for these information systems and their functional capabilities.

The availability of appropriate authority is important because electronic documents are initially created in information systems, their processing and storage until they are transferred to archive is also organized in the same systems. At the beginning of the year 2020 the number of records management information systems that were used in state bodies and other organizations in Belarus amounted to more than 30 (*Методические рекомендации по выбору автоматизированных систем документационного обеспечения управления (ведомственных систем электронного документооборота) в государственных органах, иных организациях, 2019*). And these are only those systems that allow processing the managerial (organizational and administrative) documentation. The methods of processing documents in these systems, the formats that are used for their creation and storage are various.

The second fundamentally important point in the Archival Law is the right of archivists to establish requirements for records and archives management not only in state bodies, but also in other organizations, including private ones.

The existence of appropriate authority is due to the fact that the documents created in the activities of private organizations, which are their property, can be recognized as having scientific and historical value and subject to permanent storage. In the future they can be transferred for storage to state archive. Besides, private organizations use electronic documents in the information exchange with state bodies and other organizations that are sources of acquisition of state archives. Accordingly, the electronic documents created in them and sent to state bodies must also comply with uniform requirements in order to ensure their safety, integrity and authenticity over long periods. If the document is created and received by the state body in a format not suitable for its long-term preservation, then it will have to be converted into a format suitable for this purpose. As a result a new document will be created and its authenticity can be challenged. Therefore, the creation and storage of documents in private organizations also need to be regulated.

Within the framework of their authority, Belarusian archivists have developed a set of legal acts regulating the creation of documents both on paper and on electronic media, their processing, operative and archival storage in all organizations.

The basic regulatory legal act is the Instruction on Records Management in the State Bodies, Other Organizations. The Instruction establishes general requirements for the creation and processing documents in all organizations and on all types of media with some exceptions for electronic documents (*Инструкция по делопроизводству в государственных органах, иных организациях (2019)*).

Special requirements for the creation of electronic documents, their processing, transferring to the organization's archive, are determined by the Instruction on the Procedure for Dealing with Electronic Records in the State Bodies, Other Organizations (*Постановление Министерства юстиции Республики Беларусь от 6 февраля 2019 г. № 19 «Об утверждении Инструкции о порядке работы с электронными документами в государственных органах, иных организациях», 2019*). Special requirements for the acquisition and storing electronic documents in the organization's archive, creating finding aids and the use of electronic documents are determined by the Rules for Working with Documents in Electronic Form in Archives of the State Bodies, Other Organizations (*Постановление Министерства юстиции Республики Беларусь от 6 февраля 2019 г. № 20 «Об утверждении Правил работы с документами в электронном виде в архивах государственных органов, иных организаций», 2019*).

When developing regulatory legal acts, archivists followed the principle of maximally preserving the identity of a document from the moment it was created or entered into the organization until it was transferred to the archive and stored in the archive. This principle presumes the preservation, as far as possible, the original formats and codes of the electronic document at all stages of its existence (*Рыбаков, 2019*). Intervention in the structure of an electronic document, its conversion to a different format should be eliminated or minimized.

When a document is accepted into the archive and stored, the archivist should not replace the author (creator) of the document. The archivist should not take responsibility for the compliance of the copy of the document received when converting to a different format with the original, since this can lead to the loss of authenticity of the document, may cast doubt on reliability of its content and context and, accordingly, the ability of a document to serve as evidence and proof.

On this basis, regulatory legal acts established that the document should be stored in the organization and transferred to the archive of this organization, and then to the state archive in the form in which it was originally created or entered into this organization. Accordingly, if the document to be stored in archive was created or received by the organization on paper, then it must also be stored and transferred to archive on paper. If the document was created or received by the organization in electronic form, then it must also be stored in electronic form, and it is the electronic document that must be transferred to archive.

Digitization of paper documents is allowed only for those that are of purely practical importance, that is, have no scientific, historical, social or other special value. For such documents storage periods are established up to 10 years, and they are not subject to transfer to the archive. The legislation does not consider such documents as archival and allows their destruction after digitization and confirmation of compliance of the received after digitization electronic copies with their paper originals (*Постановление Министерства юстиции Республики Беларусь от 6 февраля 2019 г. № 19 «Об утверждении Инструкции о порядке работы с электронными документами в государственных органах, иных организациях», 2019, pnt. 67*).

In conditions of the variety of formats used for creation of electronic documents in different records management information systems, the question arises of ensuring the long-term preservation of those documents that must be transferred to the archive, since not all formats are suitable for this purpose. To solve this problem, the regulatory legal act stipulated that all the documents with the storage period of more than 10 years and which must be transferred to the archive, should be created in PDF/A1 or PDF/A2 format. If the draft document was originally created in a different format, then

before signing it with an electronic digital signature, that is, before creating an official document, it must be converted into one of the above mentioned formats (*Постановление Министерства юстиции Республики Беларусь от 6 февраля 2019 г. № 19 «Об утверждении Инструкции о порядке работы с электронными документами в государственных органах, иных организациях», 2019, рпт. 37*).

Obviously, to implement this requirement, it is necessary to conduct an appraisal of documents at the earliest stages. This purpose is ensured by developing a filing plan. The filing plan should be developed in each organization annually. It must include all paper and electronic files that are conducted in the organization during the year. Each file in the filing plan is assigned a unique index and, depending on the value of the documents included in it, each file gets an appropriate storage period (disposal date). In this case, the type of carrier (paper or electronic) does not matter.

The next important task is the assignment of electronic documents to primary logical complexes, that is, electronic files. Since an electronic document is not a physically integral object, electronic files can also be formed from such documents not physically, but solely on the basis of logical connections (links) between electronic documents, which, by their content and (or) other characteristics, can form a single primary complex (like a paper file). For this purpose, each electronic document gets an index corresponding to the index of the file in the filing plan to which it should be logically assigned (*Постановление Министерства юстиции Республики Беларусь от 6 февраля 2019 г. № 19 «Об утверждении Инструкции о порядке работы с электронными документами в государственных органах, иных организациях», 2019, chapter 2*).

The assignment of electronic documents (including their metadata) to electronic files on the basis of logical relations between them allows to create such a traditional element of the finding aids as an inventory (register) of files.

Initially, electronic files should be transferred to the archive of the organization, which should have an appropriate information system for archival storage. Storage of documents in this information system can be organized in a specialized data center, including one operating on the basis of cloud computing technology. Electronic files should be transferred to information archive system according to the inventory of files created in divisions of the organization. Then a summary inventory of electronic files for the entire organization should be compiled in archive every year. All the inventories in both records management and archive information systems are compiled automatically. In order to certify and confirm the integrity of electronic files and inventories regulatory legal acts prescribe to use a checksum (hash value) (*Постановление Министерства юстиции Республики Беларусь от 6 февраля 2019 г. № 20 «Об утверждении Правил работы с документами в электронном виде в архивах государственных органов, иных организаций», 2019, chapter 4*).

If the organization does not have records management information system and information system for archival storage that meet the requirements of the regulatory legal acts, then all documents of such organizations that are subject to transfer for storage in the archive (with the storage period of more than 10 years) must be created and stored on paper; in case of receipt in electronic form they must be printed out and certified.

Having determined the requirements for the creation, processing and transfer of electronic documents from records management information system to the information system for archival storage on the level of organization, archivists developed requirements for the transfer of electronic documents from organizations' archive to state archive for permanent storage.



To acquire electronic documents in state archives and provide their permanent preservation, the information system of the archive of electronic documents (IS AED) has been developed. IS AED includes a centralized cloud repository located on the resources of the republican platform operating on the basis of cloud computing technologies. The centralized repository will accumulate electronic documents received by all state archives from all state bodies and other organizations that are the sources of their acquisition. In order to ensure compliance with the principle of provenance, when developing IS AED archivists set the task to ensure the possibility of each fond-creator (organization) to transfer its documents to the state archive, a source of acquisition of which it is. Also, the system should enable each state archive to manage independently electronic documents that should be transferred to this state archive and stored in it. Obviously, in the presence of a single centralized cloud repository, when there is a physical fragmentation of individual electronic documents, electronic files and fonds, such a task can be realized only on the basis of establishing logical connections (links) between documents and files that are parts of one fond and constructing an appropriate information management system (*Schmalzl, 2019*).

Built on the above mentioned principles IS AED is currently being tested. To regulate the work of state archives in the system archivists elaborated the draft Rules for the Work of State Archives with Documents in Electronic Form.

Thus, archivists fully exercised their powers to regulate legal and methodological issues of creation and transfer of electronic documents to archival storage. The approach, laid down in normative and methodological documents, should make it possible to preserve the fundamental principles of archival science when working with electronic documents, as well as the traditional levels of description of electronic documents similar to the levels of description of documents on paper (document-file-inventory-fond). The principle of provenance and the concept of "fond" ensure the preservation of the evidentiary power of electronic documents in the conditions of their storage as part of the "Big Data".

However, archivists do not have sufficient knowledge and qualifications in order to independently develop information records and archive management systems that meet the requirements that they have established. And here they need the help of IT-professionals.

The tasks of IT-specialists are to develop information records and archive management systems in such a way that they meet the conditions specified by the regulatory and methodological documents elaborated by archivists.

The sphere of competence of IT-specialists also includes technical issues of data protection both when processing electronic documents, organizing their operative and archival storage, transferring from one information system to another (such transfer will be carried out mainly through telecommunication systems).

An important task of IT-professionals is the development of data transfer formats that should be the same when transferring documents from records management information systems to information systems for archival storage, as well as when transferring documents from the last mentioned information systems to IS AED. The requirement to use uniform data transfer formats at all stages of information interaction is due to the fact that legislation allows for the absence of an information system for archival storage in a concrete organization to transfer electronic documents for temporary storage to a third-party organization (the so-called "archival outsourcing").

Other technical issues are also in the competence of IT-professionals. For example, information system developers should independently propose technical means of verifying the authenticity and validity of digital signatures used to certify electronic documents, electronic files and electronic inventories.

At the same time, archivists should not stay away from the tasks solved by IT-specialists. They should take an active part in the preparation of technical tasks (specifications) for the development of information systems, monitor the compliance of the tasks set in them with the regulatory requirements, as well as the compliance with the professional archival terminology used in them. It is quite true that the Ministry of Communications and Informatization of the Republic of Belarus purchased the development of IS AED for state archives, however, the technical task (specification) for the development was prepared by archivists with the involvement of IT-specialists.

#### 4 PROBLEMS

The above described model of making relations between archivists and IT-specialists is ideal, but in practice its implementation is accompanied by a number of problems, which are sometimes very difficult to overcome.

First of all, it should be noted that to the moment when the requirements for the creation of electronic documents, their operative and archival storage were normatively fixed, the market for relevant services had already been largely saturated with various information records management systems and (to a lesser extent) information systems for archival storage. This is quite logical, since archivists in their elaborations used not only the results of professional theoretical research, but also the accumulated practical experience of using information systems, choosing the best tested practices. However, the establishment for all organizations of uniform requirements for the life cycle of an electronic document, starting from the moment of its creation and ending with its storage in the state archive, revealed that none of the available information systems met these requirements.

The consequence of this was the need to modernize existing information systems or develop new ones, which met opposition from IT-companies specializing in the provision of relevant services. The modernization or development of new information systems required significant labour and financial costs, which in the condition of fierce commercial competition is not possible for all developers. The current situation led to the shifting of financial costs for the refinement or development of new information systems to organizations that are consumers of the corresponding software, and, as a result, to the displeasure of the latter.

As a result, more than one and a half years have passed since the regulatory legal acts had been adopted, but till now there is no an information systems that fully complies with the established requirements, although work in this direction is quite active.

One of the possible solutions to the problem could be the development of unified records and archives management information systems for all organizations. But this will lead, on the one hand, to the monopolization of the corresponding services sector, and, on the other hand, to the recognition of the inefficiency of the earlier automation policy.

A significant problem that needs to be solved when developing and using information systems is a different understanding of the basic professional archival terms by archivists and IT-specialists ("information", "document/record" and "archival document"; "archive" and "archival information system"; "archiving" and "transfer to archive", etc.). A peculiar understanding of archival terminology by IT-specialists sometimes leads to incorrect technological solutions embedded in the information systems they develop.

With all this, it must be recognized that the requirements formulated by archivists for the creation of electronic documents, their operative and archival storage are oriented, first of all, to managerial documentation. However, the principles of work with electronic management documents are not always and not fully applicable to scientific, technical, audiovisual and other special documentation (specificity of file formats, variety and specificity of software used for design and construction, etc.).

It is also important that the normatively fixed requirements for records management information systems provide appraisal of electronic documents, generated in the activities of organizations, and determination of their disposal periods just at the stage of their creation or receipt. However, archivists are well aware that it is not always possible to determine the value of a document and, accordingly, choose the correct format for its creation and storage at this stage. In the future, this may lead to the inability to preserve a certain part of valuable documents, and this is one of the serious problems that need to be decided.

## 5 CONCLUSIONS

There is no doubt that archivists and records managers, on the one hand, and IT-professionals, on the other, must solve the problems of managing electronic documents and their archival storage in close cooperation. The solution of practical problems should be based on the distribution of powers in accordance with their professional competencies.

Records managers and archivists have to determine how the corresponding information systems should work, what functional capabilities they should have, what result they should provide. To do this, they must have the right to formulate and fix in legal acts the requirements for records and archives management information systems obligatory for different organizations.

Technical issues of implementing the established requirements are the responsibility of IT-professionals. The task of IT-professionals is to develop such information records and archives management systems that would meet established requirements.

The development and modernization of information systems in accordance with the requirements of records managers and archivists will allow establishing logical connections (links) between electronic documents, assigning them to primary logical complexes (similar to traditional paper files), creating traditional elements of finding aids. With the proper setting of tasks, this will ensure compliance with the fundamental principles of archival science (provenance, indivisibility of fonds, etc.), provide the existence of traditional of professional methods of acquisition and description of documents.

At the same time, it is fundamentally important to establish a unified terminology in legal regulatory acts that will be used in automated information systems and which will be followed by professional archivists as well as developers and users of information systems.

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